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NATIONAL AUTISM SOCIETY OF MALAYSIA
NASOM’S PARENT SUPPORT SYSTEM:
INFORMATION SYSTEM

TONG YONG WEI

A thesis submitted in fulfillment of
the requirements for the award of the Bachelor
of Computer Science

Faculty of Computer Science and Information System
Universiti Teknologi Malaysia

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Online Learning Disability Autism Diagnosis and Monitoring System is an application system that able been used to diagnosis and monitoring children that have autism. Furthermore, this system able to keep in track the growth and progress of autism kid by providing online journal that need parents to daily filling it up. However, this daily journal will certainly of course will be under guidance of autism specialist. In this system itself, it contains three sub-systems which are ‘ Online Learning Disability Autism Diagnosis and Monitoring System : Diagnosis Module’ , ‘ Online Learning Disability Autism Diagnosis and Monitoring System : Monitoring Module’ and ‘Online Learning Disability Autism Diagnosis and Monitoring System : Information System Module’. In Information System Module, it will be focusing on the database and interface design plus online journal function. In this thesis, it will more on ‘Online Learning Disability Autism Diagnosis and Monitoring System : Information System Module’. This system will certainly bring benefits to the world and not forgetting Malaysia with the double language interface. Besides, this system interface too, will not only be providing diagnosis, monitoring nor online journal, it also will acts as an online learning center for parents to gain more knowledge on autism. Moreover, it will also be a learning center for autism kids to improve their criticalness of their disabilities. This system will use ASP.net and prototyping methodology. It will also use MS SQL as their main database.
ABSTRAK

ACKNOWLEDGEMENTS

I will like to take this opportunity to express my gratitude to all people who given their heart whelming full support in making this complication a magnificent experiences.

To God, I thank for the strength that keep me standing and for the hope that keep me believing that this thesis would be possible and more interesting

Next, I whole heartedly thank PM Wardah as my supervisor in my Final Year Project and Pn.Aida that given their full support and patience. They unconditionally keeps encouraging me, giving me brilliant idea and guiding me through all obstacles in order to complete this thesis. Once again, I will like to take this opportunity to thank them again as without PM Wardah and Pn. Aida, there would not be this piece of thesis

Besides, I also wanted to thank my family who inspired, encouraged and fully supported me for every trials that I meet during my way. They just not support from financial but also morally and spiritually.

I will also take this chance to express my gratitude to organization that is The National Autism Society of Malaysia as for their ample information resulting me providing a better quality thesis

Not forgetting teammates of mine who willingly helped me gather the necessary data’s and information for this compilation.

Lastly but not least, I will once again thank everyone and for those who I did not mentioned above for their help and guidance and support. Sincerely from my heart, thank you very much
<table>
<thead>
<tr>
<th>CHAPTER</th>
<th>TITLE</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ABSTRACT</td>
<td>iii</td>
</tr>
<tr>
<td></td>
<td>ABSTRAK</td>
<td>iv</td>
</tr>
<tr>
<td></td>
<td>ACKNOWLEDGMENT</td>
<td>v</td>
</tr>
<tr>
<td></td>
<td>TABLE OF CONTENTS</td>
<td>vi</td>
</tr>
<tr>
<td></td>
<td>LIST OF FIGURES</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>LIST OF APPENDIXES</td>
<td>xi</td>
</tr>
<tr>
<td></td>
<td>LIST OF ABBREVIATIONS</td>
<td>xii</td>
</tr>
<tr>
<td>1</td>
<td>INTRODUCTION</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1.1 Introduction</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>1.2 Problem Background</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>1.3 Project Aim</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>1.4 Project Objective</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>1.5 Project Scope</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>1.6 The Importance of Project</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>1.7 Summary</td>
<td>7</td>
</tr>
<tr>
<td>2</td>
<td>LITERATURE REVIEW</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2.1 Introduction</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>2.2 AUTISM</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>2.2.1 WHY AUTISM?</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>2.2.2 Doctor’s Treatment</td>
<td>11</td>
</tr>
</tbody>
</table>
2.2.3 How is Autism Been Treated 12
2.2.4 Living With Autism 13

2.3 Team Spirit 13
2.3.1 Benefits of Teamwork 14
2.3.1.1 Creativity 15
2.3.1.2 Motivation 15
2.3.1.3 Skills 15
2.3.1.4 Speed 16
2.3.1.5 Sounding Board 16
2.3.1.6 Support 17

2.4 System Development Life Cycle (SDLC) 17

2.5 Weaknesses Of The Current Website 19

2.6 Online Diary 20

2.7 Blog 21
2.7.1 Tools Needed For Blogging 21
2.7.2 How To Add A New Blog via The Blogger? 22
2.7.3 Blog Software Features 23

2.8 Guide To A Create An Effective Website 24
2.8.1 A clear goal and objective. 24
2.8.2 Structure the content. 25
2.8.2.1 Use site mapping to define the structure of your site. 25
2.8.2.2 Use wire framing to come up with the skeleton of the site. 25
2.8.2.3 Effective and Efficient Navigation 26

2.9 Software to be use 29
2.9.1 Microsoft SQL Server 2005 29
2.9.2 Microsoft Visual Studio 2008 29
3 METHODOLOGY

3.1 Introduction 31
3.2 Project Methodology-Evolutionary Prototyping 32
  3.2.1 Methodology of the system development 33
    3.2.1.1 Project planning phase 33
    3.2.1.2 Analysis Phase 34
    3.2.1.3 Design Phase 34
    3.2.1.4 Implementation Phase 35
    3.2.1.5 Support Phase 36
3.3 Methodology Justification 36
3.4 Hardware And Software Requirements 37
  3.4.1 The Specification Of Needed Hardware 38
  3.4.2 HARDWARE JUSTIFICATION 39
  3.4.3 The Specification Of The Needed Software 40
  3.4.4 Software Justification 41
3.5 Work Planning/Gantt Chart 42
3.6 Summary 42

4 ANALYSIS AND DESIGN

4.1 Introduction 43
4.2 Organization Background 44
  4.2.1 Current Website 45
4.3 System Design 46
  4.3.1 Process Design 47
  4.3.2 Module Design 53
  4.3.3 Database Design 54
  4.3.4 Interface Design 59
  4.3.5 Input Design 60
  4.3.6 Output Design 61
5 SYSTEM IMPLEMENTATION

5.1 Introduction
5.2 Installation of Required Software
5.3 System Development
   5.3.1 Database Development
   5.3.2 Interface Development
   5.3.3 Programming Code Development
      5.3.3.1 Update Personal Profile and Child Profile
      5.3.3.2 Insertion of Child Profile Into Database
      5.3.3.2 Retrieve Data from Database
      5.3.3.3 Blog Function
      5.3.3.4 Item Gallery Function
5.4 Summary

6 SYSTEM TESTING AND ASSESSMENT

6.1 Introduction
6.2 Black Box Testing
6.3 Interface Testing
6.4 Summary

7 DISCUSSION AND CONCLUSION

7.1 Introduction
7.2 Achievements
7.3 Challenge
7.4 Expectation
7.5 Lesson Learned
7.6 Summary

REFERENCES

APPENDIXES A-E
# FIGURE LIST

<table>
<thead>
<tr>
<th>FIGURE NUMBER</th>
<th>TITLE</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1</td>
<td>Example Of Current Website</td>
<td>19</td>
</tr>
<tr>
<td>2.2</td>
<td>Screenshot of Blogger</td>
<td>22</td>
</tr>
<tr>
<td>2.3</td>
<td>Example of Top Navigator</td>
<td>26</td>
</tr>
<tr>
<td>2.4</td>
<td>Example of Website Design</td>
<td>27</td>
</tr>
<tr>
<td>2.5</td>
<td>Example of Navigator bar</td>
<td>27</td>
</tr>
<tr>
<td>2.6</td>
<td>Example of Vertical Navigator bar</td>
<td>28</td>
</tr>
<tr>
<td>2.7</td>
<td>Example of vertical and horizontal navigator bar</td>
<td>28</td>
</tr>
<tr>
<td>4.1</td>
<td>Nasom Website</td>
<td>45</td>
</tr>
<tr>
<td>4.2</td>
<td>DFD</td>
<td>47</td>
</tr>
<tr>
<td>4.3</td>
<td>DFD fragment for Diagnosis process</td>
<td>49</td>
</tr>
<tr>
<td>4.4</td>
<td>DFD fragment for monitoring process</td>
<td>49</td>
</tr>
<tr>
<td>4.5</td>
<td>DFD fragment for publishing result process</td>
<td>50</td>
</tr>
<tr>
<td>4.6</td>
<td>DFD fragment for journal process</td>
<td>50</td>
</tr>
<tr>
<td>4.7</td>
<td>DFD fragment for Login process</td>
<td>51</td>
</tr>
<tr>
<td>4.8</td>
<td>DFD fragment for Item Gallery process</td>
<td>52</td>
</tr>
<tr>
<td>4.9</td>
<td>Interface design</td>
<td>59</td>
</tr>
<tr>
<td>4.10</td>
<td>Example of Input Design</td>
<td>60</td>
</tr>
<tr>
<td>4.11</td>
<td>Example of Output Design</td>
<td>61</td>
</tr>
<tr>
<td>5.1</td>
<td>Coding of Updating Database</td>
<td>65</td>
</tr>
<tr>
<td>5.2</td>
<td>Coding of Insertion Data</td>
<td>66</td>
</tr>
<tr>
<td>5.3</td>
<td>Coding of Retrieving Data From Database</td>
<td>68</td>
</tr>
<tr>
<td>5.4</td>
<td>Storing Blog Content To Session</td>
<td>70</td>
</tr>
<tr>
<td>5.5</td>
<td>Code extracted from Item gallery function</td>
<td>71</td>
</tr>
<tr>
<td>6.1</td>
<td>Black Box Testing</td>
<td>74</td>
</tr>
</tbody>
</table>
## APPENDIXES LIST

<table>
<thead>
<tr>
<th>APPENDIX</th>
<th>TITLE</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Gantt Chart</td>
<td>83</td>
</tr>
<tr>
<td>B1</td>
<td>Context Diagram</td>
<td>86</td>
</tr>
<tr>
<td>B2</td>
<td>Diagram 0</td>
<td>87</td>
</tr>
<tr>
<td>B3</td>
<td>DFD fragment for login process</td>
<td>88</td>
</tr>
<tr>
<td>B4</td>
<td>DFD Fragment for Diagnosis Process</td>
<td>89</td>
</tr>
<tr>
<td>B5</td>
<td>DFD Fragment for Publishing Result Process</td>
<td>90</td>
</tr>
<tr>
<td>B6</td>
<td>DFD Fragment for Monitoring Process</td>
<td>91</td>
</tr>
<tr>
<td>B7</td>
<td>DFD Fragment for Online Journal Process</td>
<td>92</td>
</tr>
<tr>
<td>B8</td>
<td>DFD Fragment for Collect Item Information Process</td>
<td>93</td>
</tr>
<tr>
<td>B9</td>
<td>DFD fragment for item gallery function</td>
<td>94</td>
</tr>
<tr>
<td>C</td>
<td>Entity Relationship Diagram / Database Design</td>
<td>95</td>
</tr>
<tr>
<td>D1</td>
<td>Interface Design</td>
<td>96</td>
</tr>
<tr>
<td>D2</td>
<td>Example of Input Design</td>
<td>97</td>
</tr>
<tr>
<td>D3</td>
<td>Example of Output Design</td>
<td>98</td>
</tr>
<tr>
<td>E</td>
<td>Database Design</td>
<td>99</td>
</tr>
<tr>
<td>F</td>
<td>NASOM Parent’s Support System User Manual</td>
<td>105</td>
</tr>
</tbody>
</table>
ABBREVIATION LIST

NPSS - NASOM Parent’s Support System

SQL - Structure Query Language

VS2008 - Visual Studio 2008
CHAPTER 1

INTRODUCTION

1.1 Introduction

Until today itself, we are still experiencing lack of medical experts in various fields. The ratio of doctors or specialist compared to patients is always patients’ side that carries more weight. Whenever a person goes to clinic or hospital to get treatment, he/she need to queue up in a long line in order to get into his/her turn. To make matter even worse, some are needed to wait for months if they happen to make an appointment with government medical experts. For example, an appointment with a government dentist for a simple dental check up may need to wait up to three months to get their turn. This implies that currently there is not enough dentists to handle all the patients resulting patients need to wait for a long period of time. What if we look in a different scenario that is instead of dentistry field, we look into Special Children Learning disabilities medical experts? It is known by everyone that their number is way lesser than dentist not only Malaysia but throughout the whole world. Therefore, in this final year project to create an online diagnosis and monitoring system for learning disabilities that not only friendly user use by medical field related workers but also included parents.
Besides, there are not much of online diagnosis and monitoring system that is user friendly. Fonts, design, layout, medical terms are more to medical experts forgetting public users. This highly advanced system will be hard to understand by certain parents. Our motive is to lighten burdens of parents, not adding more obstacles for them to verify what type of learning disabilities faced by their child. Therefore, it is a need for this system to be effective yet easily understood as to achieve the goal of user-friendly.

Therefore, a newer version of online diagnosis and monitoring system is needed. A system that not just able help parents solve their problem but as well as making them easier to use. This newer version of online diagnosis and monitoring system is called NASOM Parent’s Support System ( NPSS ) which contains Diagnosis module, Monitoring module and also Information System module. In this thesis itself, only Information System module will be included. This module – Information System, is written by Mr.Tong Yong Wei. As for Diagnosis module and Monitoring Module it will not be included in this thesis. If any information needed from Diagnosis module can refer to NASOM Parent’s Support System – Diagnosis Module that is written by Mr. Kong Chee Hong. Any information that need reference from Monitoring module can be refer to NASOM Parent’s Support System- Monitoring Module that is written by Mr. Tan Wei Chuen.

