

**iPETLIN**  
**Petlin Database Management System**

By  
Abdul Rahman bin Abdullah  
11845

Dissertation submitted in partial fulfillment of  
the requirements for the  
Bachelor of Technology (Hons)  
(Information & Communication Technology)

SEPTEMBER 2012

Universiti Teknologi PETRONAS  
Bandar Seri Iskandar,  
31750 Tronoh  
Perak Darul Ridzuan

CERTIFICATION OF APPROVAL

**iPETLIN**  
**Petlin Database Management System**

By  
Abdul Rahman bin Abdullah  
(11845)

A project dissertation submitted to the  
Information and Communication Technology Programme  
Universiti Teknologi PETRONAS  
In partial fulfillment of the requirement for the  
Bachelor of Technology (Hons)  
(Information & Communication Technology)

Approved by,

.....

(Dr. Baharum Baharudin)

UNIVERSITI TEKNOLOGI PETRONAS

TRONOH, PERAK

May 2012

## CERTIFICATION OF ORIGINALITY

This is to certify that I am responsible for the work submitted in this project, that the original work is my own except as specified in the references and acknowledgements, and that the original work contained herein have not been undertaken or done by unspecified sources or persons.

---

ABDUL RAHMAN BIN ABDULLAH

## **ABSTRACT**

iPETLIN- Petlin Database Management System is a project to build a web application to provide a database management system by setting up a standard data model with a standard record keeping procedure. The long time taken to reach the resources, the variety of documents used to store data and data anomalies are the problems which are expected to be reduced and solved once the project is implemented. The scope of study for this project building a web application and database management system in a company, Petlin (Malaysia) Sdn Bhd. Taking Extreme Programming as its guidance to build the web application, this project is expected to finish in a short time. Based on the surveys done, most of the staff agreed that all problems in the company happen many times in their working days.

## **ACKNOWLEDGEMENT**

In the name of Allah, The Most Merciful, The Most Gracious, Alhamdulillah, thanks to Allah s.w.t for giving me a chance to complete my FINAL Year Project entitled – iPETLIN, Petlin Database Management System.

My highest gratitude goes to all those who helped me to complete this Final Year Project both directly and indirectly. First I would like to compliment my Supervisor, Dr. Baharudin for his understanding to allow me to build a system for PETLIN. Thank you for your time to assist me in developing the system. I would say that without his guidance, I would not be able to be here.

Next, I would like to thank Health, Safety and Environment (HSE) Department for allowing me to build this system. My gratitude goes to Puan Zanariah, Manager of HSE Department, Encik Sukiman Jinazan, Encik Harith Razali and Puan Sharihan for their supports to build this system. Not to forget, Operational Excellence Department manager, Encik Ibrahim Mat and Puan Syazwani for reviewing the system. I hope this system, if accepted can help the company in managing their data better.

Finally, an honorable mention goes to my family and friends for their understandings and supports towards the completion of this course. Thank you very much for the wonderful hands.

## TABLE OF CONTENT

<b>Certification</b> .....	3
<b>Abstract</b> .....	4
<b>Acknowledgement</b> .....	5
<b>Table of Contents</b> .....	6
<b>1. Introduction</b> .....	7
<b>1.1. Background Study</b>	
<b>1.2. Problem Statement</b>	
<b>1.2.1. Problem identification</b>	
<b>1.2.2. Significant of the project</b>	
<b>1.3. Objectives and Scope of Study</b>	
<b>1.4. The Relevancy of the Project</b>	
<b>1.5. Feasibility of the Project</b>	
<b>2. Literature Review</b> .....	17
<b>3. Methodology</b> .....	22
<b>3.1. Research Methodology</b>	
<b>3.2. Project Activities</b>	
<b>3.2.1. Identifying User Requirement</b>	
<b>3.2.2. System Development</b>	
<b>3.3. Key Milestones</b>	
<b>3.4. Gantt Chart</b>	
<b>3.5. Tools Required</b>	
<b>4. Results and Discussions</b> .....	35
<b>4.1. Data Gathering</b>	
<b>4.2. Data Analysis</b>	
<b>4.3. Discussions</b>	
<b>4.4. Prototype</b>	
<b>5. Conclusion</b> .....	47
<b>5.1. Relevancy to the Objectives</b>	
<b>5.2. Suggested Future Work for Expansion and Continuation</b>	
<b>6. References</b>	
<b>7. Appendices</b>	

# CHAPTER 1

## INTRODUCTION

### 1.1 Background of Study

#### The Project

iPETLIN is a web application project to produce a database management system. The system is dedicated to Petlin (Malaysia) Sdn Bhd as an alternative to manage their data within the company effectively. The system will provide a platform for a standardized data model with standard record keeping procedure and integrate all possible databases in the company. To materialize the project, some studies had been done to run this project. The areas of study are:

1. Data Model
2. Web Application
3. Web 2.0
4. Cloud Computing

#### Data Model

A standard data model is defined as:

*“A standard data model or industry standard data model (ISDM) is a data model that is widely applied in some industry, and shared amongst competitors to some degree.”<sup>1</sup>*

While data model is defined as:

*“A data model in software engineering is an abstract model which documents and organizes the business data for communication between team members and is*

---

<sup>1</sup>Standard data model, Wikipedia, Retrieved from [http://en.wikipedia.org/wiki/Standard\\_data\\_model](http://en.wikipedia.org/wiki/Standard_data_model)

*used as a plan for developing applications, specifically how data is stored and accessed.<sup>2</sup>*”

A standard data model here is proposed because in the company, the data are created and stored in many form of files such as Microsoft Office documents such as Microsoft Word or Microsoft Excel or in other familiar form such as Adobe Acrobat document or Notepad. These different file types are readable in certain platform of operating system and highly corruptible by virus and worms. If all data are standardized this will make the process of sharing and retrieving the data faster as all data are in the same format in the network. Not all user are trained enough to understand the function of database. Users can be divided generally into two types: casual and sophisticated. Casual User according to Ricardi (2001) are those people who make use the system some times and have no training while sophisticated users are those who are familiar with database terms and languages.<sup>3</sup> It is suggested a standardized format of data is proposed which can be read by any platform of operating system and can be retrieved faster.

### **Web Application**

The web application is now preferable by many organizations due to its availability and its scalability. The introduction of web application has added options for company to choose the tools to build a system in their company. Web application is defined as:

*“A web application is a client-server application that (generally) uses the Web browser as its client.<sup>4</sup>”*

When an interactive web application is built, the users tend to use the system more and rely on the system to process their tasks thus make full use of the system built. The advantage of having web application is, the ubiquity of the web application where there is no need to install several specialized client programs on the desktop.

---

<sup>2</sup> Data model, Wikipedia, Retrieved from [http://en.wikipedia.org/wiki/Data\\_model](http://en.wikipedia.org/wiki/Data_model)

<sup>3</sup> Ricardi, G. Principles of Database Management System, with internet and java Applications, 2001, Addison Wesley Publishing Company, Florida, USA

<sup>4</sup> Shklar, I. Rosen, R. Web Application Architecture: Principles, Protocols and Practices. John Wiley & Sons Ltd. 2003, West Sussex, England

Besides, browsers provided mechanisms to securely download and execute more complex clients. Thus, a functional system can be created and presented through the browser.

### **The Web 2.0**

*"Web 2.0 is an overused buzzword, but there is in fact a movement to leverage the power of people and community, "*

This is what Chad Hurley, the Chief Executive Officer of YouTube saw toward the trend of Web 2.0 in a forum entitled 'The Impact of Web 2.0 and Emerging Social Network Model' during World Economic Forum 2011. Web 2.0 enables the web page to function exactly like software interface. Its operation is invisible to the users too. Users do not really see how the tasks are delegated through the networks. What they know, their requests are working and will be sent as they want.

### **Cloud Computing**

*"With the cloud, individuals and small businesses can snap their fingers and instantly set up enterprise-class services. <sup>5</sup>"*

Quoted from Roy Stephen, the Director of IT Architecture and Engineering at Technology Solutions Provider Intelligent Decision, he could see the scenario that is happening between business and IT world. It is now the new trend for the businesses to adopt cloud computing in their business. Visioning cloud computing as the ultimate goal for this project, some concepts in cloud computing is embraced to ensure this project is sustainable for the next development. Cloud Computing is defined as:

*"...refers to the hardware, systems software and application delivered as services over the Internet. <sup>6</sup>"*

To begin this project, a smaller concept of cloud computing would be appropriate to address the scale of this project. The term Private Cloud is more likely to be used to visualize the overall concept of the project. Private cloud is:

---

<sup>5</sup> <http://money.cnn.com/2011/02/09/technology/cloud/index.htm>,

<sup>6</sup> Editors, Antoropolous, N. Gillam, L. Cloud Computing, principles, Systems and Application.