One might ask why NASOM been choose instead of others and the answer for it is because NASOM is a non government organization that provides help and guidance to Autism child in Malaysia. Besides NASOM is also an organization that provides free service to the society which actually matches NPSS purpose as to provide free service to parents. Furthermore, as mentioned above NASOM takes small amount charges when helping the society certainly this will leads to they have no enough funds for advance IT technology,
1.2 Problem Background

It is natural for parents to love their own children. When their child has health problem, surely they will seek for medical help. Sadly in Malaysia today, we are still facing the low number of specialists in the field of learning disabilities for special children. In term of appointment with the doctor itself only parents need wait up for months in order to get their turn what for we are saying about duration of treatment and recovery steps? If a child is in need of medical treatment, does he or she also need to wait up for months? Even if a person manages to meet medical experts for the first appointment, but I am sure that in this field of study- learning disabilities, is not a case that should be handle lightly as even a simple cough or fever nowadays is taken into serious medical treatment.

Of course one can seek for private hospitals’ help and treatment but we must realize their help is only for those who have the means. We should not forget there are families that unable to afford the fees for private hospital treatment.

There is also a lot of such system on the web, but not much of diagnosis question sets are available in Malay language. Elderly parents that did not receive early education during their schooldays of course will face difficulties not using the system itself but have problem also to go through the instruction to access a specific system. Some online diagnosis system does not have a clear message indicating the purpose of the page itself. This may leads to confusion among user.

NASOM website is only providing information but unable to do process such as recording down their child’s progress, diagnose children or even monitor children. With current NASOM website, it has limited information for researcher to do
their research regarding of Autism. Although NASOM provide services to society with low rate charges, it still unable to fulfill what parents’ demand that is demand for an online diagnosis and monitoring service. This is because NASOM is lack of funds to possess such technology.

1.3 Project Aim

The aim of the project, based on the problem discussed above, is to develop an online diagnosis and monitoring system that is capable of helping the public, not only specific for medical experts. Besides, the purpose of developing this project is to provide it to NASOM. With this NPSS, it able help parents with special kids to ease their burden of verifying what case of learning disabilities faced by their child and prescribe a temporary treatment for their child until they meet up with a medical expert. This project also benefits on financial factor of NASOM as they do not need to use tons of money to implement this system themselves. Besides, it will indirectly benefits parents so that they do not need to pay expensively for any medical fee regarding Autism as nowadays private medical sector are charging their customer with expensive fee. Lastly but not least, this project also focusing on user-friendly system. This system will aim on effective yet easy to understand to achieve the goal of friendly user system. Question will be Malay and English version. The overall design will consider on elderly parents for them easily to access the system.
1.4 Project Objective

The objectives for this project is as listed as below

i. To study the current online tools available for parents with autistic children.

ii. To create a medical diagnosis and monitoring system website comprehensible by medical expert and non medical experts

iii. To provide a web application that enable parents to record their child’s daily activities for use by medical experts

iv. To act as a bridge that connects diagnosis and monitoring sub-systems
1.5 Project Scope

To ensure the objectives of project can be achieved and implement well, some scopes of the project have been identified as below:

i. The system that is to be developed is a web based system which can use by parents and specialists.

ii. The system is developed based on the study of National Autism Society of Malaysia (NASOM)

iii. The system included 3 parts, such as diagnosis system, monitoring system, and online journal system.

iv. The system is developed to help users (parents) to diagnose and monitoring their children.

v. Specialists can provide their suggestions and advices through the online journal system.

1.6 The Importance of the Project

The importances of developing the System have been identified and are stated as below:

i. It provides helps to parents immediately and helps them to avoid cumbersome red tape.

ii. It helps parents diagnose and monitoring their children.

iii. It helps parents to make decision on giving treatment on their children.

iv. It uses normal language instead of specialists’ language for better communication between specialists and parent
1.7 Summary

This chapter describes the project introduction and the existing problem with the lack of web based diagnosis system. Besides that, this chapter also describes the objectives of the project, scopes and the importance of the projects as reference for the overall system development process. This project is to develop an online diagnosis and monitoring system. This chapter is important as a guideline and provides understanding of the general picture to develop the complete system.
2.1 Introduction

In previous chapter, that is the Introduction chapter, we touch about background and problem discussion of the area of this thesis. However, in this chapter, we will discuss more on review and research of earlier studies of current available online similar system today. Besides, we will also go in-depth of gadgets that will be place on the online system. Ultimately, the purpose of this chapter is to discuss current online medical diagnosis system that available on the internet today, what is Autism learning disabilities and what effects/ symptoms it will bring and all necessary data regarding it. We will also discuss much on few functions that we will going to implement in our project.
2.2 AUTISM

Autism is actually a type of LD as known as learning disabilities. Kids that have this LD will live their life much more different from a normal kid. It is because autism kids normally will find difficulties when communicating with others. Besides, they find themselves hard to express their feeling through words. All this symptoms or effects makes them into introvert and become less sociable. If we want to seek for their attention, treating them like a normal child is not a very best way but in a different special help.

A normal sound level might be nothing for us, but for those kids with autism, it will be an annoyance till the level that one might use their hands to cover up his or her ears. Not only sound though, even a gentle touch will cause them uncomfortable.

Kids that have autism also cannot interpret expression or words correctly like other kids do. Take an example of one person is smiling, a normal kid will automatically know that that smiling person is happy because he or she links smile with happy feeling. However, for autism kid, they are unable to make connections between these two links. Not only just for expression, they might not able to link up with words as well. They do not understand what message people are trying to speak up with them. When they are unable to link up correct message with the correct words, certainly they will misuse words to express themselves.

Autism also causes child to act in weird behavior in the sense of repetition. They prefer to stay on a schedule that is always the same. It is because they do not like changes in their life. For example, they might flap their hands continuously, saying certain words over and over again. Another example will be maybe they like to arrange their toys in
some sort of arrangement and if the arrangement is been disturbed or not they same, they will get upset.

Besides, someone who has autism also cannot able to prioritize their important tasks. They are unable to determine what they trying to do or neither how much importance for something they are doing. If they unable to prioritize their tasks, they would not be able to determine whether going to school or replying back to someone is important. However, this varies between kids. Some kids may mildly affected causing them to have little trouble in life, but however if one is severely affected, they are certainly going to need a lot of attention.

2.2.1 WHY AUTISM?

One of every 150 kids been affected by autism. Till now, scientists are still unable to figure out why kids will have autism. Some says that autism is actually genetically caused. However, there is no specific cause for autism till today as human brain is very complicated.

Our brains, contains more than 100 billion of nerve cells as known as neurons and each neurons have thousands of connections that conveys messages to another neurons throughout the body. Those messages cause us to able to smell, feel, move, remember and all other activities that normal human being can do.

In the other hand, for autism kids, some cells and connections in their brain do not develop properly or been damaged. Until today, scientists are still unable to break the wall of mystery causing why autism kids neurons occurred all these effects.
2.2.2 Doctor’s Treatment

Finding out a kid that has autism will be a hard job. Normally parents will be the first one to figure out whether their child has autism. When a kid reach certain age that normally other kids will show interest to talk or more sociable, he or she find no interest in it, then there is a possibilities that they have autism. Besides showing no interest in communication and do not speak, they will sometimes also acts in a weird behavior. However of course we cannot by just taking all these symptoms to conclude a child has autism. Sometimes, a child has all these symptoms is also due to hearing problems that’s leads to trouble in speaking.

Usually there will be a set of diagnosis steps and measurement taken by doctors to confirm an autism kid. Besides, doctors will also check whether these kids have other problem or not. These medical tests can include blood and urine tests, a hearing exam, an EEG (a test to measure brain waves), and an MRI (a picture that shows the structure of the brain). Intelligence (IQ) tests also might be done.

Often, specialists work together as a team to figure out what is wrong. The team might include a pediatrician, a pediatric neurologist, a pediatric developmentalist, a child psychiatrist, a child psychologist, speech and language therapists, and others. The team members study how the child plays, learns, communicates, and behaves. The team listens carefully to what parents have noticed, too. Using the information they've gathered, doctors can decide whether a child has autism or another problem.
2.2.3 How is Autism is Being Treated?

There is no cure for autism, however doctors and special teachers are able to help autism kids to help them adapt to their life making their life more comfortable and suitable for them. Like any other disease, the more better a person get a treatment, the more better condition a person will get.

Different autism kids may have different kinds of disability, but however, the most important of all are communication. Therefore, to handle or to treat autism kid, we should look into communication area first. People said, learning is easier when we are able to see or feel something of what we learning. This is exactly what therapists are doing with kids that have autism, which they communicate with them by using pictures or sign language. Eventually, this leads autism kids able to talk. Besides, kids with autism also will learn social skills such as greeting people, queuing up to take turns and follow directions. Not only all these, they are all been teach how to do daily activities such as brushing teeth, going to the toilet and so on. All these will be teach by therapists. Not only social skills they will learn, they will also learn to control their tempers and behavior. In this factor, normally therapists will use some medication to suppress their temper and mood to become calmer. However, do keep in mind that there is no medicine to cure autism, only medicine to control it. Students with mild autism sometimes can go to regular school. But most kids with autism need calmer, more orderly surroundings. They also need teachers trained to understand the problems they have with communicating and learning. They may learn at home or in special classes at public or private schools.
2.2.4 Living with Autism

Having autism does not mean bad luck for whole life and need special helps for whole life. Some kids with mild autism will grow up and be able to live on their own independently. Those with more serious problems will always need some kind of help. But all kids with autism have brighter futures when they have the support and understanding of doctors, teachers, caregivers, parents, brothers, sisters, and friends.

2.3 Team Spirit

Teamwork is a team formed by two or more people. Everyone in that specific group has their own ability and with extra abilities, that specific team will merge up them together and work with the guidelines of their own objectives to achieve a shared goal that everyone in that team has the same. With several individual working together, a excellent and effective teamwork can be achievable and when this happens, the performance can goes beyond individual accomplishments. Therefore, what here trying to stress that is, if all the individuals in a specific group harmonize their contributions and work towards a common goal, a effective and efficient team will be born.

Just like in the armies, a football team, or even in a class, there will be a leader leading all their teammates. Without a leader, is just like what we can see in our normal life, ants that lost their trails, having no direction to move and all going in different ways. A leader is the one who gives their subordinates inspirations, aspirations and even courage to their teammates to make sure they do not give up in the journey to strive for the same common goal. Besides he or she will coordinates their teammates to the direction of the
goal. Normally organizations often make the effort to hold team building events in the motive to get people to work as a team rather than as individuals.

2.3.1 Benefits of Teamwork

As discussed earlier what the meaning of teamwork is, one might realize the importance of teamwork, however we will also look into the benefit of teamwork. According to my research of the benefits of teamwork, there are numerous of them but however I managed to come up with the top 6 benefits. Those 6 of them are as listed as:

i. Creativity
ii. Motivation
iii. Skills
iv. Speed
v. Sounding Board
vi. Support

Therefore, I will go in-depth to explain what are all those points meant.
2.3.1.1 Creativity

We all are human with different personality and abilities. By utilizing all these different aspects in a team, a team will be able to generate more variation of ideas and with more variation of ideas, the percentage of creative solution will raised too.

2.3.1.2 Motivation

Nowadays, employees are getting less and less satisfied with their job. Therefore, individuals prefer to choose to work together as a team to achieve a certain goal. As they interacts with each other, this raise up enthusiasm of everyone in that specific team. High enthusiasm leads to a team will put more effort and interest to the project that they were developing. This factor will results in positive impacts on motivation and have higher chance of to success a project.

2.3.1.3 Skills

A person is unable to possess all skills. Every person in this world has their pros and cons. A person maybe is good in coming up creative ideas or another will be good in technical area. Assuming a person weakness in a team is a gap and a person’s extra ability is a filling to fill up gaps. With gaps been filled up, certainly of course this will
create a perfect team, a team that able to overcome all obstacles in the process of reaching their objectives.

2.3.1.4 Speed

In a project development life cycle, it consists of Planning, Analysis, Design, Implementation and Support. If one person were to finish all up by all alone, it will obviously take for months. By splitting up tasks among teammates, all work can move toward in parallel direction therefore the time taken to complete the overall task become shorten.

2.3.1.5 Sounding Board

We all have a range of options open to us. If we are trying to figure out what is best, we might never move forward. In a team situation, other team members can act as a sounding board, allowing us to cut through the options and get on with those most likely to achieve the desired goal.
2.3.1.6 Support

This is also somehow related with creativity. What I trying to say here is, a person idea will have boundaries but however when a person is in a team, he will be able to think more further than a preset boundaries as he know he can rely on his team. Never underestimate the significance of this because it may leads to great ideas.

2.4 System Development Life Cycle (SDLC)

Once upon a time, software development consisted of a programmer writing code to solve a problem or automate a procedure. Nowadays, systems are so big and complex that teams of architects, analysts, programmers, testers and users must work together to create the millions of lines of custom-written code that drive our enterprises. To manage this, system development life cycle (SDLC) models have been created.

The Systems Development Life Cycle (SDLC) or Software Development Life Cycle is a conceptual model to describe the stage of information system development from an initial feasibility study through maintenance of the completed application. Furthermore, SDLC usually been described as process of creating or altering systems, and the models and methodologies that people use to develop these systems in the field of systems engineering and software engineering.

Several SDLC methodologies have been developed and introduced to guide the processes involved including the waterfall model (the original SDLC method), rapid
application development (RAD), joint application development (JAD), the fountain model and the spiral model. Those SDLC does not mean to be used alone they can be a mix of several SDLC resulting in a hybrid methodology.

Systems Development Life Cycle (SDLC) adheres to important phases that are essential for developers, such as planning, analysis, design, implementation and maintenance. The oldest model, waterfall model was originally regarded as "the Systems Development Life Cycle" is a sequence of stages in which the output of each stage becomes the input for the next. Normally these stages follow the same basic steps but many different waterfall methodologies give the steps different names and the number of steps seems to vary between 4 and 7. There is no definitively correct or a prefix Systems Development Life Cycle model, but the steps can be characterized and divided in several steps.
2.5 Weaknesses of the Current Website

Figure 2.1: Example of Current Website
(Source: http://iautistic.com/free-autism-tests.php)

This is some few examples of current system that we will be building on. However, some color for their website, their design, their fonts, everything is not suitable for parents or those who have knowledge on computer.

Although the websites offers a lot of tests and information, it is not well arranged leads to user been confused. As a developer, we shall not let this happen.

Regarding the font, it is too small for user. Elderly adults normally will have problem with their eyesight and small fonts will make their life more difficult as they cannot read it.
Next, we will move forward into the color, as one can see, the figure above website is in black n white which is pretty dull. With only black and white, even there is important message over there, user will just slip it through as they are unnoticed about it.

Furthermore, is the term been use at the website. We must realized that our system is not only been use by specialist but also parents. Parents do not understand what is all these medical terms.

Besides, in this example, there is no user category too. However, in the figure above, that website is just simply a diagnosis system where no extra details given. Furthermore, there is no information regarding of what is autism in that website too.

2.6 Online Diary

Online diaries or known as online journal began in the year of 1994. People use it by posting up journals to it. Even today itself, people are still does the same activity back in the year of 1994. The only difference between year 1994 online journals and today online journals is their name been changed to blogs. The function of a blog is similar with online journals where people write on their daily experiences, ideas, complaints, comments and etc. Not only the author able to type, even their readers able leave comments after they read it. Besides, nowadays online diaries are also well equipped with interactive message forums, RealAudio and RealVideo, live webcams, notify lists and so much more of different emerging internet technologies. Moreover, blogs today also come along with Podcasts, TrackBacks, permalinks, blogrolls and a host of different emerging internet technologies. You name it, you have it.
2.7 Blog

A blog, a short form for web blog, is an online diary that displayed in date order. It also acts as a personal site for user to write down their daily life event, to share thoughts and idea or even to spread out information. Recently, businesses have discovered that blog is a powerful yet cheap way to get near to their customers and to keep them up to date with the latest products by highlighting them interesting features of their products. One of the company that uses blog for this purpose is Macromedia, which written by several of their employees.

2.7.1 Tools Needed For Blogging

Today itself, since blogging is become so famous, there are tons of blog applications available to download. However, all these applications cannot work if there is no server.

Hosting requirements are going to be crucial here as all blog applications are going to rely on some server side scripting such as PHP or Perl. Besides, they also need a database for example MySQL or MS SQL.

If one subscribe to a hosting account that doesn’t have any server side scripting capabilities then he or she is going to have limited choice to blog software that doesn’t run on your server. The most well know for this is the Blogger. The Blogger software runs on the Blogger server and after creating an account we make our blog entries by logging into our account on the Blogger web site.
2.7.2 How to Add a New Blog via The Blogger?

Blogger send a new entry via FTP to a person web server when a new entry of blog is been created. With this, one do not need any special features on their server at all as he or she only have the HTML pages created by Blogger that been send through FTP.

Blogger is a good stepping stone is one decide to get started with a blog since it is an excellent choice for those who have limited hosting capabilities. They are able to fully customize their blog by editing their template so that each and everyone personal blog will be attractive and nice. In order to do this, he or she must login to their own Blogger account.
The service provided by Blogger is great however they can very limiting. Our own personal site contains just the static generated pages because there is no database to enable us to reuse the content in another method. We are tied to the tools that Blogger provides for our blog and we also can rely to third party service being up and running for our blog to work. If one has the capability on their server then installing own blog software will enable them to login to administration area of their own server to post their own blog. This will bring much more flexibility in blogging.

2.7.3 Blog Software Features

There are various types of blog software packages available for download with various kinds of different features but however some basic features is necessary for each and every blog. For example, it will be the archive facility that enables users to retrieve back their older posts easily, a search function and the ability to drop down comments. One example of blog software is Movable Type which available at www.movabletype.org. In their package, they offer fully featured packages which uses Perl and MySQL. It also able to run without the needs of any database.

Movable Type offers free version but there is no support for users of the free version. Besides, it may not able to use for commercial blogs and is limited to only to create one user and 3 blogs. Movable Type is almost quite troublesome to use in terms of automated blog spam unless one sign up for their services called TypeKey which requires people who wish to comment on blog which might be attractive depending on personal interest and what the type of design it is.
Besides, Movable Type also provides a large number of plugins available. Those plugins are for to add new functionality. With all these plugins and features, one can decide to design their own personal web blog to their liking.

2.8 Guide to A Create an Effective Website

Every website is unique and can be very complex. Therefore, proper planning is important is to develop each and every one of the website. A website should bring much help to user and not confusing them bringing them an enjoyable experience. Here is some few easy tips that experienced web developers always use to work on their website. It may sound like common sense, but somehow in today world, mostly people left out tiny things that affect great changes.

2.8.1 A clear goal and objective.

Always keep in mind that objectives and goals that as a web developers ourselves are trying to achieve. Besides, it is very important to know who the category of user using that particular system. Stand on client’s shoe and look through their view is also very important in a step of understanding what they really want. This will able to save up time and stress by preventing any mistakes from happening before the project started.
2.8.2 Structure the content.

2.8.2.1 Use site mapping to define the structure of your site.

A site map is a collection of ideas and the content that will be organize on website. Scottie Claiborne once said in his article that is Effective Site Navigation, that when planning your site or site redesign, always think about the structure first. It helps to map out these pages. Use index cards or post it notes, write a page topic on each card, lay them out and organize them into groups. Once satisfied with your plan, you will have yourself a site map and will be ready for the next step; wire framing.

2.8.2.2 Use wire framing to come up with the skeleton of the site.

According to Andy Budd, creative director of Clearleft, said that wire framing is similar to an architect’s blueprint. There are two different ways to use wire framing step. The first is a design free wire frame. This allows to focus on the purely functional aspect of the site, keeping in mind effective and consistent navigation. Secondly, is a structure-free wire fame. This allows for focus on the aesthetic aspect of the website. Combining these two wireframes steps will result in a very effective skeleton of your site.
2.8.2.3 Effective and Efficient Navigation.

Where I want to go?
Where Am I now?
How Should I Go?
These are questions web developers should have in mind whenever they design their web

Consistency in navigation placement is very crucial if one wants his website to be a successful one. If this rule is applied, it allows users to move easily to and from one page to another without much trouble. Scottie Claiborne, once said in his article, Effective Site Navigation relating website navigation with hospital navigation. His relation is, if you walk down a hallway in a hospital and see a sign for where you want to go, but suddenly the main entrance, cafeteria and emergency signs are gone how are you supposed to find you way back? Therefore, nowadays many sites use breadcrumb trails that contains links to show where the user is and to assure them they are still in the relation to the homepage

![Example of top navigator](http://www.webcredible.co.uk/)

There are two layouts for navigation that is horizontal and vertical. Both horizontal and vertical navigation work well however which is the best of the two is debatable until today. Designer Chris Garnett said “vertical navigation doesn’t demand the same
amount of visual attention. I want primary navigation to be one of the most instantly recognizable elements of any site I build.”

Below are some websites that demonstrate efficient navigation

![Figure 2.4: Example of Website Design](Source: www.amazon.com)

Sadly, what we have found with many of these sites is that the design aspect of the site suffers in order to enhance effective navigation. Here are some sites that have both effective navigation and great design:

![The Fox website uses a consistent navigation bar throughout all entire sites. Any information the user might need is just 2 clicks away.](Source: www.fox.com)

The Fox website uses a consistent navigation bar throughout all entire sites. Any information the user might need is just 2 clicks away.
The Chicago Water Taxi website that uses effective vertical navigation bar is another good example.

![Example of vertical navigator bar](http://www.chicagowatertaxi.com/)

Figure 2.6: Example of vertical navigator bar
(Source: http://www.chicagowatertaxi.com/)

The NFL website is a great example of how to organize a site with tons of information on it. They fully make use of two top navigation bars which is one with all the team logos and another one for the general content of the site.

![Example of vertical and horizontal navigator bar](http://www.nfl.com/)

Figure 2.7: Example of vertical and horizontal navigator bar
(Source: http://www.nfl.com/)

Lastly but not least is to keep in mind that when making any website, the key point is efficiency. Our aim should be enable users to get to their destination swiftly in a proper with few clicks as possible. However we should also not forgetting website should be always stay consistent.
2.9 Software to be use

2.9.1 Microsoft SQL Server 2005

Microsoft SQL Server 2005 is a relational database management system (RDBMS). It was developed by Microsoft Corporation. Microsoft Corporation is a company from United States of America. We need this Microsoft SQL Server 2005 as it is very important in terms of managing huge amount data in database. Microsoft SQL Server 2005, like many others database manager for example Oracles and MySQL, it can perform very well with less bug and error. It is also well equipped with error handling features and support for recursive queries. Besides, to mastering how to use only needs a little of time.

The reason we choose Microsoft SQL Server 2005 is because it able to control big scale database. Our data, is in a large scale that located in database, therefore Microsoft SQL Server 2005 is much needed because it able to handle it in stable condition. Besides, Microsoft SQL Server 2005 can be implemented to not only Window XP but also Window Vista, which is compatible to the working environment of the machine to be used in developing in this system.

2.9.2 Microsoft Visual Studio 2008

Microsoft Visual Studio 2008 is a product of Microsoft. It able to caters for programming languages that are ASP.NET and Visual Basic. Secondly, Microsoft Visual Studio 2008 is easy to use because it is an object-oriented programming language and posses drag and drop ability for programming which make task easier. It is also a
popular choice among company as their programming tool to produce system. The reason it is so popular is because it able to supports multimedia, database processing, file processing, graphical user interface and error controlling. Ultimately, the user interface of Microsoft Visual Studio 2008 is friendly user making it easy to use.
CHAPTER 3

METHODOLOGY

3.1 Introduction

Several processes need to go through for a development of a system. The very first step of all is finding out what is the problem domain thus investigating and analyzing it. After successfully identifying a certain problem, a title will be chosen as to represent the problem that been identified. Planning process, scheduling, literature study, choosing method of solving the problem, development phase and writing report all come in next after we successfully overcome first step.

In this chapter itself, we will be discussing more into project methodology. Identifying methodology of the system to be developed is one of the important things when developing a system. This is to make sure developers are on track with their objectives and scopes and with this they can solve their problem efficiently.
3.2 Project Methodology-Evolutionary Prototyping

Nowadays, there are lot types of methodologies of system development. For example, there are system development life cycle, analysis, prototype and even structured design. Each and every methodology is different and varies from each other. They have their own states or stages to be followed in sequence before achieving their goal.

For this project that is online diagnosis and monitoring system for autism, the team members have come to agreement to use evolutionary prototyping as our methodology.

In Evolutionary Prototyping, there are four phases – Project planning phase, analyzing phase, design phase, and lastly implementation phase. Analyze phase, design phase, and implementation phase are all been execute together. This three phase will keep on been repeat until the whole system is completely been developed as this is to fulfill parents’ requirements on this upcoming system.

A readily system will be let out to user that is parents and specialists to try out. This step is to let user get used to it, try the system firsthand themselves, and to verify every requirements they need is in that system. After all these procedures have been done, users are required to give comments or opinion for enhancing this system so that this is the system that users really requested for. This step too, will be keep on repeating as to make sure prototype that been developed enable to satisfy what user needs and accordingly to their requirements.
3.2.1 Methodology Of The System Development

3.2.1.1 Project Planning Phase

Project planning phase is the first phase in this system development. The primary objective of the planning phase are to identify the scope of the new system, ensure that the project is feasible, and develop a schedule, resource plan, and budget for the remainder of the project. There are 5 activities that will be identified in the project planning phase:

i. Define the problem.
ii. Produce the project schedule.
iii. Confirm project feasibility.
iv. Staff the project.
v. Launch the project.

The activity for this phase includes the distribution time for completing every specific task and also project’s activity scheduling. For the activities scheduling part will be using Microsoft Project 2003 software to generate a Gantt chart where it will list all the activities and the estimated time span. Gantt chart is to act as a reminder to remind people involved in this project to finish the task at a given time span so that the process of this project will run smoothly. Besides, in this particular project, we also value each other talent individually and distribute task accordingly. As there are three person in a team, one will be focusing on monitoring area, another will concentrate on diagnosis part and lastly the last one will act as a bridge to combine both monitoring and diagnosis system.
3.2.1.2 Analysis Phase

The primary objective of the analysis phase is to understand and document the business needs and the processing requirements of the new system. Analysis is essentially a discovery process. The key words that drive the activities during analysis are discovery and understanding. Six primary activities are considered part of this phase:

i. Gather information.
ii. Define system requirement.
iii. Build prototypes for discovery of requirements.
iv. Prioritize requirements.
v. Generate and evaluate alternatives.
vi. Review recommendations with management.

In this phase, that is analysis phase, we did our research on the problem domain as like the result shown in chapter 2- Literature Review. We also gathered several resources for future usage like diagnosis and monitoring booklets from Ministry of Health. We also called to several related sectors to enquire and confirm our finding.