*“Private cloud is used when the cloud infrastructure is operated solely for a business or an organization.”*

There are several reasons why cloud computing is taken as an example to build the project. They are:

**A. Ubiquity of Access**

A user expects a new system must be easy and familiar with their daily life. To access cloud computing, users only need to have a browser to get the resources. There is no specific software needed to install and the users can straight away get their information on their screen quickly.

**B. Ease of management**

Cloud computing is said to have no technical team to correct them. This project is expected to have less technical assistance. This will make the management to focus more on their core works compared worrying on this system. It must have less maintenance once delivered and any mistake done by users can be solved by user themselves on the spot.

**C. Less Investment**

Every business wants to get as much profit as they could. Any operation must benefit them very much and the most important, less cost. Building a web application is usually takes a short time to finish. Thus, the cost for having a web application may be less expensive.

**D. Scalability**

Previous software development focused on the software they want to develop. If it is specialized for the company, it is very costly to have a new one once a new system is needed to develop just to have minor change on the system. Cloud computing, using web application allows the company to define the system depth. Whether they want it to be a big application or just a small one. They have to make sure this application really help them to make their job easier.

## **E. Security**

Once an application is set up, it is important for the developers to improve the security of the system and the security of the data stored. The data are stored in the server and only the application itself can fetch the data from the storage. Besides, looking at cloud computing, all data are scattered all over the Internet. However, for this project, the data will be stored in the server in the company.

## **1.2 Problem Statement**

### **1.2.1 Problem Identification**

As other company, Petlin too deals with lots of raw data to be inserted into the database. All data are stored in a few documents and located in the shared network. To have a better database management, there are some improvements which can be done. Among the problems identified for this project are:

- A. Data are stored in different types of documents
- B. Staffs take a long time to access to the resources.
- C. There are lots of data anomalies occurred in the record

#### **Problem: Data are stored in different types of documents**

In a company, data is highly important to ensure all work is done according to the procedure and produce desired results in the end of the operation. In current practice, data are stored in a document. This practice is continued when a set of new data is received and need to be stored. Data are stored in many kinds of documents such as in spreadsheet, word processing, notepad and many more. When there is a need for a cross-checking, they need to open all documents and compared them manually. This case is very crucial when those data should be stored in a database.

As a solution, a standardized record keeping procedure must be produced to ensure all data are entered and stored in a standard data model.

**Problem: Long time to access the resources**

Based on the current practice, the company stored their data in shared networks. In each network, there will be folders representing the departments in the company. Each department will have several folders regarding their jobs and tasks. All related document with the title of the folder will be stored inside there.

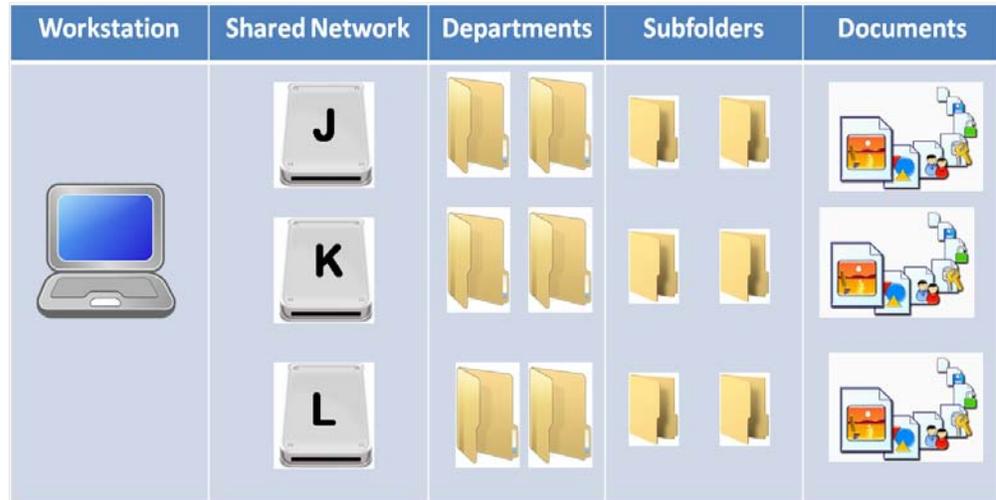


Figure 2: File management in the company

The problem using this system is, the time taken to get the documents in the networks is very long. Sometimes in one subfolder, there are several subfolders which have subfolders. This is very tiring as they need to ‘dig in’ into the network. In the final subfolders, then there are the documents which stored the information.

To solve this problem, a centralized database system would be really helpful for the employees to access to the resource faster. Instead of having multiple numbers of shared networks, employees just need to click on the department link and they will be directed to the department’s data center.

**Problem: Data anomalies**

When dealing with many data, people tend to treat a sheet of data as it is instead of combining it with other data and get better information from the union of

those data. Multiple files with similar data can lead to data redundancy. Data redundancy is defined by Wikipedia as:

*“Data redundancy occurs in database systems which have a field that is repeated in two or more tables.”<sup>7</sup>*

Meanwhile Pratt (2008) defined data redundancy as the duplication of data or the storing of the same data in more than one place.<sup>8</sup> The trend can be examined from the database created within the company. As a reference, the employee name is used as a reference for the table created. There is no unique value which can represent the employees’ identity in the system. By having a primary key in the database, the data stored will not be multiplied and repeated in other document. It is such a waste for the same data are written over and over again.

The second problem in database management in the company is data inconsistency. Data inconsistency is one of the anomalies in database. Since the data is not consistent, thus, the data itself is happened to be invalid and weak. This is claimed in Wikianswer.com:

*“Data inconsistency exists when different and conflicting versions of the same data appear in different places. Data inconsistency creates unreliable information, because it will be difficult to determine which version of the information is correct.”<sup>9</sup>*

Due to the creation of multiple files, some files shared similar data, however the data in each files are not consistent. This will create confusion among the viewers on reading the files. Blaming human errors is not enough to solve the problem. It is the system of managing the data need to be reviewed and assessed to ensure all data are classified properly before enter the system. Specific rules are required for

---

<sup>7</sup> Data redundancy, Wikipedia. Retrieved from [http://en.wikipedia.org/wiki/Data\\_redundancy](http://en.wikipedia.org/wiki/Data_redundancy)

<sup>8</sup> Pratt, P.J. Adamski, J.J. Concepts of Database Management. 6th Edition, 2008, Thompson Course Technology, Boston, Massachusetts

<sup>9</sup> Data inconsistency, Wiki Answer. Retrieved from [http://wiki.answers.com/Q/What\\_is\\_data\\_inconsistency#ixzz1cFmcGt9g](http://wiki.answers.com/Q/What_is_data_inconsistency#ixzz1cFmcGt9g)

the user to insert a data into the database. As people concern, this will help to improve the data quality inside the system.

Lastly, the problem highlighted is, data missing. The missing of data in the company is not something that can be taken for granted. The data missing makes a status questionable and can caused confusion in the future. When a set of information has missing data, thus the data is unreliable and could affect a decision making process which requires the information in order to complete.

### **1.2.2 Significant of the Project**

The project is to provide a database management system to the company. By setting up a standard data model and record keeping procedure with a personalized page for task delegation, this will help the company to performed better in the future. By the end of this project, the user can do record keeping better and produce quality information from standard data model collected.

### **1.3 Objectives of study**

- ❖ To provide a database management system to the company
- ❖ To provide a personalized task delegation center
- ❖ To provide a standard data model in the company
- ❖ To reduce the time to access to the resources
- ❖ To promote paperless campaign

#### **1.3.1 Scope of Project**

##### **A. Database Management System**

This project emphasize on integrating databases in the company to ensure the data are well preserved and useful when needed in the future. By having inter-related databases, this will enable the information generated is up-to-date, useful and reliable.

## B. Web Application

Building a web application with the help of Web 2.0 to produce a dynamic web application and interesting for the user to use is the expected from this project. A web application is chosen as it is more sustainable and developers and users are more familiar with web application compared to other software.

## C. Petlin (Malaysia) Sdn Bhd

PETLIN (M) SDN BHD was incorporated on 9<sup>th</sup> March 1999 with the vision to be the reference producer and preferred supplier of Low Density Polyethylene (LDPE) in Asia Pacific region.



Figure 1: Petlin (Malaysia) Sdn Bhd

PETLIN is the result of dynamic collaboration of PETRONAS Chemical Group (PCG), with Sasol Polymers of South Africa, an experienced low density polyethylene producer. The plant is located in Kerteh Integrated Petrochemical Complex (KIPC), Kerteh, Terengganu on the east coast of Peninsular of Malaysia. Petlin has three main areas which are: Process Area, Non Process Area and Logistic Area. Data used within the company are usually for management purposes and during the operation. The target of the project is to assist the company in managing the employee's data and ensure the smoothness of decision making process within the company.

## **1.4 The Relevancy of the Project**

The project is relevant because:

### **A. Provide centralized database**

A centralized database will help the company to focus on one place to store the data in the company. There will be no need for them to open lots of files and document when they want to update all data. Everything will be done in the system. Besides, this will reduce the time for them to reach the resources.

### **B. Reduce data errors in database**

By setting up a standard record keeping procedure, this will reduce data anomalies in the database thus produce a quality information for the staffs during decision making process.

### **C. Encourage a better organization of data**

The system will eventually create awareness to the employees to have a better management when dealing with the

## **1.5 Feasibility of the Project**

### **Final Year Project 1**

During Final Year Project 1, the process is more focused on the data gathering, looking for requirements for the system, the use of the system to the company, and the desired programs needed in the system. After that, analysis will be done to find the best solutions to solve the problems. Then system design will be produced to ensure the model produced is as desired. This process will be done during 13 weeks of September 2011 Semester.

### **Final Year Project 2**

Final Year Project 2 will be executed during the 13 weeks of May 2012. This phase allows the developer to do the system implementing the system and do any improvement which is helpful to make the system better.

## CHAPTER 2

### LITERATURE REVIEW

Since 2000, Internet has changed many companies to adapt new technologies. The new era of digital has globalized the business worldwide thus increase the rival between enterprises. In 2006, the businesses were introduced with Web 2.0. Web 2.0 is a new generation of web where the website is no longer static but interactive and reachable by millions of people around the world. The definition of Web 2.0:

*“Web 2.0 is the term given to describe a second generation of the World Wide Web that is focused on the ability for people to collaborate and share information online. Web 2.0 basically refers to the transition from static HTML Web pages to a more dynamic Web that is more organized and is based on serving Web applications to users.”<sup>10</sup>*

Defining database, a database is a structure can store info about multiple types of entities, attributes of the entity and relationship between entities.<sup>11</sup> Why Web 2.0 is chosen as a tool to build database management system in this project? Among the factors Web 2.0 are chosen as database management tool; the flexibility, availability, dynamic content, scalability, cost-effective and the increase of accessibility to the internet.

The first factor which makes Web 2.0 is chosen as database management tool is because its flexibility. Taking Web 1.0, the web is simply a reading page where the viewers just can read the content and the process stopped there without further actions. Building the sequence of activities during Web 1.0, the user just open the browser, type the address of desired website, read the materials and close the browser. People cannot

---

<sup>10</sup> Web 2.0 definition, Webopedia, Retrieved from [http://www.webopedia.com/TERM/W/Web\\_2\\_point\\_0.html](http://www.webopedia.com/TERM/W/Web_2_point_0.html)

<sup>11</sup> Pratt, P.J. Adamski, J.J. Concepts of Database Management 6th edition, 2008, Thompson Course Technology, Boston, Massachusetts

see the web is useful for anything on that time. Web 2.0 in contrast has moving boxes, pop up messages, and many more. From simply just virtual journal, this web page can be used for many purposes. Besides, it even also can be changed into a distributing system. This is parallel with the aim of this project, is to build database management system which distribute tasks among the users. Using Web 2.0 as the tool for database management, it is like combining a web scripting and distributed computing where most of the processes are done by the machines and less human effort is needed for the job to be done. Thus, the product produced is a distributed system. Liu (2003) defined distributed system as:

*“A collection of independent computers, interconnected via a network that are capable of collaborating on a task.”<sup>12</sup>*

Distributed computing has been discussed by the developers since the computers are able to distribute tasks among them. Webopedia define distributed computing as:

*“A type of computing in which different components and objects comprising an application can be located on different computers connected to a network.”<sup>13</sup>*

The introduction of PHP, Ajax, Cobra, ASP.net and many new programming languages has changed people perception towards web usage. It is a useful tool for the business; internally and externally. Thus, with this flexibility, this Web 2.0 is chosen as a tool for database management system.

The excitement of interactions between the users of Internet has made Web 2.0 is preferable and adaptable by the users. This is what most of people called as ‘rich user experience’ as Web 2.0 offer the user not only to simply ‘reading’ the screen, instead they can ‘communicate’ and ‘explore’ the knowledge on the screen. This is the new generation of learning where the knowledge is everywhere and people are always looking for knowledge. This kind of environment has existed once the Internet is exposed to the

---

<sup>12</sup> Liu, M. 2003. Distributed Computing Principles and Applications. USA. Pearson Education pg 1

<sup>13</sup> Distributed computing definition, Webopedia, Retrieved from [http://www.webopedia.com/TERM/D/distributed\\_computing.html](http://www.webopedia.com/TERM/D/distributed_computing.html)

youngsters. With the participation of users all around the world, this webpage has become a discussion page with lots of knowledge.

What makes a user really upset when using a system? A user is really upset when the system is unavailable. Availability has been stressed to the programmer to keep any application built, available to the user most of the time. A system is considered as a good system if the user could reach the system anytime anywhere. This principle is more important for the business to the customers. With this globalization era, the customers are everywhere and they would want to do business anytime from anywhere. Cloud computing is the best vision to refer to when building a web-based application. Miller (2009) writes cloud computing as:

*“...a large group of interconnected computers.”<sup>14</sup>*

While Wikipedia define Cloud Computing as:

*“Cloud computing is the delivery of computing as a service rather than a product, whereby shared resources, software, and information are provided to computers and other devices as a utility (like the electricity grid) over a network (typically the Internet).”<sup>15</sup>*

Cloud computing is a good motivation for the system as some of the characteristic of cloud computing is applicable to the system designed for the project. The attributes adopted is adopted to cover some weaknesses in distributed computing. By having such attributes, the distributed system is better than other distributed systems. The user-centric, task-centric, and programmable attributes are a good concept to adopt to be installed into the project. The data will be shared, finished as scheduled and any new updates can be done with less hassle. The action of embracing concepts from other system will increase the probability for this system to stay available to the users.

Moving to the next point, Web 2.0 is attractive because it has dynamic content. With instant feedback, Web 2.0 always will make sure the content in the page is up-to-

---

<sup>14</sup> Miller, M. 2009. Cloud Computing. Indianapolis Que Publishing.

<sup>15</sup> Cloud Computing definition, Wikipedia, [http://en.wikipedia.org/wiki/Cloud\\_computing](http://en.wikipedia.org/wiki/Cloud_computing)

date. The continuous interactions between the users with discussion lead to dynamic content of the page. Discussion with new ideas has made the page richer in information. Taking Wikipedia as an example, a topic is created with several references, in the beginning of its existence. As time goes by, some of the theories are not applicable or need improvement, then it can be improved and viewers can see there is an improvement on the topic. Hence, Web 2.0 is a page which is always changing and people are eager to visit the same page but the content of it changed from time to time. Thus, applying this Web 2.0, the web page has a dynamic content and the information on the web page is always updated and the user can see any changes and differences in the data they need to deal.

The other point which makes Web 2.0 appealing is the scalability characteristic it possessed. The bigger the company, the more the number of data needed to be managed. In software design, to change a software structure which is designed for a specific company business is hard. It requires the programmer to alter the software again. A good business expands from time to time. Sometimes the software used in the company cannot manage the data loaded in the company. Thus, the company needs to check back on the software to ensure the software used fit the company's current business. Using Web 2.0 as a tool for database management, the scalability of the application is no longer a problem. The company is free to define the scalability of the system. The system will follow the expansion of the business and fit the business in a short time. The company is no longer needed to find new software and start asking the developers to develop new software again and again.

Taking Web 2.0 as database management system tool is a cost-effective action. The main goal of a business is to generate profit as much as it could. Thus, any value activities in the business must benefits the business and cost-effective. Web 2.0 does not require much money to cover during the development of the application. However, if the company is adopting cloud storage, then the company needs to pay the cloud provider. Miller (2009) states that cloud storage is a form of networked data storage where data files are stored on multiple virtual servers. This storage is provided by specific companies which deal with database management.

The last point which makes Web 2.0 suitable for database management system is the increase of accessibility to the Internet. Nowadays, Internet is running 24 hours, 7 days a week and throughout the year, the Internet never stop its operation. It has been running since it was created a few decades ago. Web 2.0 is one of the evolution the Internet has and by having this characteristic, the data updates can be done anytime and anywhere. This will enable the business to be done all day regardless anywhere in the world, anytime they like. If there is a breakdown occurred, the business personnel still can access into the system at another place. This will give flexibility in accessing the system. Thus, the system can update the data without any problem. The availability is not benefit for the internal use only, but also to the customers. Customers can initiate a business with the company anytime and anywhere.

In a nutshell, Web 2.0 is the most suitable tool to develop a database management system. This tool is flexible, available, dynamic, scalable, cost-effective and many people can access to the Internet nowadays.