3.2.1.3 Design Phase

The objective of the design phase is to design the solution system based on the requirements defines and decisions made during analysis. High-level design consists of developing an architectural structure for the software components, database, user interface, and operating environment. Low-level design entails developing the detailed algorithms and data structures that are required for software development. Seven major activities must be completed during the design phase:

i. Design and integrate the network.
ii. Design the application architecture.

iii. Design the user interfaces.

iv. Design the system interfaces.

v. Design and integrate the database.

vi. Prototype for design details.

vii. Design and integrate the system controls.

In Design Phase, we have prepared wireframe that is a layout of design that will be use in implementation phase. Wireframe is very important as to gain the same understanding among all members in team. Besides, it also acts as a first step to design and improve the user interface. However, we are not just focusing on wireframe, we also look into several area which are DFD- Data Flow Diagram and ERD. With all these design, we actually have a clearer picture of how this system runs and operates.

3.2.1.4 Implementation Phase

During the implementation phase, the final system is built, tested, and installed. The objective of the activities of this phase is not only to produce a reliable, fully functional information system, but also to ensure that the users are all trained and that the organization is ready to benefit as expected from the use of the system. All the prior activities must come together during this phase to culminate in an operational system.

Five major activities make up the implementation phase:

i. Construct software components.

ii. Verify and test.

iii. Convert data.

iv. Train users and document the system.

v. Install the system.
### 3.2.1.5 Support Phase

The objective of the support phase is to keep the system running productively during the years following its initial installation. The support phase begins only after the new system has been installed and put into production, and it lasts throughout the productive life of the system. During the support phase, upgrades or enhancements may be carried out to expand the system’s capabilities, and they will require their own development projects. Three major activities occur during the support phase:

1. Maintain the system.
2. Enhance the system
3. Support the users.

### 3.3 Methodology Justification

After much researching for types of methodology, we have come to one word that is to choose evolutionary prototyping as our methodology.

The reason we choose evolutionary prototyping is mainly because it involve lots of interaction between developers and end user. By this, it enables us, the developers, to know well what are needed by end users.
Besides, evolutionary prototyping also able to reduce development costs and time. Missing functionality can be identified easily and early detection of error will certainly save a lot of costs and time during the whole project development.

Next, it also enables the flexibility of design. Evolutionary prototyping methodology will keep on repeating in analyze phase, design phase, and implementation phase. This is to make sure users’ requirements for the system are been made. Users are also able to add or change requirements without affecting much of the system development.

Therefore, the prototyping approach will be used to develop Online Diagnosis and Monitoring System for Autism since it has so many advantages and is suitable in developing this system.

3.4 Hardware And Software Requirements

Tools for developing a stable system, that is hardware and software, is very crucial as they play an important roles in this project. The correct choice of software and hardware will leads developer able to achieve their goals in their timeline or even faster. Moreover, good selection of software will enable developer to take shorter time to masteries it. Below are the characteristic of the right software to be chosen:

i. The software that will be chosen must be easy to understand.

ii. The software that been used must be friendly user and able to work well along with database.
Hardware that been chosen also should be able to last long and should be able to load a large amount of data in fast and effective performance. One shall remember that faulty hardware will cause loss of time and data. Therefore it is very important in term of choosing software and hardware.

3.4.1 The Specification Of Needed Hardware

The specification of the hardware have to be explain clearly to avoid any problem occur during the system development. The list of hardware that will be applied in the system development will be shown below.

Table 3.1 Hardware Specification

<table>
<thead>
<tr>
<th>NO.</th>
<th>HARDWARE</th>
<th>SPECIFICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>CPU</td>
<td>Intel Core 2 1.0GHz</td>
</tr>
<tr>
<td>2.</td>
<td>RAM Size</td>
<td>At least 2GB</td>
</tr>
<tr>
<td>3.</td>
<td>Hard Disc Capacity</td>
<td>At least 100GB</td>
</tr>
<tr>
<td>4.</td>
<td>Monitor</td>
<td>LCD monitor</td>
</tr>
<tr>
<td>5.</td>
<td>Mouse</td>
<td>USB Mouse</td>
</tr>
<tr>
<td>6.</td>
<td>Keyboard</td>
<td>USB Keyboard</td>
</tr>
</tbody>
</table>
3.4.2 Hardware Justification

Below will be a more detailed explanation of why these hardware been selected for the usage of the system development

i. Processor
A suitable processor such as Intel Core 2 with the speed of 1.0GHz is needed for the system development so that it can be carried out compatibly with the development of the technology now a day.

ii. RAM
The capacity of 2GB is needed to avoid any problem or error that will happen during the usage system when there requires a huge transaction of data been stored and retrieved.

iii. Monitor
We need LCD monitor as it able to display output in high resolution and much more clear compared to CRT monitor. Besides long usage of CRT monitor will definitely bring bad effects to developers in term of health.

iv. Mouse
Mouse is used to symbolize developer hand in term of executing and pointer to choose selection

v. Keyboard
Keyboard is the tool used for input of data and also for the development of the system such as typing in codes to communicate with the computer.
3.4.3 The Specification Of The Needed Software

The software that will be use during the system development is listed as below.

<table>
<thead>
<tr>
<th>NO.</th>
<th>SPECIFICATION</th>
<th>SOFTWARE</th>
<th>USAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>System Software</td>
<td>Window XP Sp II</td>
<td>Operating Platform</td>
</tr>
<tr>
<td>2.</td>
<td>Database</td>
<td>MS SQL Server 2005</td>
<td>Place for data storage</td>
</tr>
<tr>
<td>3.</td>
<td>Programming Language</td>
<td>-Microsoft Visual Studio 2008 (Tool)</td>
<td>Programming language to develop the system</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-ASP.Net Visual Basic (Language)</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Design tool</td>
<td>Adobe Photoshop CS4</td>
<td>Design Interface</td>
</tr>
<tr>
<td>5.</td>
<td>Project Management</td>
<td>Microsoft Project 2003</td>
<td>Project Planning</td>
</tr>
</tbody>
</table>
3.4.4 Software Justification

Below is the explanation for the software specification that need to be used to develop the system.

i. System Software
System software is used as the operating platform for the implementation of this system

ii. Database
Database is a collection of data or records that been grouped together into a common pool that able to provides information for one or more users.

iii. Programming Language
Programming language is known as computer language designed to communicate with computer. It is also known as mode of human communication with the machine

iv. Project Management
Project management includes planning, organizing and managing resource in a disciplined manner to achieve successful completion of project objectives

v. Design tool
Design tool is use for designing user interface, banners and other necessary stuff.
3.5 Work Planning/Gantt Chart

Gantt chart is a type of bar chart that illustrates a project schedule that follows the fixed time period. It will illustrate the start and finish dates of the terminal elements and summary element of a project. Terminal elements and summary elements comprise the work breakdown structure of the project. The Gantt chart for this project will be shown in 2 section, that is project PSM1 and PSM2.

3.6 Summary

Overall, this chapter tells about the planning work should be done to obtain an effective system with selection of appropriate methodology. Development system should have the specifications of hardware and software needs to be used to meet the preferences of the user system. In choosing the appropriate methodology, the development process and system will run smoothly through each phases and activities.
CHAPTER 4

ANALYSIS AND DESIGN

4.1 Introduction

In this chapter, we will be discussing what will be developed in the area of process, database, module and interface. However, we also need to check and find out user requirements therefore a study of current organization website is also very crucial. Thus, after knowing what user needs from current website, we are able to have a step forward that is planning for process design, module design, database design, input design, and output design.
4.2 Organization Background

Offering Life-Long Services to People with Autism, that is what National Autism Society of Malaysia (NASOM) motto. NASOM, as a non-profit organization, was registered on 3rd March 1987 as Malaysia charitable organization. It aims to provide information, helps and offers care plus protection for people with autism and their family members. In NASOM, it is formed by a group of parents and professionals which is more than 100 members all together. Until today itself, NASOM is all over Malaysia, covering mostly every state.

NASOM’s Vision
To become an efficient and effective organization that provides services, strength and sanctuary for people with autism.

NASOM’s Mission
To advocate for the rights of people with autism and in doing so provide opportunities for them to learn and lead a productive and fulfilling life

NASOM’s Objectives
i. To identify and promote the treatment, education, welfare and acceptance of people with autism
ii. To watch over and protect the people with autism
iii. To provide assistance and advice to families of people with autism
iv. To be a useful resource in the study, research and development of methodologies, therapies and treatment of autism and related disorders
NASOM’s Service

NASOM offers services through various of services and programmes. Their programmes are results based oriented and focus on acquisition of skills and changes in behavior. Their services are divided into 3 categories as listed at below:

i. Assessment and diagnosis

ii. Early intervention

iii. Vocational training

4.2.1 Current Website

Since our intention is doing Online Autism Diagnosis and Monitoring for National Autism Society of Malaysia known as NASOM, we will choose their website that is www.nasom.com.my as current website available for this section.

Figure 4.1: NASOM website
(Source: www.nasom.com.my)
This is the homepage of NASOM. As mentioned earlier in Chapter 2, a successful web contains a navigator bar however in NASOM website it is clear than they do not have any navigator bar either on top of the page or either at the side of their page. This will leads their user hard to find what actually they are actually looking for. Besides, it will also be hard for user to search for information they wanted. In other words, navigator bar acts as and map. Without that, user may not be able to use the system comfortably and ends up been confused and annoyed.

Secondly, their website too, there is too little information regarding treatment and autism. A website regarding autism should have ample information so that user may able to find and know much more regarding autism. Lack of information leads bad impression to user as for user knows they will not get any useful information in they were to visit this website again.

Moreover, some links and functions in their website are also not working. For example, their language links. When Malay language is selected, their website still displays information in English. They should remember that not everyone in Malaysia knows English language well. Function that unable to be use will leads user unable to browse through that website smoothly as they do not know how to read well.

**4.3 System Design**

System design includes all design aspect that is Process Design, Database Design, Module Design and Interface Design. The purpose for us to have system design is to define how actually this system will be implemented. System Design able to gives
developers a clearer picture of what they are doing before starting their project. Therefore, with system design readied, the development of new system will certainly be easy.

### 4.3.1 Process Design

Processes involved in this system are defined in Process Design. This step needs to be identified and understood as it acts as a guidance to the developer on what they are going to build. Data Flow Diagram (DFD) is used to show the process design of this system.

**Data Flow Diagram (DFD)**

![Data Flow Diagram (DFD)](image)

Figure 4.2: DFD
As shown in the figure above, this is the Data Flow Diagram of Online Autism Diagnosis and Monitoring System. There are 5 functions in this system that is Login, Diagnosis, Monitoring, Publishing Result and lastly Online Journal. As for data, there will be 7 tables:

i. User’s information
   Information regarding parents and their child

ii. Specialist’s Information
   Information regarding doctors and their related personal details

iii. Children medical report
   Information and a full report of children that been diagnosis and monitored by Online Autism Diagnosis and Monitoring System

iv. Growth Observation
   A full observation combines with medical report written by parents of their child growth rate. Specialists will drop down their expert suggestion on how their children progress.

v. Diagnosis tools
   A collection of questions that able to detect child learning disabilities and how serious it was.

vi. Monitoring tools
   A collection of questions and suggestion that able to give the correct treatment to an autism child.
vii. Item Gallery

A collection of item details been shared to the system by user to share it to others.

---

**Figure 4.3: DFD fragment for Diagnosis process**

---

**Figure 4.4: DFD fragment for monitoring process**

---
Figure 4.5: DFD fragment for publishing result process

Figure 4.6: DFD fragment for journal process
Figure 4.7: DFD fragment for Login process
Figure 4.8: DFD fragment for Item Gallery process
4.3.2 Module Design

There are 2 main modules in Online Autism Diagnosis and Monitoring System. The modules are:

i. Parents Module

In Parents Module, there are 6 sub modules that is registration module, diagnosis module, monitoring module, viewing result module, item gallery module and lastly journal module. To use the system, parents are required to register themselves in registration module. After successfully registered, they are able to move on to other module. Diagnosis module is where parents are required to input information regarding their child to check is there child has autism and if there is autism, also able to detect how serious it was. Next is regarding monitoring module. In this module, suggestion and treatment according to child age will be shown to parents however parents, similar to diagnosis module, they also are required to input certain information just like child age and their child’s behavior. Besides, there is also viewing result module that enable parents to view their child profile that will be include output of diagnosis and monitoring module. Next, it will be Item Gallery module where user can upload item that they want to share or else they can search for item within the system that they desire. Lastly will be Journal Module where parents are able to write their child condition daily. They are able to write they child’s growth progress according to date. It works similar to blogs.

ii. Specialists Module

In Specialist Module, there are 2 sub modules that are registration module and Journal module involved. In registration module, before a specialist is able to give their opinions or suggestion, they are required too to register through the system by sending a form with necessary information to system administrator for verification purposes. After been verified, specialists themselves are able to view
child profile which contains written daily journal, diagnosis and monitoring report and give their expert suggestion.

### 4.3.3 Database Design

Database design is all about designing and producing a data model of a database. All the data in database will be linked thus accessing data will be easier. Database itself is a guide for developer to manage and maintain existing entities in this system. Entities itself, will communicate with each other through various process. Below shows how our database are been designed.