## CHAPTER 3 METHODOLOGY

### 3.1 Research Methodology

This project is planned to use Extreme Programming as the research methodology. The agile methodology is chosen due to its simplicity, short-time frame, user centric and adaptability. Here is how Extreme Programming is represented:

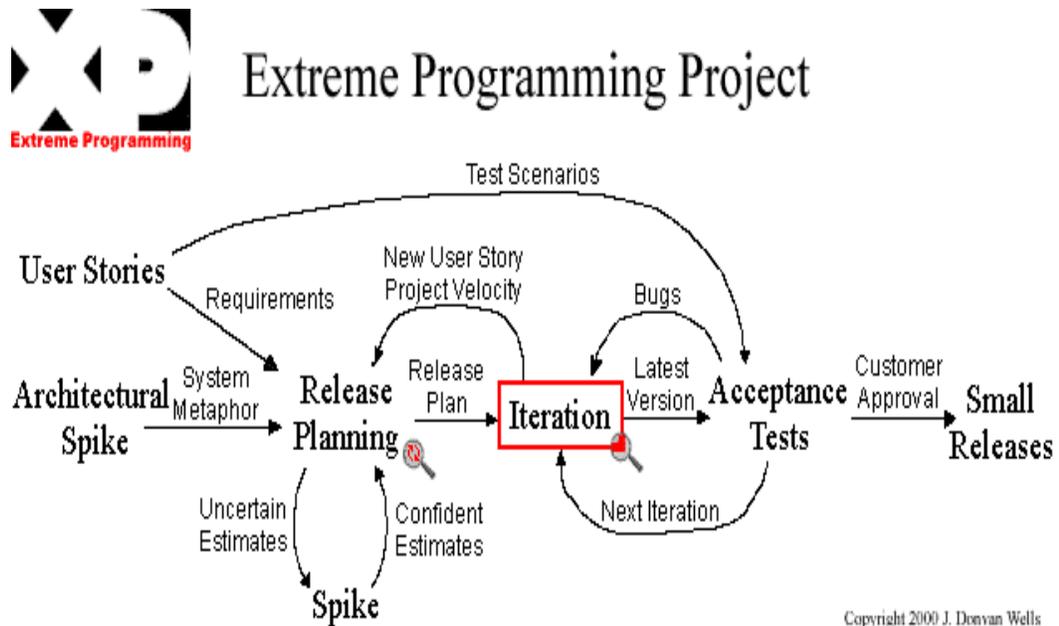


Figure 3: Extreme Programming rules

There are several stages in Extreme Programming where the team members work together to make sure they deliver what the customer really need for their goodness. The stages are:

<sup>16</sup> Source: Extreme Programming Project <http://www.extremeprogramming.org/map/project.html>

#### **A. Architectural Spike**

As the first stage, this phase will define the system metaphor for the project. According to Kent Beck in his book, *Extreme Programming Explained*, a system metaphor is a story that everyone involved in building the system; i.e. customers, programmers and managers, can tell about how the system works. During this phase, the team established the common vision to see what they will see in completing this project, sharing vocabulary on how to describe the components and processes available in the system, Generating new ideas, solving problems and build the architecture of the systems by shaping the system through identifying key objects and interface.

#### **B. Release Planning**

During this phase, the team will gather as much information as they could from the user regarding their desired system. There will be surveys, interviews, questionnaires and many more data gathering methodologies to collect the data from the users. There, the user stories are collected to see the requirements. There will be some uncertain estimation which will be done by the team. If the estimation is confirmed, this will be included into the planning whether to include or to exclude the ideas. This will help them to figure out what kind of system desired by the customers and what the customers really need for their system. Discussions and idea presentations will be done during this phase based on their findings from their earlier surveys and questionnaire. Once they agreed on the one plan, the managing team will come out with a general plan to follow, but still, flexible enough to encounter any changed in the end of the project. Then they will release the plan.

#### **C. Iteration**

This is the crucial function where the developers will start designing and start coding the system. They will work to complete their tasks day by day and if there is any new user story, they will go back to the previous stage to make

some adjustments. The same process will be done over and over. Once there is a change in the plan, the project velocity will be measured to see whether they need to speed up or stay to delay as it is not affecting the project timeline.

#### **D. Acceptance Tests**

Once iteration is done, it will deliver the latest version for acceptance test. This phase is where the iteration will be tested for any failure by matching it with users' scenarios. The users scenarios are the one which tell the team whether they pass the test or not. If it a success, then it can go to the next iteration while if the result is a failure then they need to fixed the problem immediately. It is up to the managing team to delegate the iterations to the developing team. Flexibility is available not just for the project but for managing the team too. However, punctuality and alertness must be embodied to ensure their delivery is worth for the testing. After that, it is up to the customer to approve the system.

#### **E. Small Releases**

During this phase, there will be small releases of the system to the users. Starting with basic functions, this phase will upgrade the system will more additional features into the system. By doing this, the user will feel familiar with the systems and will have no problem adapting to new functions in the future. This will eventually help the employees to learn the system by themselves to understand the system better. Hence, the system will be used frequently and more tasks can be delegated within the company and improve the performance of their employees.

## 3.2 Project Activities

### 3.2.1 Identifying User Requirements

#### The Need for Recordkeeping

- In a company which produce Low Density Polyethylene (LDPE), Petlin conduct many trainings especially safety trainings where the participants will be evaluated on their understanding on the training. Besides, their validity on the trainings will be recorded. Once their trainings are invalid, thus they need to attend the trainings again. There is no standard record keeping procedure/ database in the company which store and integrate all data.

#### Notification Alert

- As small company, the company does not have enough people to notify the engineers and technicians to attend trainings which are expired. The engineers and technicians sometimes are really busy until they forget about the coming expired training. Some tasks will be postponed due to unavailability of the engineers/technicians. This will create awareness among the engineers and technicians to be more organized in planning their tasks and trainings they need to attend.

#### Task Distribution System

- Some tasks in the company simply need a distribution among the members and subordinates. The physical activities will be done outside the system. Once the task is finished, the members/subordinates just update about the tasks completion. The manager will open the system to view the current status for the tasks delegated. Just one click, all data will be displayed on the screen.

### A Sustainable System

- There is nothing more a company need when requesting a system, where the system could sustain in the company for a long time. If the system can be used for a short time, thus it is not benefit much for the company because they need to invest on new system in the future. Thus, any system invested must be beneficial to the company and cost-effective. If not, the investment will turn into a loss.

### **3.2.2 System Development**

To develop the system, a structured process must be followed by the student to ensure the development of the system run smoothly. There are several phases which needed to be completed. They are:

1. Requirement Definition
2. Design of the system and the database
3. Implementation of the system
4. Testing the system
5. Release the system

#### **Phase 1: Requirement Definition**

For this phase, the student needs to collect information for the project, define the scope of the project and the tools he needed for developing the project. This phase has been done during FYP1 in September 2011 semester.

Thus, the scope of this project is to develop a web application which gives a centralized database system with a standard data entry procedure. The tools which will be used in this project are PHP language, MySQL database, Adobe Macromedia Dreamweaver and Apache web server.

#### **Phase 2: Design of the System and the Database**

Phase 2 begun in May 2012 semester where the design of the system and the database structure are mapped on the document. This process had been

progressed from Week 1 to Week 5. There are several output expected from this phase which are: Student able to produce Application Map for the system, Construct a database structure for the system, define page structure of the system, which server-side language will be used and what are the codes for each page.

### **The System**

The structure of the system can be classified into two components which are:

#### **1. Basic**

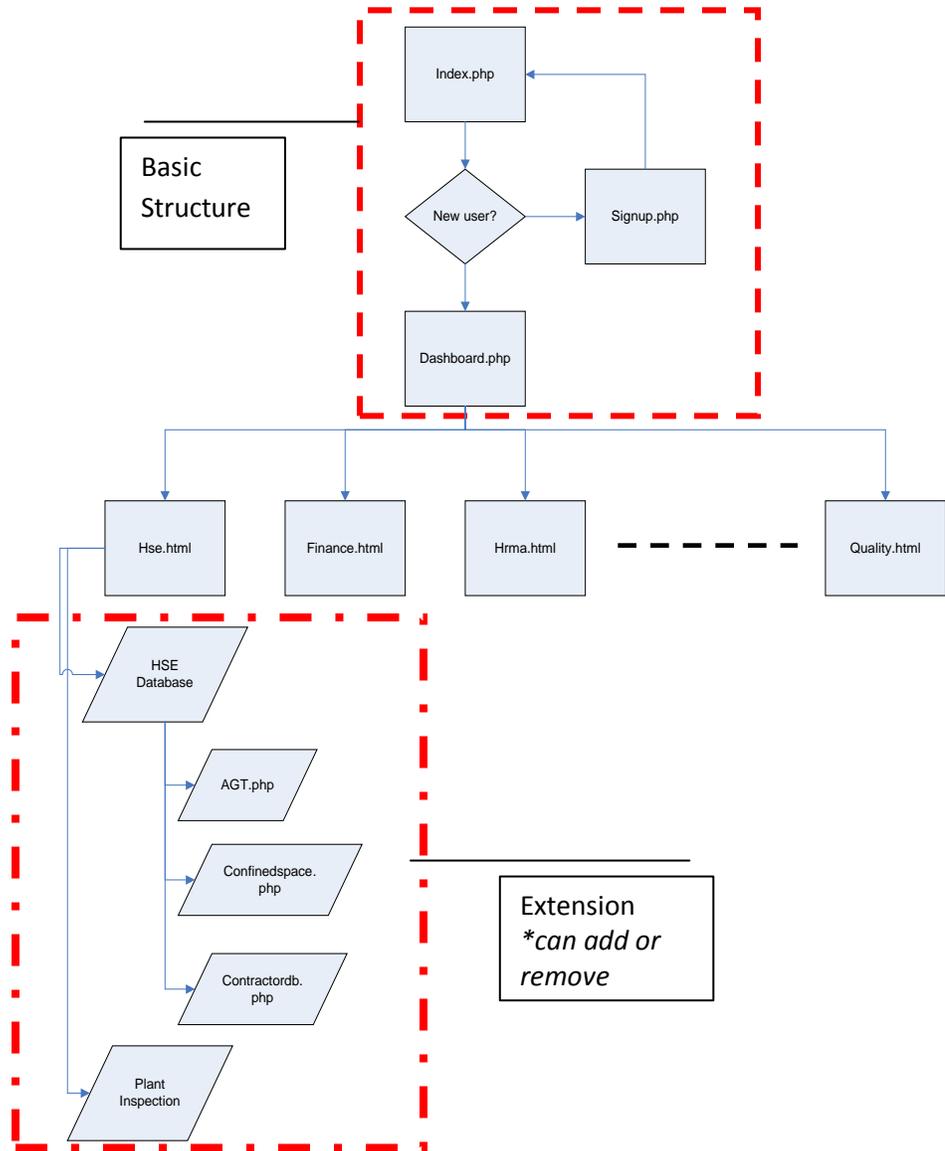
Basic structure is the crucial components in the system which enable the user to access the system. There are homepage, login page, sign-up page, customization page (for Human Resource department) and a dashboard.

#### **2. Extension**

Extension structure is a component where a set of programs are used in the system. The programs can be varied from record keeping program, notification alert or task delegation. The programs can be added, modified or removed. Any new program will be installed by programmer once requested.

### **A. Application Map**

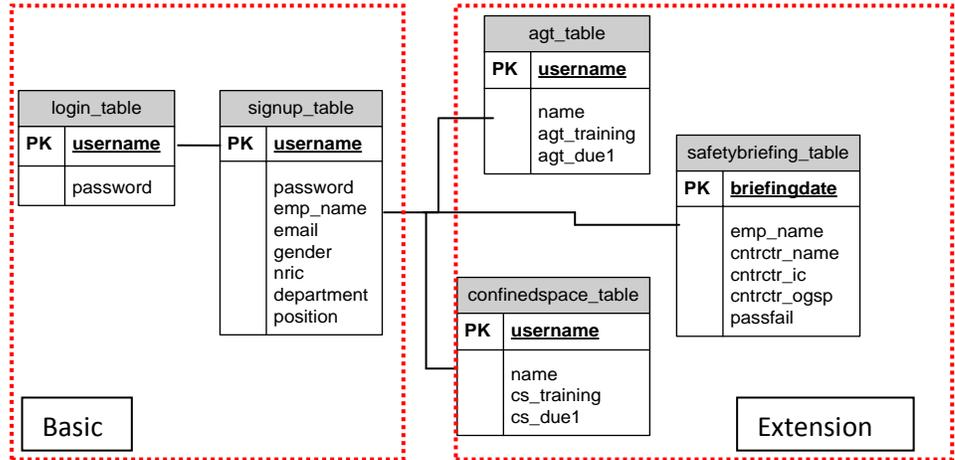
This application map is the one which shows the relationship between pages, the flow of the system one's possibly experience once he can access the system. The system will have a basic structure and extension programs. The basic structure is referring to basic pages will be present in the system. There are Login page, Signup page and Dashboard page. For first time user, they will sign up their information into the system. Then they will be redirected to the login page. Once logged in, the user will see his Dashboard. Dashboard page is where all information on the training alert, training invitation, jobs delegated, user basic profile and navigations to departments are shown.



Extension structure is a group of pages which can be database, system or a simple program. This structure can be added and removed easily without affecting the system. The pages must have their own tables which stand alone and if the removal of the page must not affect any other pages. This will ensure no data missing in the future.

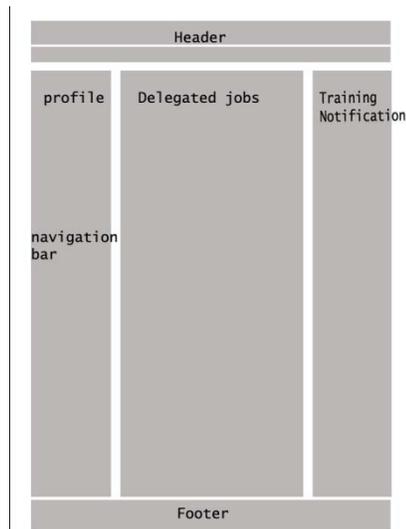
## B. Database Structure

Similar to the system, the database of the system is structured following the application map. There are basic tables and extension tables. The basic tables would be the login table and signup table. The extension tables can be added and removed without affecting the pages.



## C. Page Structure

Most of the pages within the system are triple column structure. Dashboard page will have three columns which give the latest works delegated from the manager at the middle column (based on application available), the training alert at the right column and navigations on the system at the left column.

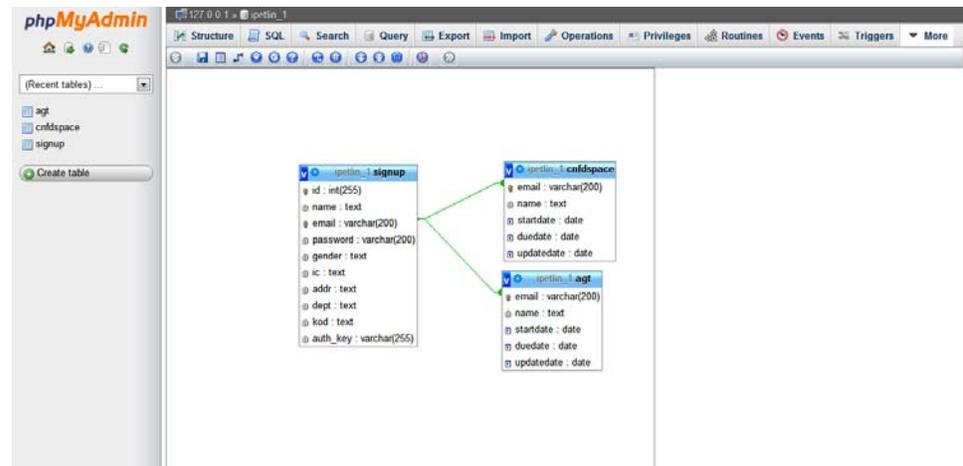


## D. Server-side Language

Using PHP as the server-side language, PHP helps the system to connect with the database, insert the data into database and view the data.

## Phase 3: Implementation

### Database



### HTML

```
13
14 <form class="box login">
15 <div>
16 <center>
17 <br/>
18 
19 </center>
20 </div>
21 <fieldset class="boxBody">
22 <label>E-Mail</label>
23 <input type="text" tabindex="1" placeholder="E-Mail" required id="email">
24 <label>!--<a href="#" class="rLink" tabindex="5">Forget your password?</a-->
25 Password
26 </label>
27 <input type="password" tabindex="2" placeholder="Password" required id="password">
28 </fieldset>
29 <footer>
30 <label><input type="checkbox" tabindex="3" id="remember">Keep me logged in</label>
31 <input type="submit" class="btnLogin" value="Login" tabindex="4">
32 </footer>
33 <p>
34 <center>
35 New in Petlin? Register now!<br/><br/>
36 <a href="signup.php">REGISTER</a>
37 </center>
38 </p>
39 </form>
40 <footer id="main">
41 <a>Petlin (Malaysia) Sdn Bhd</a> <br/>
```

## Server-Side Language

```
151     extract($_REQUEST);
152     if (!empty($name) && !empty($email) && !empty($password) && !empty($gender) && !empty($ic) && !empty($addr) && !empty($dept) && !empty($kod))
153     { $sql = "INSERT INTO signup (name, email ,password, gender, ic, addr, dept, kod) VALUES ('$name', '$email', '$password', '$gender', '$ic', '$addr', '$dept', '$kod)";
154         $result = mysql_query($sql) or die ("Execution error");
155         if($result)
156         {
157             echo("<br>Input data is Success!");
158             header("location: index.php");
159         }
160         else
161         {
162             echo("<br>Input data is fail");
163         }
164     }
165     }
166     else
167     {
168         if (isset($submit))
169         {
170             printf("<script language=\"javascript\">window.alert (\"You cannot leave the text fields blank!\");</script>");
171         }
172     }
173     }
174 }
175 }
176 ?>
```

## **Phase 4: Test**

### Test Code

The codes will be test to see the connectivity of the pages with the database, to connect a page to another page using PHP language. Testing is the most time-consuming activity. Student needed to find test every code in each page and make sure all codes are working.