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Data Type</th>
<th>Size</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>ChildName</td>
<td>varchar</td>
<td>20</td>
<td>Children name</td>
</tr>
<tr>
<td>ChildIcno</td>
<td>varchar</td>
<td>20</td>
<td>Children identification number</td>
</tr>
<tr>
<td>ChildAge</td>
<td>varchar</td>
<td>10</td>
<td>Children age</td>
</tr>
<tr>
<td>ChildBirthday</td>
<td>varchar</td>
<td>150</td>
<td>Children Birth date</td>
</tr>
<tr>
<td>ChildGender</td>
<td>varchar</td>
<td>100</td>
<td>Gender of the Children</td>
</tr>
<tr>
<td>ChildRelation</td>
<td>varchar</td>
<td>300</td>
<td>Relation of Children with user</td>
</tr>
<tr>
<td>MotherName</td>
<td>varchar</td>
<td>100</td>
<td>Child’s mother name</td>
</tr>
<tr>
<td>MotherAddress</td>
<td>varchar</td>
<td>200</td>
<td>Child’s mother address</td>
</tr>
<tr>
<td>MotherEmail</td>
<td>varchar</td>
<td>100</td>
<td>Child’s mother email address</td>
</tr>
<tr>
<td>MotherHomePhone</td>
<td>varchar</td>
<td>200</td>
<td>Child’s mother home phone number</td>
</tr>
<tr>
<td>MotherCellPhone</td>
<td>varchar</td>
<td>200</td>
<td>Child’s mother cell phone number</td>
</tr>
<tr>
<td>MotherOccupation</td>
<td>varchar</td>
<td>200</td>
<td>Child’s mother occupation</td>
</tr>
<tr>
<td>FatherName</td>
<td>varchar</td>
<td>100</td>
<td>Child’s father name</td>
</tr>
<tr>
<td>Field Name</td>
<td>Data Type</td>
<td>Size</td>
<td>Explanation</td>
</tr>
<tr>
<td>---------------------</td>
<td>-----------</td>
<td>------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>FatherAddress</td>
<td>varchar</td>
<td>200</td>
<td>Child’s father address</td>
</tr>
<tr>
<td>FatherEmail</td>
<td>varchar</td>
<td>100</td>
<td>Child’s father email address</td>
</tr>
<tr>
<td>FatherHomePhone</td>
<td>varchar</td>
<td>200</td>
<td>Child’s father home phone number</td>
</tr>
<tr>
<td>FatherCellPhone</td>
<td>varchar</td>
<td>200</td>
<td>Child’s father cell phone number</td>
</tr>
<tr>
<td>MotherOccupation</td>
<td>varchar</td>
<td>150</td>
<td>Child’s father occupation</td>
</tr>
<tr>
<td>MaritalStatus</td>
<td>varchar</td>
<td>100</td>
<td>Child’s parents marital status</td>
</tr>
<tr>
<td>Username</td>
<td>varchar</td>
<td>100</td>
<td>Person who registered this child</td>
</tr>
</tbody>
</table>

Table 4.2: item table

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Data Type</th>
<th>Size</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>itemname</td>
<td>varchar</td>
<td>100</td>
<td>Item name</td>
</tr>
<tr>
<td>itemcategory</td>
<td>varchar</td>
<td>100</td>
<td>Category of item</td>
</tr>
<tr>
<td>itemdescription</td>
<td>varchar</td>
<td>100</td>
<td>Item description</td>
</tr>
<tr>
<td>itemprice</td>
<td>varchar</td>
<td>100</td>
<td>Price of item</td>
</tr>
<tr>
<td>itemwhere</td>
<td>varchar</td>
<td>100</td>
<td>Location of item can be obtained</td>
</tr>
<tr>
<td>itemowner</td>
<td>varchar</td>
<td>100</td>
<td>Owner of the item</td>
</tr>
<tr>
<td>itemcontactphone</td>
<td>varchar</td>
<td>100</td>
<td>Item owner contact phone number</td>
</tr>
<tr>
<td>itemcontactemail</td>
<td>varchar</td>
<td>100</td>
<td>Item owner email address</td>
</tr>
<tr>
<td>itemsell</td>
<td>varchar</td>
<td>100</td>
<td>Indicates if user are selling this item</td>
</tr>
<tr>
<td>username</td>
<td>varchar</td>
<td>100</td>
<td>Person who shared the item</td>
</tr>
<tr>
<td>itempicturelink</td>
<td>varchar</td>
<td>100</td>
<td>Address link to obtain the item picture</td>
</tr>
<tr>
<td>itemnameuser</td>
<td>varchar</td>
<td>100</td>
<td>Combination of item name and user to form a string for identification purposes</td>
</tr>
</tbody>
</table>
Table 4.3: Itemcomment table

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Data Type</th>
<th>Size</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>itemid</td>
<td>varchar</td>
<td>100</td>
<td>Item identification for item</td>
</tr>
<tr>
<td>comment</td>
<td>varchar</td>
<td>100</td>
<td>Item’s comment</td>
</tr>
<tr>
<td>username</td>
<td>varchar</td>
<td>100</td>
<td>Person who commented the item</td>
</tr>
<tr>
<td>date</td>
<td>date</td>
<td>100</td>
<td>Date of comment</td>
</tr>
<tr>
<td>id</td>
<td>int</td>
<td>100</td>
<td>Unique number for each comment</td>
</tr>
</tbody>
</table>

Table 4.4: usercomment table

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Data Type</th>
<th>Size</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>childicno</td>
<td>varchar</td>
<td>100</td>
<td>Children identification number</td>
</tr>
<tr>
<td>comment</td>
<td>varchar</td>
<td>100</td>
<td>Profile’s comment</td>
</tr>
<tr>
<td>username</td>
<td>varchar</td>
<td>100</td>
<td>Person who commented the profile</td>
</tr>
<tr>
<td>date</td>
<td>varchar</td>
<td>100</td>
<td>Date of comment</td>
</tr>
<tr>
<td>id</td>
<td>int</td>
<td>100</td>
<td>Unique number for each comment</td>
</tr>
</tbody>
</table>

Table 4.5: register table

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Data Type</th>
<th>Size</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>username</td>
<td>varchar</td>
<td>100</td>
<td>Username of the person who register</td>
</tr>
<tr>
<td>name</td>
<td>varchar</td>
<td>100</td>
<td>Name of the person who register</td>
</tr>
<tr>
<td>country</td>
<td>varchar</td>
<td>100</td>
<td>Country of the person who register</td>
</tr>
<tr>
<td>NationalID</td>
<td>varchar</td>
<td>100</td>
<td>National Identification number of the registered person</td>
</tr>
<tr>
<td>DOB</td>
<td>varchar</td>
<td>100</td>
<td>Date of Birth of the registered person</td>
</tr>
<tr>
<td>Field</td>
<td>Data Type</td>
<td>Size</td>
<td>Explanation</td>
</tr>
<tr>
<td>---------------</td>
<td>-----------</td>
<td>------</td>
<td>---------------------------------------</td>
</tr>
<tr>
<td>Gender</td>
<td>varchar</td>
<td>100</td>
<td>The registered person gender</td>
</tr>
<tr>
<td>email</td>
<td>varchar</td>
<td>100</td>
<td>Email address of the registered person</td>
</tr>
</tbody>
</table>

Table 4.6: CountReport table

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Data Type</th>
<th>Size</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question</td>
<td>Varchar</td>
<td>50</td>
<td>Diagnosis questions from 1 to 23</td>
</tr>
<tr>
<td>Yes</td>
<td>Int</td>
<td>-</td>
<td>Count of the “yes” answer by users</td>
</tr>
<tr>
<td>No</td>
<td>Int</td>
<td>-</td>
<td>Count of the “no” answer by users</td>
</tr>
</tbody>
</table>

Table 4.7: DiagnosisRecord table

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Data Type</th>
<th>Size</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question1</td>
<td>varchar</td>
<td>50</td>
<td>Question of the diagnosis system</td>
</tr>
<tr>
<td>Question2</td>
<td>varchar</td>
<td>50</td>
<td>Question of the diagnosis system</td>
</tr>
<tr>
<td>Question3</td>
<td>varchar</td>
<td>50</td>
<td>Question of the diagnosis system</td>
</tr>
<tr>
<td>Question4</td>
<td>varchar</td>
<td>50</td>
<td>Question of the diagnosis system</td>
</tr>
<tr>
<td>Question5</td>
<td>varchar</td>
<td>50</td>
<td>Question of the diagnosis system</td>
</tr>
<tr>
<td>Question6</td>
<td>varchar</td>
<td>50</td>
<td>Question of the diagnosis system</td>
</tr>
<tr>
<td>Question7</td>
<td>varchar</td>
<td>50</td>
<td>Question of the diagnosis system</td>
</tr>
<tr>
<td>Question8</td>
<td>varchar</td>
<td>50</td>
<td>Question of the diagnosis system</td>
</tr>
<tr>
<td>Question9</td>
<td>varchar</td>
<td>50</td>
<td>Question of the diagnosis system</td>
</tr>
<tr>
<td>Question10</td>
<td>varchar</td>
<td>50</td>
<td>Question of the diagnosis system</td>
</tr>
<tr>
<td>Question11</td>
<td>varchar</td>
<td>50</td>
<td>Question of the diagnosis system</td>
</tr>
<tr>
<td>Question12</td>
<td>varchar</td>
<td>50</td>
<td>Question of the diagnosis system</td>
</tr>
<tr>
<td>Question13</td>
<td>varchar</td>
<td>50</td>
<td>Question of the diagnosis system</td>
</tr>
<tr>
<td>Question14</td>
<td>varchar</td>
<td>50</td>
<td>Question of the diagnosis system</td>
</tr>
<tr>
<td>Question15</td>
<td>varchar</td>
<td>50</td>
<td>Question of the diagnosis system</td>
</tr>
<tr>
<td>Question16</td>
<td>varchar</td>
<td>50</td>
<td>Question of the diagnosis system</td>
</tr>
<tr>
<td>Question17</td>
<td>varchar</td>
<td>50</td>
<td>Question of the diagnosis system</td>
</tr>
<tr>
<td>Question18</td>
<td>varchar</td>
<td>50</td>
<td>Question of the diagnosis system</td>
</tr>
<tr>
<td>Question19</td>
<td>varchar</td>
<td>50</td>
<td>Question of the diagnosis system</td>
</tr>
<tr>
<td>Question20</td>
<td>varchar</td>
<td>50</td>
<td>Question of the diagnosis system</td>
</tr>
<tr>
<td>Question21</td>
<td>varchar</td>
<td>50</td>
<td>Question of the diagnosis system</td>
</tr>
<tr>
<td>Question22</td>
<td>varchar</td>
<td>50</td>
<td>Question of the diagnosis system</td>
</tr>
<tr>
<td>Question23</td>
<td>varchar</td>
<td>50</td>
<td>Question of the diagnosis system</td>
</tr>
<tr>
<td>ChildID</td>
<td>varchar</td>
<td>50</td>
<td>Identity number of the child</td>
</tr>
<tr>
<td>Username</td>
<td>varchar</td>
<td>50</td>
<td>Person who registered this child</td>
</tr>
<tr>
<td>Field Name</td>
<td>Data Type</td>
<td>Size</td>
<td>Explanation</td>
</tr>
<tr>
<td>------------</td>
<td>-----------</td>
<td>------</td>
<td>-------------</td>
</tr>
<tr>
<td>Percentage</td>
<td>varchar</td>
<td>50</td>
<td>Result of the diagnosis</td>
</tr>
<tr>
<td>Year</td>
<td>varchar</td>
<td>50</td>
<td>Current year</td>
</tr>
<tr>
<td>Month</td>
<td>varchar</td>
<td>50</td>
<td>Current month</td>
</tr>
<tr>
<td>Date</td>
<td>varchar</td>
<td>50</td>
<td>Current date</td>
</tr>
</tbody>
</table>

Table 4.8: PPV table

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Data Type</th>
<th>Size</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Failed</td>
<td>int</td>
<td>-</td>
<td>Total number of questions failed</td>
</tr>
<tr>
<td>Sensitivity</td>
<td>varchar</td>
<td>50</td>
<td>The sensitivity of the test</td>
</tr>
<tr>
<td>Specificity</td>
<td>varchar</td>
<td>50</td>
<td>The specificity of the test</td>
</tr>
<tr>
<td>PPV</td>
<td>varchar</td>
<td>50</td>
<td>The positive predictive value of the test</td>
</tr>
</tbody>
</table>

Table 4.9: DiagnosisQuestions table

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Data Type</th>
<th>Size</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>QuestionID</td>
<td>int</td>
<td>-</td>
<td>Identity number for each question</td>
</tr>
<tr>
<td>QuestionM</td>
<td>varchar</td>
<td>Max</td>
<td>Diagnosis question in Malay language</td>
</tr>
<tr>
<td>AnswerM</td>
<td>varchar</td>
<td>50</td>
<td>Diagnosis answer in Malay language</td>
</tr>
<tr>
<td>QuestionE</td>
<td>varchar</td>
<td>Max</td>
<td>Diagnosis question in English language</td>
</tr>
<tr>
<td>AnswerE</td>
<td>varchar</td>
<td>50</td>
<td>Diagnosis answer in English language</td>
</tr>
</tbody>
</table>

Table 4.10: Monitor table

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Data Type</th>
<th>Size</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>id</td>
<td>Int</td>
<td>-</td>
<td>Identity number for each question</td>
</tr>
<tr>
<td>question</td>
<td>Varchar</td>
<td>Max</td>
<td>Question of the monitoring system</td>
</tr>
<tr>
<td>age</td>
<td>Int</td>
<td>-</td>
<td>Age of the child</td>
</tr>
<tr>
<td>area</td>
<td>varchar</td>
<td>50</td>
<td>Aspect of the development</td>
</tr>
</tbody>
</table>
Table 4.11: Solution table

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Data Type</th>
<th>Size</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>id</td>
<td>Int</td>
<td>-</td>
<td>Identity for each solution</td>
</tr>
<tr>
<td>solution</td>
<td>Varchar</td>
<td>Max</td>
<td>Solution for each aspect</td>
</tr>
</tbody>
</table>

4.3.4 Interface Design

Interface is for the interaction between users with the system. The interface design has to be user friendly where user can access the information easily. A good interface design helps to capture the interest of users while using the system. Figure 4.10 is the proposed interface design. The interface will be improved in the future.