### Fix Bugs

Any bugs will be encountered and fixed immediately. Solutions are done from discussions and assistance from the Internet. Lecturer's recommendation too helps in fixing the bugs.

### Final Validation

The activity starts once the bugs are fixed. Once it is confirmed working, the working page will proceed into the system.

## **Phase 5: Release**

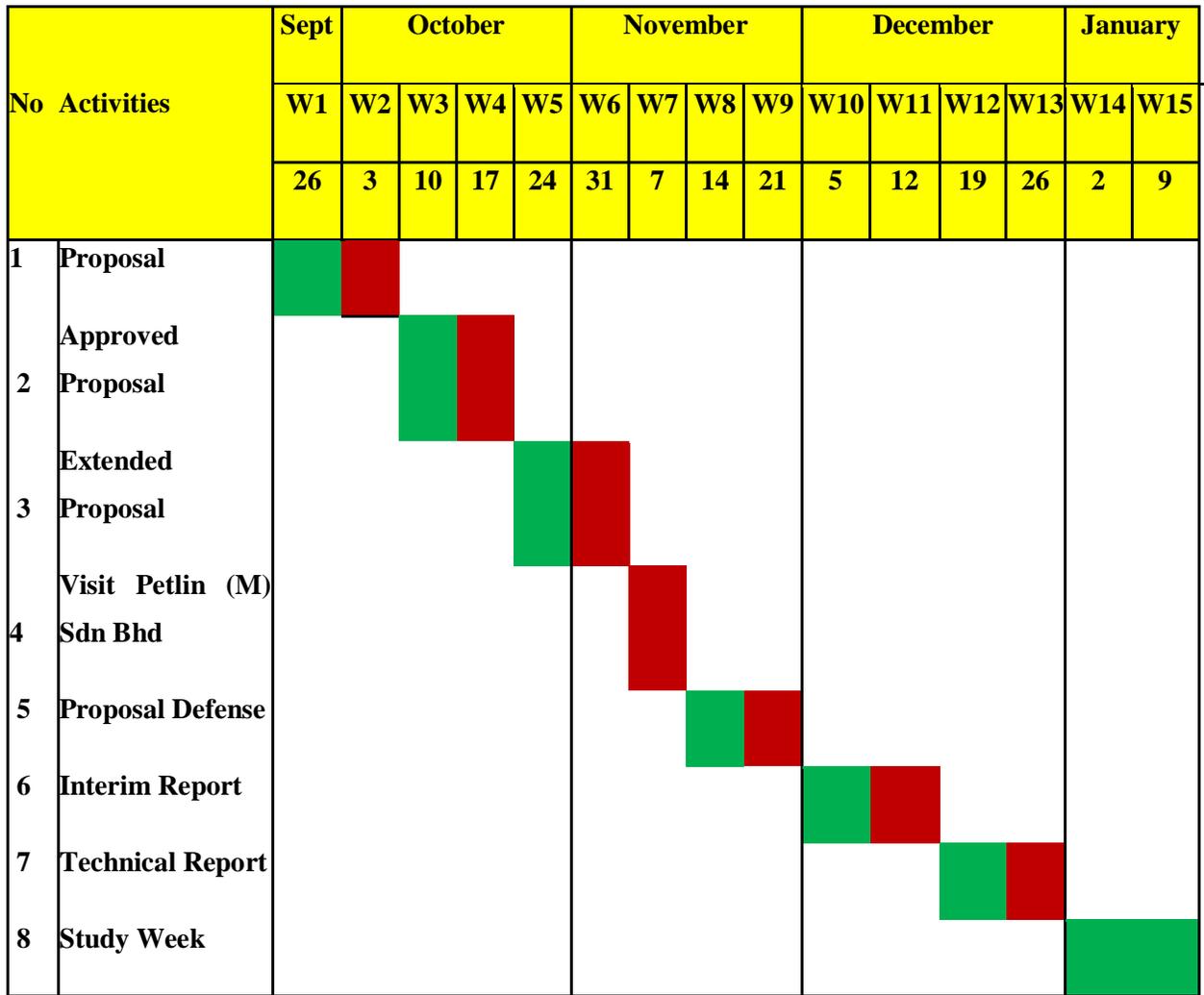
The system will be release to the users once all components of the system are available.

### 3.3 Key Milestones

<u>Final Year Project 1</u>	<u>Due Date</u>	<u>Final Year Project 2</u>	<u>Due Date</u>
Proposed Title	Week 1	Progress Report	Week 7
Extended Proposal	Week 6	Pre-SEDEX	Week 10
Proposal Defense	Week 9	Dissertation	Week 9
Interim Report	Week 11	Viva	Week 11
Technical Report	Week 13	Technical Report	Week 13

### 3.4 Gantt Chart

#### 3.4.1 FYP1 Timeline



### 3.4.2 FYP2 Timeline

No Activities		MAY		JUNE				JULY					AUGUST				
		W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12	W13	W14	W15	
		21	28	4	11	18	25	2	9	16	23	30	6	13	20	27	
1	Application Map	█															
2	Database Structure			█													
3	Progress Report					█		█									
4	Pre-SEDEX						█			█							
5	Dissertation									█	█						
6	Viva										█		█				
7	Final Dissertation												█	█			
8	Study Week													█			

### **3.5 Tools Required**

#### **PHP**

PHP stand for PHP Hypertext Preprocessor. This language helps to make the website more flexible and more functional. PHP is the hybrid approaches to build a web application. Thus, PHP is important to run this web application

#### **MySQL**

MySQL is used as the database to store the data and perform data mining if requested by the function. It is up to developers to design the request forms; MySQL will store the data and display the data from the database to be displayed on the screen.

#### **Adobe Macromedia Dreamweaver**

Adobe Macromedia Dreamweaver is a tool to assist the developer to build the web application. This is the application to build the web pages and embedded PHP codes into it. By having this application, developer can see clearly if there is any error in the code and solve the error immediately.

#### **EasyPHP 12.0.0**

This server will imitate the server used if this project is going to be implemented. This server stored the pages, the database, and enables the web pages with PHP codes to functioning. Simply building a page is will not make the function to work unless it is in a server.

## **CHAPTER 4**

### **RESULTS AND DISCUSSIONS**

#### **4.1 Data gathering (Interview, Survey)**

To begin the project, there were several activities done to see the need of the system in the company. There were personal interviews to see the scenario and a survey to prove the thought.

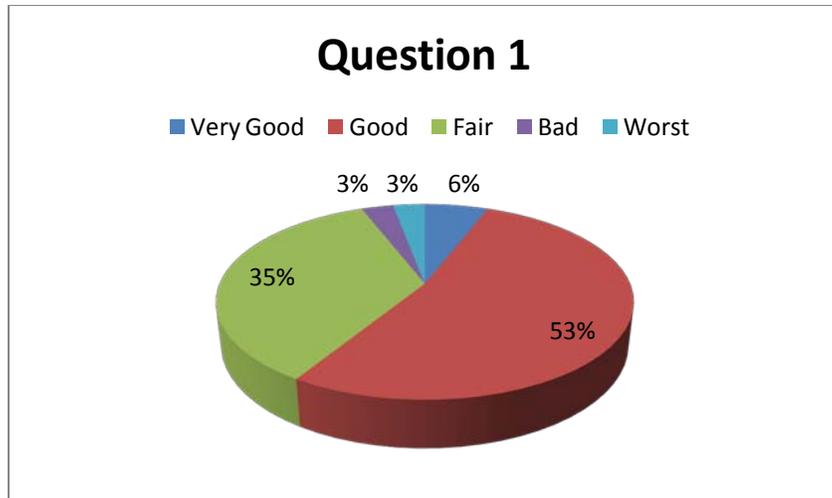
The survey questions were done by stating out statements instead of asking questions. The survey will ask them to agree or not to agree with the statement. By ranking the statement, this will produce the result about their opinion generally about the databases present in the company. Constructing the statements, from general to a specific one, this will see the problem from overall problem to specific problem in record keeping and databases anomalies.

#### **4.2 Data Analysis**

Based on the survey done to the employees of the company, the result of the finding is as below:

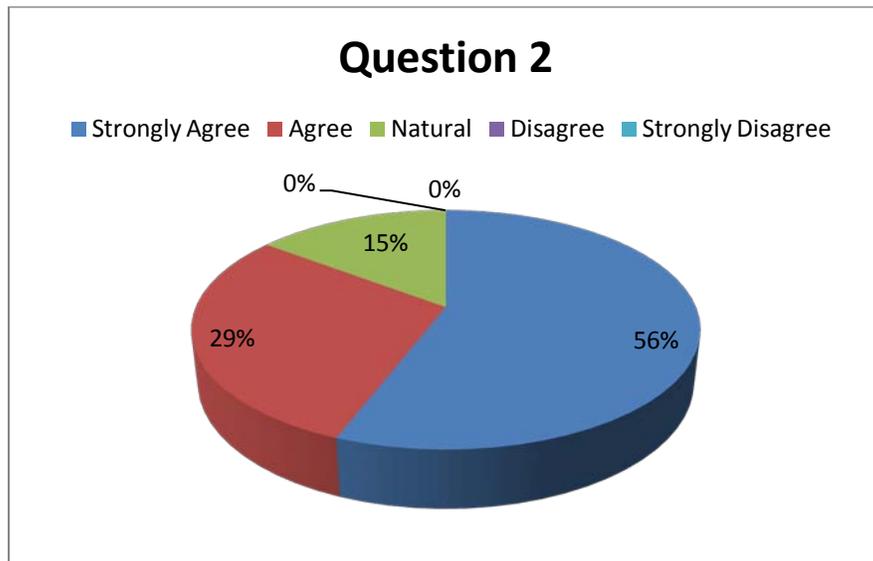
##### Question 1: General opinion on the current database

This question asks the participants to give their opinion generally on the current database used in the company. According to the result, 53% of them are satisfied with the current database. However, 35% of the responses think the database now is sufficient for current use and think that there should be a better database in the future.



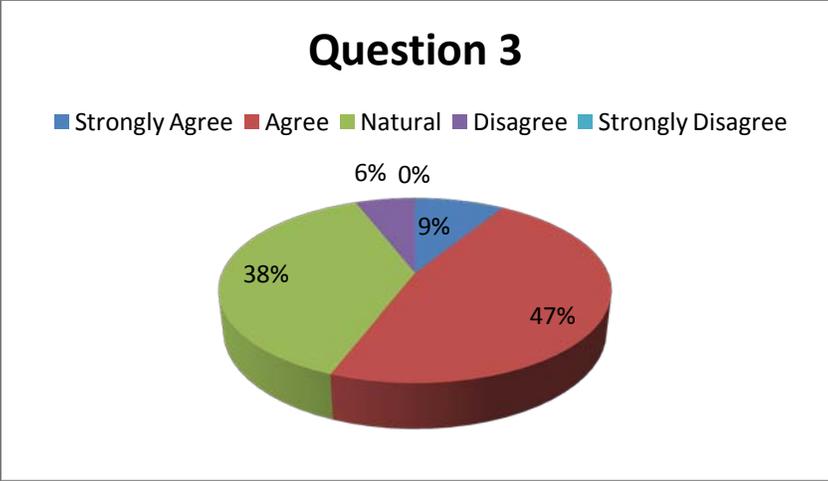
Question 2: The importance of data in the company

According to the result, most of the strongly agree with the statement that data is very important to the company. And 29% of them agree with the statement. Basically, all of them know the importance of data in the company and why they need to value the data very high.



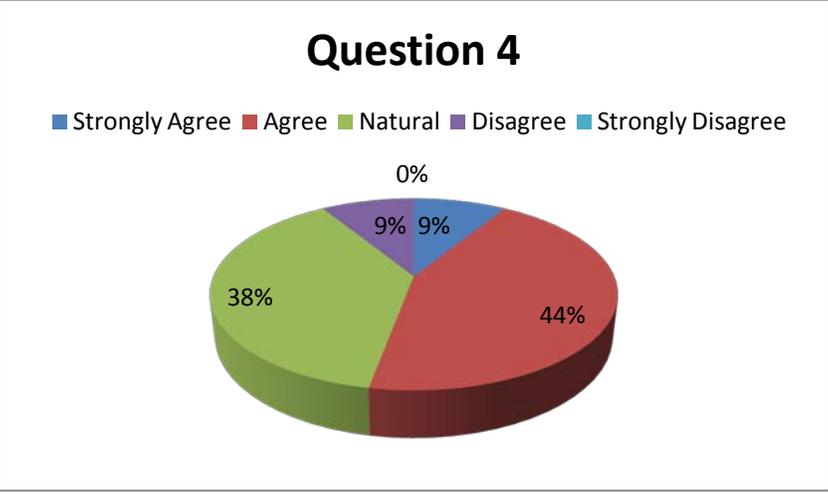
Question 3: Experience on encountering incomplete data

For the current time, many of the employees experienced the incomplete data in their databases. They often experienced but not too many. Even though for certain occasions, this is, however, this is not a good experience for them as they will question the missing data in the list.



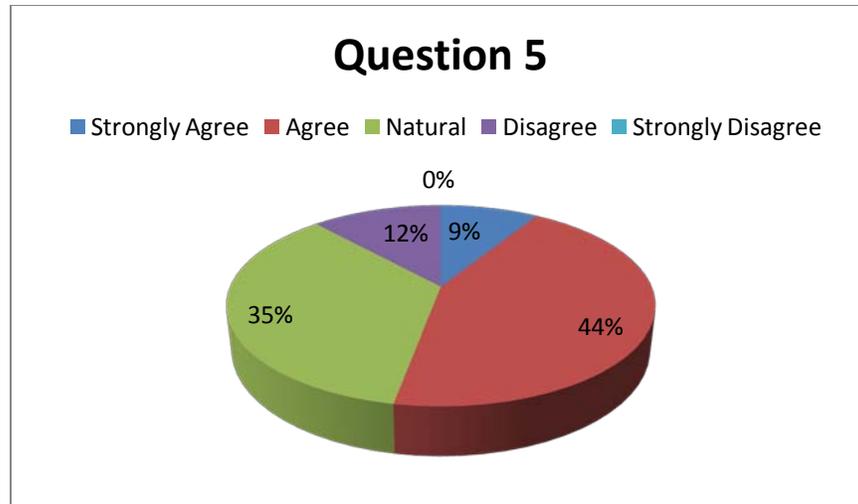
Question 4: Data consistency checking

Several times, they encounter some inconsistent data in their database. It was a very bad experience. Inconsistent data caused confusion and puzzled them to find the real data which is reliable and trusted. 44% of them agreed that they encounter and none of them disappoint with the data. Thus, the data in the company is not managed badly.



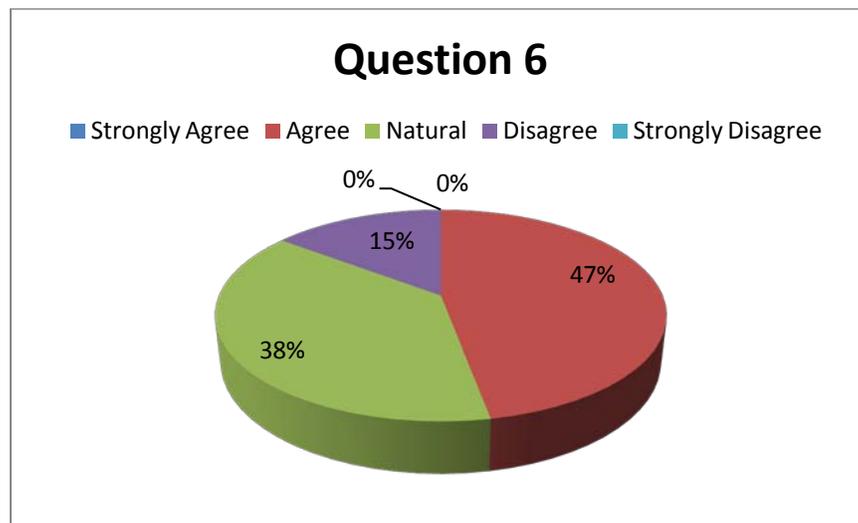
Question 5: Data redundancy checking

Most of the time, they encounter similar data in a document or similar files in a folder. Thus, most of the agree that data redundancy occurred many times in the company. Thus, a better management of data is needed to ensure all data are reliable and available.



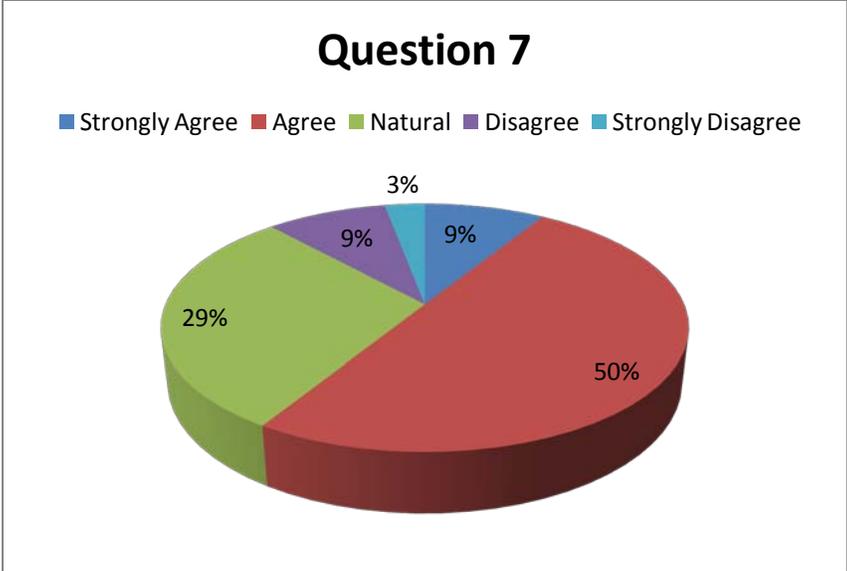
Question 6: Outdated data experience

Fairly explained, they also encountered many outdated data. Outdated data will eventually gives false information to the users. Hence, this scenario must be reduced and eliminated to ensure the database is always up-to-date.