Figure 4.9: Interface design

Seeking for medical expert help regarding of your kids? Or are you looking on information of autism for the purpose of research? Look no further as in this web system, we provides services that almost similar to doctors. With our well researched questions and solution, this system provides a good support to self diagnose your child.

This system itself contains two major parts that are:

-  
-  

This system itself contains two major parts that are:
4.3.5 Input Design

This interface is about input design. This interface is one of the input interface that is parents are required to insert their child particular details into here for processing purposes. Figure 4.3.5 shows one of the example of input interface design

![Profile Update Interface](image.png)

**Figure 4.10 Example of Input Design**
4.3.6 Output Design

This output interface is more to result of the system. It acts as a medium between system and parents to display their outcomes. The data been displayed on this page mostly is retrieved from database. Below shows one of the example of output design.
5.1 Introduction

This chapter will discuss about the implementation of the NASOM Parent’s Support System – Information System. Issue about installation of hardware and software will be discussed in this chapter. Activities involved in system development will be also discussed in this chapter. Activities involves including interface development, database system development and programming code development.
5.2 Installation of Required Software

Software used to implement NASOM Parent’s Support System includes Windows XP Service pack 2 as the minimum operating system, Visual Studio 2008, Adobe Photoshop and Microsoft Project 2003. Microsoft Visuals Studio 2008 comes with Microsoft SQL 2005. This is the main software that is used to develop the whole system. Microsoft SQL 2005 is used for managing system database. Next, it will be the Adobe Photoshop which is used for designing purposes. Lastly, Microsoft Project 2003 is to plan and generate Gantt chart for this project.

5.3 System Development

Activities involved in the development of NASOM Parent’s Support System including database development, interface development and programming code development.

5.3.1 Database Development

Environment Microsoft Visual Studio 2008 (VS2008) supports almost all types of DBMS (Database Management System). There is a DBMS, Microsoft SQL Server 2005 is comes with VS2008. Once successfully installed VS2008, users can generate a database of Microsoft SQL Server 2005 with the following steps.
1. On the Solution Server, right-click the App_Data SQL Server database and add new ones.
2. Enter the name of the database, and then click OK.
3. Produced a new database will be displayed in the Data Connection in the Server Solution. Entities can be produced in the Table.

5.3.2 Interface Development

The interfaces of NASOM Parent’s Support System are developed by using Microsoft Visual Studio 2008 and Adobe Photoshop CS4. Adobe Photoshop CS4 able to do produce better performance compared to what been offered originally in computer that is PAINT.

5.3.3 Programming Code Development

This section will discussed about coding that extracted from the main function of the module. ASP.NET Visual Basic is used to develop NASOM Parent’s Support System where else Microsoft Visual Studio 2008 is the software used for writing programming code. Following are the snapshots of the coding of few main functions of the system.
5.3.3.1 Update Personal Profile and Child Profile

This is one of the main functions of the system. This part is important as because to ensure that user able to always update their data to keep the consistency of data and to avoid user from creating another record if there is any new updates. The snapshot below shows a part of coding of the update child and personal profile.

```vbnet
Dim con As New SqlConnection("Data Source=.;
SQLEXPRESS;AttachDbFilename=|DataDirectory|Database1.mdf;Integrated Security=True;User Instance=True")

Dim strupdate As String
Dim cmd As SqlCommand

strupdate = "UPDATE registor SET Name=@myName,Country=@Country,NationalID=@NationalID,DOB=@Dob,Gender=@Gender, email=@email WHERE Username=@Username"

cmd = New SqlCommand(strupdate, con)
con.Open()

con.Close()
```

Figure 5.1: Coding of Updating Database
5.3.3.2 Insertion of Child Profile into Database

In this section, coding of how insertion of data to database will be shown with the coding extracted from the system. The purpose of data insertion is so that with data only the system able to run. Therefore this is also a crucial part in the system. The snapshot below shows a part of coding of the insertion of child profile into database.

```vbnet
Protected Sub Wizard1_FinishButtonClick(ByVal sender As Object, ByVal e As System.Web.UI.WebControls.WizardNavigationEventArgs) Handles Wizard1.FinishButtonClick
    Dim con As New SqlConnection("Data Source=.;AttachDbFilename=|DataDirectory|Database1.mdf;Integrated Security=True;User Instance=True")
    Dim userstring As String
    Dim cmd As SqlCommand
    userstring = "INSERT INTO ChildNameAndParent(ChildName,ChildIcno,ChildAge,ChildGender,ChildBirthday,ChildRelation,MotherName,MotherAddress,MotherEmail,MotherHomePhone,MotherCellPhone,MotherOccupation,FatherName,FatherAddress,FatherEmail,FatherHomePhone,FatherCellPhone,FatherOccupation,MaritalStatus,Username) VALUES (@ChildName, @ChildIcno, @ChildAge, @ChildGender, @ChildBirthday, @ChildRelation, @MotherName, @MotherAddress, @MotherEmail, @MotherHomePhone, @MotherCellPhone, @MotherOccupation, @FatherName, @FatherAddress, @FatherEmail, @FatherHomePhone, @FatherCellPhone, @FatherOccupation, @MaritalStatus, @Username)"
    cmd = New SqlCommand(userstring, con)
    con.Open()
    cmd.Parameters.AddWithValue("@Username", lblshowuser.Text)
    cmd.Parameters.AddWithValue("@ChildName", txtchildname.Text)
```
cmd.Parameters.AddWithValue("@ChildIdno", txtchildic.Text)
cmd.Parameters.AddWithValue("@ChildAge", txtchildage.Text)
cmd.Parameters.AddWithValue("@ChildBirthday", ChildBirthday)
cmd.Parameters.AddWithValue("@ChildGender", Gender)
cmd.Parameters.AddWithValue("@ChildRelation", txtrelation.Text)
cmd.Parameters.AddWithValue("@MotherName", txtmothername.Text)
cmd.Parameters.AddWithValue("@MotherAddress", txtmaddress.Text)
cmd.Parameters.AddWithValue("@MotherEmail", txtmemail.Text)

cmd.Parameters.AddWithValue("@MotherHomePhone", txtmhomephone.Text)
cmd.Parameters.AddWithValue("@MotherCellPhone", txtmcellphone.Text)
cmd.Parameters.AddWithValue("@MotherOccupation", txtmoccupation.Text)
cmd.Parameters.AddWithValue("@FatherName", txtfathername.Text)
cmd.Parameters.AddWithValue("@FatherAddress", txtfaddress.Text)
cmd.Parameters.AddWithValue("@FatherEmail", txtfemail.Text)
cmd.Parameters.AddWithValue("@FatherHomePhone", txtfhomephone.Text)
cmd.Parameters.AddWithValue("@FatherCellPhone", txtfcellphone.Text)
cmd.Parameters.AddWithValue("@FatherOccupation", txtfoccupation.Text)

cmd.Parameters.AddWithValue("@MaritalStatus", MaritalStatus)
cmd.ExecuteNonQuery()
cmd.Parameters.Clear()
con.Close()

Figure 5.2: Coding of Insertion Data
5.3.3.2 Retrieve Data from Database

In this section, the function of retrieve data from database will be discussed. The coding of these functions is shown by the snapshots below.

```vbnet
If Not Page.IsPostBack Then
    Dim myname As String = Page.User.Identity.Name
    lblusername2.Text = myname

    Dim con2 As New SqlConnection("Data Source=\SQLEXPRESS;AttachDbFilename=|DataDirectory|Database1.mdf;Integrated Security=True;User Instance=True")
    Dim cmd2 As SqlCommand
    Dim reader As SqlDataReader
    Dim searchstring As String
    Dim gender As String
    searchstring = "Select * FROM registor where Username=@Username"
    cmd2 = New SqlCommand(searchstring, con2)
    con2.Open()
    cmd2.Parameters.AddWithValue("@Username", lblusername2.Text)
    reader = cmd2.ExecuteReader()
    reader.Read()
    If reader.HasRows Then
        txtname.Text = reader("Name")
```
txtnationalid.Text = reader("NationalID")
lblcurrentcountryshow.Text = reader("Country")
lblshowdob.Text = reader("DOB")
gender = reader("Gender")
lblshowgender.Text = reader("Gender")
txtemail2.Text = reader("email")
If lblshowgender.Text = "Male" Then
    rbgendermale.Checked = True
ElseIf lblshowgender.Text = "Female" Then
    rbgenderfemale.Checked = True
End If
Else
    txtname.Text = ""
    txtnationalid.Text = ""
    lblcurrentcountryshow.Text = ""
    lblshowdob.Text = ""
    gender = ""
    lblshowgender.Text = ""
    txtemail2.Text = ""
End If
con2.Close()
End If

Session("id") = txtnationalid.Text

End Sub

Figure 5.3: Coding of Retrieving Data from Database
5.3.3.3 Blog Function

In this section, blog function will be discussed in a way that how to generate a blog view and also how to submit a blog content

```vbnet
Protected Sub btnSubmit_Click(ByVal sender As Object, ByVal e As EventArgs)
    Handles btnSubmit.Click
    Session("Title") = Me.txttitle.Text
    Session("Blog") = Me.Editor1.Content
    Session("Name") = Me.txtname.Text
    Session("Changed") = True
End Sub
```

Figure 5.4: Storing Blog Content to Session
5.3.3.4 Item Gallery Function

In this section, blog function will be discussed in a way that how to generate a blog view and also how to submit a blog content

```vbnet
If txtitemname.Text = "" Then

    Dim cph As ContentPlaceHolder
    Dim itemcategory As String
    cph = CType(Page.Master.FindControl("ContentPlaceHolder1"), ContentPlaceHolder)
    itemcategory = CType(cph.FindControl("ddlitemcategory2"), DropDownList).SelectedItem.ToString

    Dim Sql As String = " SELECT * FROM [item] WHERE [itemcategory]=" + itemcategory + ""
    SqlDataSource1.SelectCommand = Sql
Else

    Dim itemname As String
    Dim itemcategory As String
    itemcategory = ddlitemcategory2.SelectedValue.ToString
    itemname = txtitemname.Text

    Dim Sql As String = " SELECT * FROM [item] WHERE (([itemname] LIKE " + itemname + ")" + "AND" + " ([itemcategory] = " + "")"
    SqlDataSource1.SelectCommand = Sql

Figure 5.5: Code extracted from Item gallery function
5.4 Summary

This chapter describes the implementation of NASOM Parent’s Support System during the development phase. In this phase, realization system from design and analysis been achieved. Database, interface and program are also discussed in this chapter. Database is not just for the purpose of storing data but also for user to retrieve and manipulate it so that the data will be consistent as time pass on.
6.1 Introduction

In this chapter, the topic that will be discussed is about the system testing phase and strategy. System testing is an important role in ensuring the system meets the user requirements and does not have any errors. Error minimization can be carried out with the help of this testing phase. Several kinds of testing will be carried out to evaluate the system to make sure that it is working properly and ready to be used. The testing is done with black box testing, interface testing, and requirement testing.
6.2 Black Box Testing

Black box testing will test on functional and behavioral testing. The purpose of Black box testing is to determine whether or not the system has fulfilled the system specifications. Prior implementing black box testing strategy, tester needs to know the system specifications and as the user, should know how the system should behave in response to particular action. Black box testing can helps to detect some errors as below:

i. Wrong or missing function
ii. Interface Error
iii. Error at the beginning and ending of the system
iv. Error when connect to database

Black box testing can be also defined as the input testing and output testing for the system. Input testing is done to ensure the data saved in database is correct to avoid error during data output. Output testing is done to display the information input into the system during input testing.

Figure 6.1: Black Box Testing
6.3 Interface Testing

Interface testing is to detect faults due to interface errors or invalid assumptions about interfaces. Interface testing is very important for object-oriented development as objects are defined by their interfaces. Below are several categories of interface errors:

i. Interface misuse
   A component calls another component and makes an error in its use of its interface for example parameters in the wrong order.

ii. Interface misunderstanding
    A component contains assumptions about the behaviour of the called component which are not accurate.

iii. Timing errors
    The called and the calling component operate at different frequency and outdated information is accessed.
6.4 Summary

This chapter describes the system testing phase that required to be carried out. It is necessary for system testing phase because when a system completes all testing, it will be concluded that it is free from error and running as expected. All the detected bugs on the source code have been corrected.
CHAPTER 7

CONCLUSION

7.1 Introduction

This is the final chapter for this thesis. The main purpose of this development is to provide a diagnosis and monitoring system for public uses. This system will acts as a temporary solution for parents that intend to bring their child for medical checkup. Parents do not need to queue up for months just to get treatment as they can able to use this system to get temporary solution for their child.
7.2 Achievements

We obtain data from observation, interview and also conducting a detailed research. Information for this system is obtained from various areas for example from the internet, reading related articles and book and even interview with related personnel. With all these information, all obstacles regarding information been cleared off making future development of this project easier.

Besides, in literature review, it is also been identified what needed for the system development. Hardware, software, and even methodology been successfully identified as to bring it to achieve the goal that is the completion of this system.

Other than that, my programming skills progress and understanding is much better compared to last time. Furthermore, in this project itself it make me realize that no matter what assignments, tasks or even project that will be carried out, time management and project planning for it is very important.
7.3 Challenge

During the whole progress of this thesis and completion of the system, several challenges been identified and that is as listed as below:

i. Time given for completing this thesis is not sufficient enough resulting in difficulties in obtaining information and completing the system

ii. It is difficult to study more regarding personal details of autism kid details as all these details in confidential.

iii. There are no systems that can be used as reference for the development of the new system.

iv. Insufficient advance knowledge programming language thus more time needed to learn and complete the project

7.4 Expectation

Expectation of this project is non-other than meeting the project’s objectives. It is also expected that this project able to finish on time too. Furthermore, after this system successfully been developed, it is hoped that users able to use this system comfortably. Moreover, it will be glad if parents able to lighten their burden and able to find temporary recovery for their child by using this online autism diagnosis and monitoring system
7.5 Lesson Learned

During the development phases of NPSS, several lessons have been learned as per listed below:

i. Working as a team bringing the project towards success.
ii. Have research on how to develop an attractive user interface as well as learning and applying latest technologies in this project.
iii. Major improvement in programming skill.
iv. Teamwork has better efficiency compare to doing a task alone.
v. Sharing knowledge with others not only helping others but also self helping to strengthen the knowledge in memory
vi. Time management is the most important and crucial part that will lead the system to be successful

7.6 Summary.

This chapter summarize everything been discussed from chapter 1 till chapter 6. In this chapter, challenges faced during the development of this thesis also been mentioned. Besides, expectation of this project after successfully been developed also been stated.
REFERENCES

1. Farrahuda Binti Salmi (2008), Sistem Maklumat Pengurusan Kanak-Kanak Istimewa, Hospital Permai, Universiti Teknologi Malaysia: PSM Thesis


http://www.thunderdata.com/website_business_101/build_effective_websites.html


APPENDIX A1

Gantt Chart
APPENDIX B1

Context Diagram of NASOM Parent’s Support System
APPENDIX B2

Diagram 0 of NASOM Parent’s Support System
APPENDIX B3

DFD Fragment for Login process
APPENDIX B4

DFD Fragment for Diagnosis Process
APPENDIX B5

DFD Fragment for Publishing Result Process
APPENDIX B6

DFD Fragment for Monitoring Process
APPENDIX B7

DFD Fragment for Online Journal Process

[Diagram showing the process flow from Parents, Specialist, and Children growth observation to various actions such as showing screen of online journal, writing the online journal, studying kid daily observation, and receiving feedback and specialist advice.]
APPENDIX B8

DFD Fragment for Collect Item Information Process
APPENDIX B9

DFD fragment for Item Gallery process
APPENDIX C

ERD of Online Learning Disability-Autism Diagnosis and Monitoring System
APPENDIX D1

Interface Design

Seeking for medical expert help regarding of your kids? Or are you looking on information of autism for the purpose of research? Look no further as in this web system, we provides services that almost similiar to doctors. With our well researched questions and solution, this system provides a good support to self diagnose your child.

This system itself contains two major parts that are:
APPENDIX D2

Example of Input Design

PROFILE UPDATE

Account Information
Username: vicom

Personal Information
Name: 
Current Country: 
Select Country: -Select Your Country Here- 
National ID: 
Email Address: 
Date Of Birth: 
Date Of Birth: -Date- -Month- 
Gender: 
Gender: 
○ Male ○ Female

Return Clear Submit
APPENDIX D3

Example of Output Design

vincent BLOG PAGE

My First Post
Hi. This is my first post

Posted by vijn
Mar 23, 2010 @ 11:33

testing title and folder 1

posted title and folder 1

Posted by vijn
Mar 23, 2010 @ 02:15
**APPENDIX E**

**Database Design**

**UserProfile table**

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Data Type</th>
<th>Size</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>ChildName</td>
<td>varchar</td>
<td>20</td>
<td>Children name</td>
</tr>
<tr>
<td>ChildIcno</td>
<td>varchar</td>
<td>20</td>
<td>Children identification number</td>
</tr>
<tr>
<td>ChildAge</td>
<td>varchar</td>
<td>10</td>
<td>Children age</td>
</tr>
<tr>
<td>ChildBirthday</td>
<td>varchar</td>
<td>150</td>
<td>Children Birth date</td>
</tr>
<tr>
<td>ChildGender</td>
<td>varchar</td>
<td>100</td>
<td>Gender of the Children</td>
</tr>
<tr>
<td>ChildRelation</td>
<td>varchar</td>
<td>300</td>
<td>Relation of Children with user</td>
</tr>
<tr>
<td>MotherName</td>
<td>varchar</td>
<td>100</td>
<td>Child’s mother name</td>
</tr>
<tr>
<td>MotherAddress</td>
<td>varchar</td>
<td>200</td>
<td>Child’s mother address</td>
</tr>
<tr>
<td>MotherEmail</td>
<td>varchar</td>
<td>100</td>
<td>Child’s mother email address</td>
</tr>
<tr>
<td>MotherHomePhone</td>
<td>varchar</td>
<td>200</td>
<td>Child’s mother home phone number</td>
</tr>
<tr>
<td>MotherCellPhone</td>
<td>varchar</td>
<td>200</td>
<td>Child’s mother cell phone number</td>
</tr>
<tr>
<td>MotherOccupation</td>
<td>varchar</td>
<td>200</td>
<td>Child’s mother occupation</td>
</tr>
<tr>
<td>FatherName</td>
<td>varchar</td>
<td>100</td>
<td>Child’s father name</td>
</tr>
<tr>
<td>FatherAddress</td>
<td>varchar</td>
<td>200</td>
<td>Child’s father address</td>
</tr>
<tr>
<td>FatherEmail</td>
<td>varchar</td>
<td>100</td>
<td>Child’s father email address</td>
</tr>
<tr>
<td>FatherHomePhone</td>
<td>varchar</td>
<td>200</td>
<td>Child’s father home phone number</td>
</tr>
<tr>
<td>FatherCellPhone</td>
<td>varchar</td>
<td>200</td>
<td>Child’s father cell phone number</td>
</tr>
<tr>
<td>FatherOccupation</td>
<td>varchar</td>
<td>150</td>
<td>Child’s father occupation</td>
</tr>
<tr>
<td>Field Name</td>
<td>Data Type</td>
<td>Size</td>
<td>Explanation</td>
</tr>
<tr>
<td>---------------</td>
<td>-----------</td>
<td>------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>itemname</td>
<td>varchar</td>
<td>100</td>
<td>Item name</td>
</tr>
<tr>
<td>itemcategory</td>
<td>varchar</td>
<td>100</td>
<td>Category of item</td>
</tr>
<tr>
<td>itemdescription</td>
<td>varchar</td>
<td>100</td>
<td>Item description</td>
</tr>
<tr>
<td>itemprice</td>
<td>varchar</td>
<td>100</td>
<td>Price of item</td>
</tr>
<tr>
<td>itemwhere</td>
<td>varchar</td>
<td>100</td>
<td>Location of item can be obtained</td>
</tr>
<tr>
<td>itemowner</td>
<td>varchar</td>
<td>100</td>
<td>Owner of the item</td>
</tr>
<tr>
<td>itemcontactphone</td>
<td>varchar</td>
<td>100</td>
<td>Item owner contact phone number</td>
</tr>
<tr>
<td>itemcontactemail</td>
<td>varchar</td>
<td>100</td>
<td>Item owner email address</td>
</tr>
<tr>
<td>itemsell</td>
<td>varchar</td>
<td>100</td>
<td>Indicates if user are selling this item</td>
</tr>
<tr>
<td>username</td>
<td>varchar</td>
<td>100</td>
<td>Person who shared the item</td>
</tr>
<tr>
<td>itempicturelink</td>
<td>varchar</td>
<td>100</td>
<td>Address link to obtain the item picture</td>
</tr>
<tr>
<td>itemnameuser</td>
<td>varchar</td>
<td>100</td>
<td>Combination of item name and user to form a string for identification purposes</td>
</tr>
</tbody>
</table>

Itemcomment table
<table>
<thead>
<tr>
<th>Field Name</th>
<th>Data Type</th>
<th>Size</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>itemid</td>
<td>varchar</td>
<td>100</td>
<td>Item identification for item</td>
</tr>
<tr>
<td>comment</td>
<td>varchar</td>
<td>100</td>
<td>Item’s comment</td>
</tr>
<tr>
<td>username</td>
<td>varchar</td>
<td>100</td>
<td>Person who commented the item</td>
</tr>
<tr>
<td>date</td>
<td>date</td>
<td>100</td>
<td>Date of comment</td>
</tr>
<tr>
<td>id</td>
<td>Int</td>
<td>100</td>
<td>Unique number for each comment</td>
</tr>
</tbody>
</table>

usercomment table

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Data Type</th>
<th>Size</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>childicno</td>
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<td>100</td>
<td>Children identification number</td>
</tr>
<tr>
<td>comment</td>
<td>varchar</td>
<td>100</td>
<td>Profile’s comment</td>
</tr>
<tr>
<td>username</td>
<td>varchar</td>
<td>100</td>
<td>Person who commented the profile</td>
</tr>
<tr>
<td>date</td>
<td>varchar</td>
<td>100</td>
<td>Date of comment</td>
</tr>
<tr>
<td>id</td>
<td>int</td>
<td>100</td>
<td>Unique number for each comment</td>
</tr>
</tbody>
</table>

registor table

<table>
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<th>Size</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>username</td>
<td>varchar</td>
<td>100</td>
<td>Username of the person who register</td>
</tr>
<tr>
<td>name</td>
<td>varchar</td>
<td>100</td>
<td>Name of the person who register</td>
</tr>
<tr>
<td>country</td>
<td>varchar</td>
<td>100</td>
<td>Country of the person who register</td>
</tr>
<tr>
<td>NationalID</td>
<td>varchar</td>
<td>100</td>
<td>National Identification number of the registered person</td>
</tr>
<tr>
<td>DOB</td>
<td>varchar</td>
<td>100</td>
<td>Date of Birth of the registered person</td>
</tr>
<tr>
<td>Gender</td>
<td>varchar</td>
<td>100</td>
<td>The registered person gender</td>
</tr>
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<td>Field Name</td>
<td>Data Type</td>
<td>Size</td>
<td>Explanation</td>
</tr>
<tr>
<td>------------</td>
<td>-----------</td>
<td>------</td>
<td>-------------</td>
</tr>
<tr>
<td>email</td>
<td>varchar</td>
<td>100</td>
<td>Email address of the registered person</td>
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</tbody>
</table>

**CountReport table**

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Data Type</th>
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<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question</td>
<td>Varchar</td>
<td>50</td>
<td>Diagnosis questions from 1 to 23</td>
</tr>
<tr>
<td>Yes</td>
<td>Int</td>
<td>-</td>
<td>Count of the “yes” answer by users</td>
</tr>
<tr>
<td>No</td>
<td>Int</td>
<td>-</td>
<td>Count of the “no” answer by users</td>
</tr>
</tbody>
</table>

**DiagnosisRecord table**

<table>
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<tr>
<th>Field Name</th>
<th>Data Type</th>
<th>Size</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question1</td>
<td>varchar</td>
<td>50</td>
<td>Question of the diagnosis system</td>
</tr>
<tr>
<td>Question2</td>
<td>varchar</td>
<td>50</td>
<td>Question of the diagnosis system</td>
</tr>
<tr>
<td>Question3</td>
<td>varchar</td>
<td>50</td>
<td>Question of the diagnosis system</td>
</tr>
<tr>
<td>Question4</td>
<td>varchar</td>
<td>50</td>
<td>Question of the diagnosis system</td>
</tr>
<tr>
<td>Question5</td>
<td>varchar</td>
<td>50</td>
<td>Question of the diagnosis system</td>
</tr>
<tr>
<td>Question6</td>
<td>varchar</td>
<td>50</td>
<td>Question of the diagnosis system</td>
</tr>
<tr>
<td>Question7</td>
<td>varchar</td>
<td>50</td>
<td>Question of the diagnosis system</td>
</tr>
<tr>
<td>Question8</td>
<td>varchar</td>
<td>50</td>
<td>Question of the diagnosis system</td>
</tr>
<tr>
<td>Question9</td>
<td>varchar</td>
<td>50</td>
<td>Question of the diagnosis system</td>
</tr>
<tr>
<td>Question10</td>
<td>varchar</td>
<td>50</td>
<td>Question of the diagnosis system</td>
</tr>
<tr>
<td>Question11</td>
<td>varchar</td>
<td>50</td>
<td>Question of the diagnosis system</td>
</tr>
<tr>
<td>Question12</td>
<td>varchar</td>
<td>50</td>
<td>Question of the diagnosis system</td>
</tr>
<tr>
<td>Question13</td>
<td>varchar</td>
<td>50</td>
<td>Question of the diagnosis system</td>
</tr>
<tr>
<td>Question14</td>
<td>varchar</td>
<td>50</td>
<td>Question of the diagnosis system</td>
</tr>
<tr>
<td>Question15</td>
<td>varchar</td>
<td>50</td>
<td>Question of the diagnosis system</td>
</tr>
<tr>
<td>Question16</td>
<td>varchar</td>
<td>50</td>
<td>Question of the diagnosis system</td>
</tr>
<tr>
<td>Question17</td>
<td>varchar</td>
<td>50</td>
<td>Question of the diagnosis system</td>
</tr>
<tr>
<td>Question18</td>
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<td>50</td>
<td>Question of the diagnosis system</td>
</tr>
<tr>
<td>Question19</td>
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<td>50</td>
<td>Question of the diagnosis system</td>
</tr>
<tr>
<td>Question20</td>
<td>varchar</td>
<td>50</td>
<td>Question of the diagnosis system</td>
</tr>
<tr>
<td>Question21</td>
<td>varchar</td>
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<td>Question of the diagnosis system</td>
</tr>
<tr>
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<td>varchar</td>
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<td>Question of the diagnosis system</td>
</tr>
<tr>
<td>Question23</td>
<td>varchar</td>
<td>50</td>
<td>Question of the diagnosis system</td>
</tr>
<tr>
<td>ChildID</td>
<td>varchar</td>
<td>50</td>
<td>Identity number of the child</td>
</tr>
<tr>
<td>Username</td>
<td>varchar</td>
<td>50</td>
<td>Person who registered this child</td>
</tr>
<tr>
<td>Percentage</td>
<td>varchar</td>
<td>50</td>
<td>Result of the diagosis</td>
</tr>
<tr>
<td>Field</td>
<td>Data Type</td>
<td>Size</td>
<td>Explanation</td>
</tr>
<tr>
<td>-------------</td>
<td>-----------</td>
<td>------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>Year</td>
<td>varchar</td>
<td>50</td>
<td>Current year</td>
</tr>
<tr>
<td>Month</td>
<td>varchar</td>
<td>50</td>
<td>Current month</td>
</tr>
<tr>
<td>Date</td>
<td>varchar</td>
<td>50</td>
<td>Current date</td>
</tr>
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</table>

**PPV table**

<table>
<thead>
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<th>Data Type</th>
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<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Failed</td>
<td>int</td>
<td>-</td>
<td>Total number of questions failed</td>
</tr>
<tr>
<td>Sensitivity</td>
<td>varchar</td>
<td>50</td>
<td>The sensitivity of the test</td>
</tr>
<tr>
<td>Specificity</td>
<td>varchar</td>
<td>50</td>
<td>The specificity of the test</td>
</tr>
<tr>
<td>PPV</td>
<td>varchar</td>
<td>50</td>
<td>The positive predictive value of the test</td>
</tr>
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</table>

**DiagnosisQuestions table**

<table>
<thead>
<tr>
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<th>Size</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>QuestionID</td>
<td>int</td>
<td>-</td>
<td>Identity number for each question</td>
</tr>
<tr>
<td>QuestionM</td>
<td>varchar</td>
<td>Max</td>
<td>Diagnosis question in Malay language</td>
</tr>
<tr>
<td>AnswerM</td>
<td>varchar</td>
<td>50</td>
<td>Diagnosis answer in Malay language</td>
</tr>
<tr>
<td>QuestionE</td>
<td>varchar</td>
<td>Max</td>
<td>Diagnosis question in English language</td>
</tr>
<tr>
<td>AnswerE</td>
<td>varchar</td>
<td>50</td>
<td>Diagnosis answer in English language</td>
</tr>
</tbody>
</table>

**Monitor table**

<table>
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<tr>
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<th>Data Type</th>
<th>Size</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>id</td>
<td>Int</td>
<td>-</td>
<td>Identity number for each question</td>
</tr>
<tr>
<td>question</td>
<td>Varchar</td>
<td>Max</td>
<td>Question of the monitoring system</td>
</tr>
<tr>
<td>age</td>
<td>Int</td>
<td>-</td>
<td>Age of the child</td>
</tr>
<tr>
<td>area</td>
<td>varchar</td>
<td>50</td>
<td>Aspect of the development</td>
</tr>
</tbody>
</table>
Solution table

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Data Type</th>
<th>Size</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>id</td>
<td>Int</td>
<td>-</td>
<td>Identity for each solution</td>
</tr>
<tr>
<td>solution</td>
<td>Varchar</td>
<td>Max</td>
<td>Solution for each aspect</td>
</tr>
</tbody>
</table>
APPENDIX F

Nasom Parent’s Support System (NPSS)

User Manual
NPSS Homepage

Home page.

Figure F1: NPSS Homepage
The Registration Function

1) For first time user in this system, they can register themselves via two methods either by clicking on the ‘Register Now’ banner or click on the ‘First Time User? Register Now!’ as per circle at the figure below

![Registration Step 1](image)

**Figure F2:** Registration Step 1
2) After clicking on either of the two links, user will be redirected to Create User page.

**Figure F3:** Registration Step 2

Do keep in mind that during registration, password should have at least 8 characters including alphabets, numbers and also symbols.
3) After information of registration been submitted with no errors, a message will be displayed just like the figure below.

![Figure F4: Registration Step 3](image)

4) After clicking on ‘Continue’ button, the system will be self-login to the account that the particular user just created.

![Figure F5: Registration Step 4](image)
The Login Process

1) The Login control is located at the system homepage. It is shown like the figure below.

![Login Control](image1.png)

**Figure F6:** Login Control

2) After entering the correct combination of User ID and Password, the side navigator will change just like the figure below.

![User Detail](image2.png)

![Menu](image3.png)
3) If this is the first time a user login via this system, he or she will be redirect to a page where they need to fill up their personal details.

![Personal Information Form](image)

**Figure F7**: Successful Login Control

4) Keep note that in this page, it is necessary to fill up Name, Country, National Identity Number and also personal email address. After finish fill up and press on Submit, user will be redirected to the homepage of the system.

5) If user is not the first time login through this system, then he or she do not need to proceed with step 3 and step 4 and will be directed straight to homepage.
Profile Update

1) User need to update their profile when their first attempt to login to this system, however, this system do not limit user to edit their profile just for that moment, user can also edit their profile once they login. The link to edit profile was located at the side navigator bar named ‘MENU’.

![Image of the profile update link in the menu]

**Figure F9**: Locate Update Profile Link

2) After clicking on the link, user will be directed to the profile update page that they seen it for the first time when they login but the only different now is the profile form now is filled with their information which is editable.

![Image of the profile form filled with information]

**Figure F10**: Profile Form filled with information which editable
3 ) After finish fill up and press on Submit, user will be redirected to the homepage of the system. Do take note that name, country, National Identity Number and also personal email address cannot be edited to blank.

**Child Registration**

1 ) To register for a child, user need to have an account and login the system.

2 ) Click on the ‘Register For Your Child’ link which is located at the navigator named “MENU”

![Figure F11: Locate Register Child Link](image)

3 ) After clicking it, user will be directed to a page just like below to register their child
**Figure F12:** A page of Child Registration Form

This Child Registration Form consists of 5 pages. User need to fill in all those blanks in order to provide information for medical and research purpose.

4) A message box will prompt out when user successfully registered a child and this will leads back to homepage.
Child Profile Update

1) Child profile update enable user to edit information of the child he or she registered. The link to ‘Update Child Profile’ is located at side navigator bar named “MENU”

![Menu Navigation Bar]

**Figure F13:** Location of Update Child Profile

2) After click on the ‘Update Child Profile’, user will be directed to a page similar to child registration page but the difference in this page is it contains a drop down list (located at the top of the page) that contains child that the user registered

![Dropdown List Example]

**Figure F14:** Example of dropdownlist that contains one registered child

3) Before user select the child which he interested to edit, the child registration form is empty but after child selection been done, the form will be filled by data which the user registered for the child.
**Figure F15:** Example of filled child profile form
Blog

1) Blog enable user to write progress of their child. The link to ‘Blog’ is located at side navigator bar named “MENU”

![MENU]

Figure F16: Locate Blog and View Blogs Link

2) Once user click on Blogs, they will be directed to a page where they can write about their child progress. The page is as listed at below.

![Blog Entry]

Figure F17 : Interface of Blog Entry
3) In Figure E17, the blog content and Blog Title will be written at the space provided in Figure E17.

4) Do notice at Figure E17, there is a category that ‘Choose which child you intend to add post’, different child been choose will result the content of the blog written to be posted to the child selected.

5) After user successfully posted something into their child’s daily progress blog, the outcome will be something similar like below.

![Blog Page Example]

**Figure F18**: Output of View Blog

6) If user click on ‘View Blog’, they will go to selection of their own child’s blog to read instead of going into the output interface of Figure E18.

![Selection of Child's Blog]

**Figure F19**: Selection of Child’s Blog To View
**Item Gallery**

1) The purpose of item gallery is for user to share item with other user. Besides sharing, interested user can also contact user who posted a specific item for further details about that item such as how and where to get.

2) The link to ‘Item Gallery’ is located at side navigator bar named “MENU”

![Image of Item Gallery Link](image)

**Figure F20:** Locate Item Gallery Link

3) After clicking on the link, user will be directed to the page like below

![Image of Item Gallery Interface](image)

**Figure F21:** Interface of Item Gallery

At this page, you can view according to the categories or even upload an item to share with others! At below, there are two buttons, if you are interested to share an item, click on upload an item or if you interested in searching it, simply click on Search item. Besides, this service also enable buyer to purchase and buy through here.
4) There are two image buttons which indicate upload and search. The Earth icon resembles upload whereas the magnifying glass stands for search.

**To Upload An Item**

1) To upload an item and share with other users, click on the Earth icon. Users will be directed to the page below after clicking it.

In this page, you can able to upload items that you wanna share. Item’s detail will be inserted here together with your personal details. The purpose of personal details is to notify you if there is anyone interested to purchase this item from you.

2) All the blanks above need to be filled. Browse is for the user to search for an item picture to upload so that other users can get a better picture of the real item.

![Figure F22: Interface of Item Details Upload](image)

2) All the blanks above need to be filled. Browse is for the user to search for an item picture to upload so that other users can get a better picture of the real item.
3) After pressing Submit, a summary of item detail will be displayed to the user who upload the item just like example below

![Image of Item Detail Summary]

<table>
<thead>
<tr>
<th>Item Name</th>
<th>nasom logo</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item Category</td>
<td>Book</td>
</tr>
<tr>
<td>Item Description</td>
<td>A book with all logo</td>
</tr>
<tr>
<td>Item Price</td>
<td>rm10.00</td>
</tr>
<tr>
<td>Where item can be found?</td>
<td>Nasom Centre</td>
</tr>
<tr>
<td>Item Owner</td>
<td>Nasom</td>
</tr>
<tr>
<td>Contact</td>
<td><a href="mailto:vincent113@hotmail.com">vincent113@hotmail.com</a></td>
</tr>
<tr>
<td>Do you want to sell this item?</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**Figure F23:** Example of Item Detail Summary
To Search For An Item

1) To search for an item in the server, click on the magnifying glass icon in the interface as shown in Figure E21

2) User will be directed to a page like been showed below.

   In this page, you can able to search for item that you desire to search based on their category.

   In order to do it,
   1. Type in the item name in the the space labeled as item name
   2. Then select the item category.

   ![Interface of Search Item](image)

   **Figure F24:** Interface of Search Item

3) To search for an item, firstly type the Item Name followed by the Item Category.

   After filling up all those 2 categories, press on search button.
4) If user did not enter Item Name but just only Item Category, the system will display all items in that category.

![Figure F24: Example of Search Result](image)

5) If user click on the item name, they will be directed to another page where item details will be displayed out in another form and there will be comment section where user can add comment of this item.
Figure F25: Detailed Item Information Interface 1

Figure F26: Detailed Item Information Interface 2
6) To write comment on this item, fill in message on the left side of the comment button and after finish type simply click on Comment.

7) If user interested to know more information, user can send an email to the another user who uploaded this item via this system. To do that, click on ‘I am interested to know more!’ User will be directed to a page where they can self type enquiry to the user who posted that specific item.

![Email form to contact another user](image)

**Figure F27:** Email form to contact another user

8) After finish filling it up, user will go send back to Figure E21
Application to become a voluntary medical expert in this system.

1 ) Apply for medical expert is to become a medical helper in this system and give professional comments to user by leaving comments at user profile. Several information of the medical expert information needed such as the registration number of doctor, which hospital the doctor is working and so on. The doctor will fill up the email with all these particular information that can verify him or her as a doctor and send it to the administrator. Administrator of this website will verify the doctor and add the specific doctor applicant to the doctor roles in this web system. Add verified applicants manuals can be view at Role Management manual at below.

![Volunteer for medical helper](image)

**Figure F28:** Link at the navigator bar to apply become voluntary medical helper

2 ) After clicking on it, user will be directed to a page which contains email form to him or her to write up information that can verified him or her as doctor

![Email Form](image)

**Figure F29:** Email Form for applicants to fill up and send to administrator email.
3) After successfully send, a message will be displayed at the bottom of the form to indicates that the email has successfully been sent.

**Role Management Manual**

Role Management is for administrator to do Role Management such as adding user to roles so that they can view the web content differently from normal user, remove user from roles, finding how many people in one specific role and of course lastly will be adding roles class.

![Figure F30: Tools that an administrator have on side navigator](image)

**Adding A Role**

1) To add a Role to the system, click on ‘Add Role’ at the Admin Management navigator

2) They will be directed to a page listed as below

![Figure F31: Add Role Tool](image)
3) To add a role, type the role name and after done, click on the button Add Role to Application. The role will be added to the system and will be group together with others roles as shown in figure above which is located at Roles Defined.

Adding A User To Roles

1) To add an user to a role in system, click on ‘Add User To Role’ at the Admin Management navigator

2) They will be directed to a page listed as below

![Add User to role tool](image)

**Figure F32:** Add user to role tool

3) To add an user to a role, type their Username and next select the role available. After selecting, click the button ‘Add User To Role’ to add the user to roles.

Remove A User To Roles

1) To add an user to a role in system, click on ‘Add User To Role’ at the Admin Management navigator

2) They will be directed to a page listed as below
3) To remove an user to a role, type their Username and next select the role available. After selecting, click the button ‘Remove User To Role’ to add the user to roles.

**Figure F33:** Remove user from role
Role Member Listing

1) To see how many user in a specific role in the system, click on ‘Role Member Listing’ at the Admin Management navigator.

2) They will be directed to a page listed as below:

![GETTING USER LISTING IN ROLES](image1)

**Figure F34**: Role Member Listing tool

3) Select a role which one intend to see how many user in it and press on button ‘Get Users In Role’. The output will be show like figure below.

![GETTING USER LISTING IN ROLES](image2)

**Figure F35**: Role Member Listing output