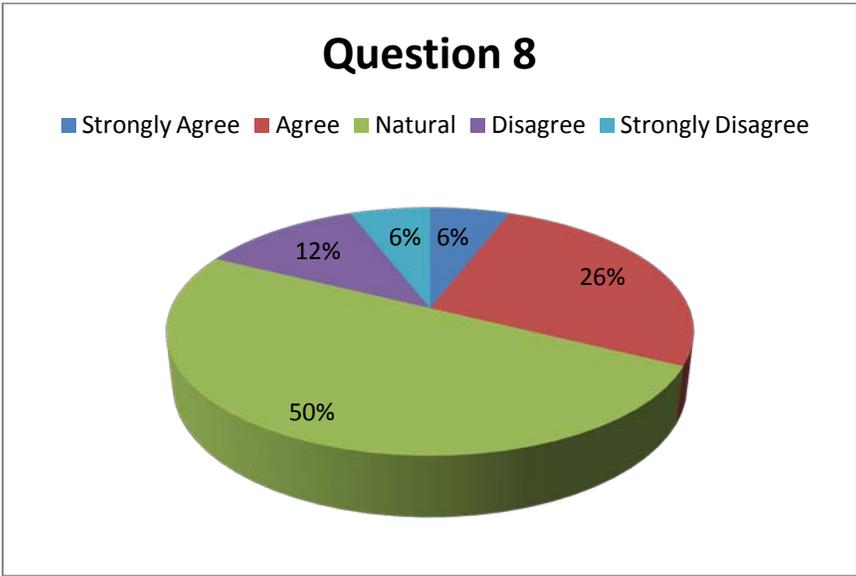
Question 7: Knowing standard record keeping procedure

Half of the participants understand there is a standard record keeping procedure. However, the current record keeping procedure is more about keeping the record in the document instead of integrate all of them to one place.



Question 8: Looking for one database

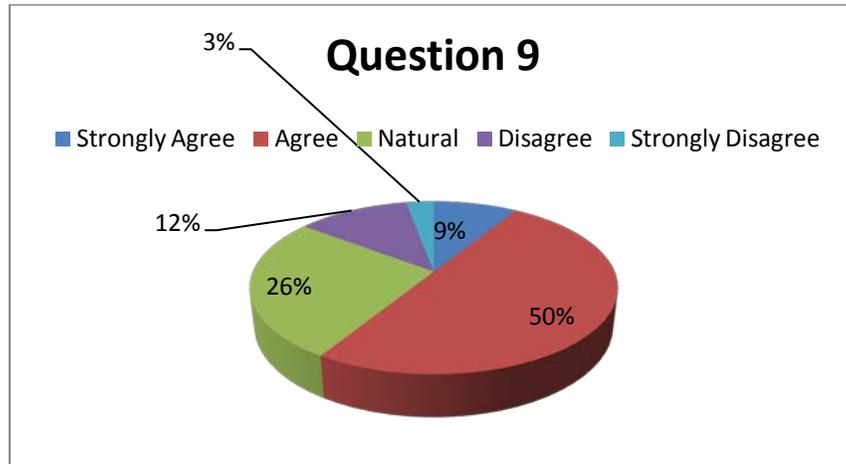
Half of them believe there is one place to store data which are in a shared network. However they have to search the shared network to find the documents desired. This will eventually made them to browse, the worst case, all folders in the shared network.



Question 9: Time access to get to the source

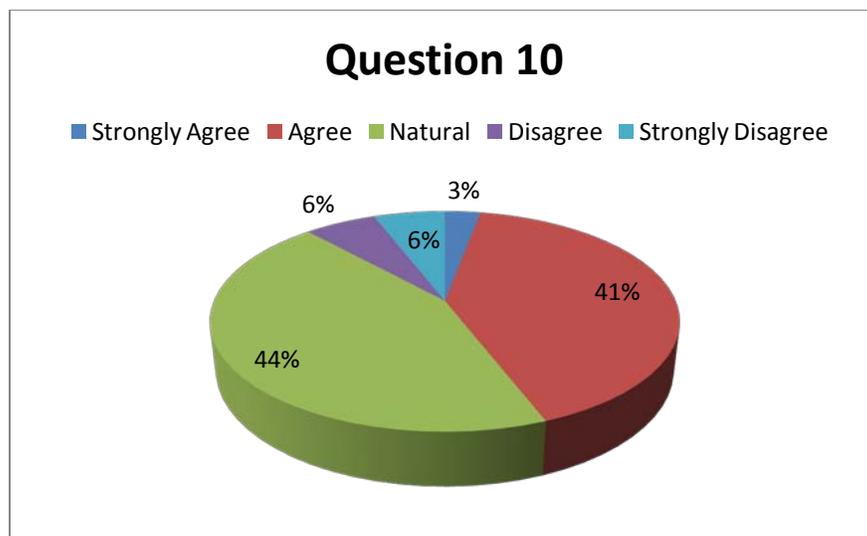
It cannot be denied that half of them take more than one minute to get to the resources. This is because there is complexity of the folders in the shared

network. The subfolders which are too many sometimes make the search difficult.



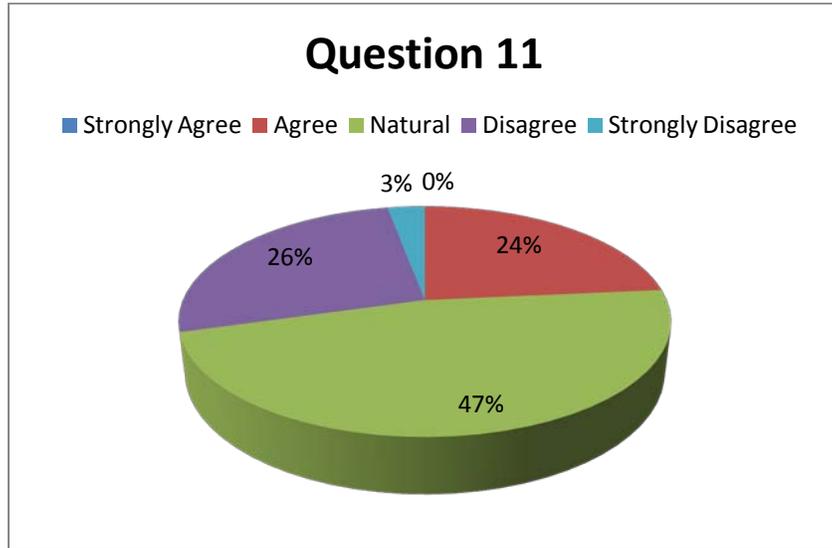
Question 10: Integrity of database

This question asks the user about the presence of integrated database. Some of them agree with the statement as all data are in the shared network while some do agree but at the same time they need proper integrated database.



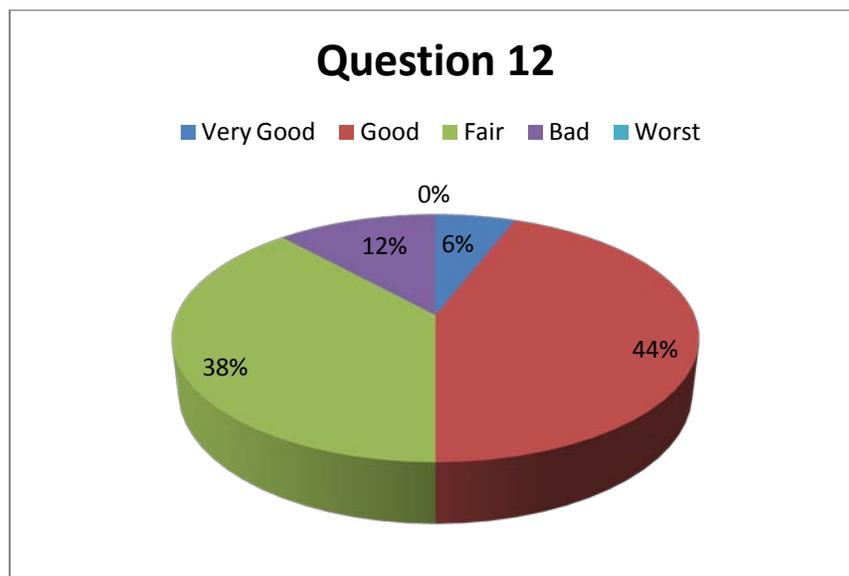
Question 11: Utilization on iPerintis systems

Most of staffs use the systems provided by iPerintis, however, it is not really utilized. That's why some of them disagree the system provided by iPerintis is fully utilized.



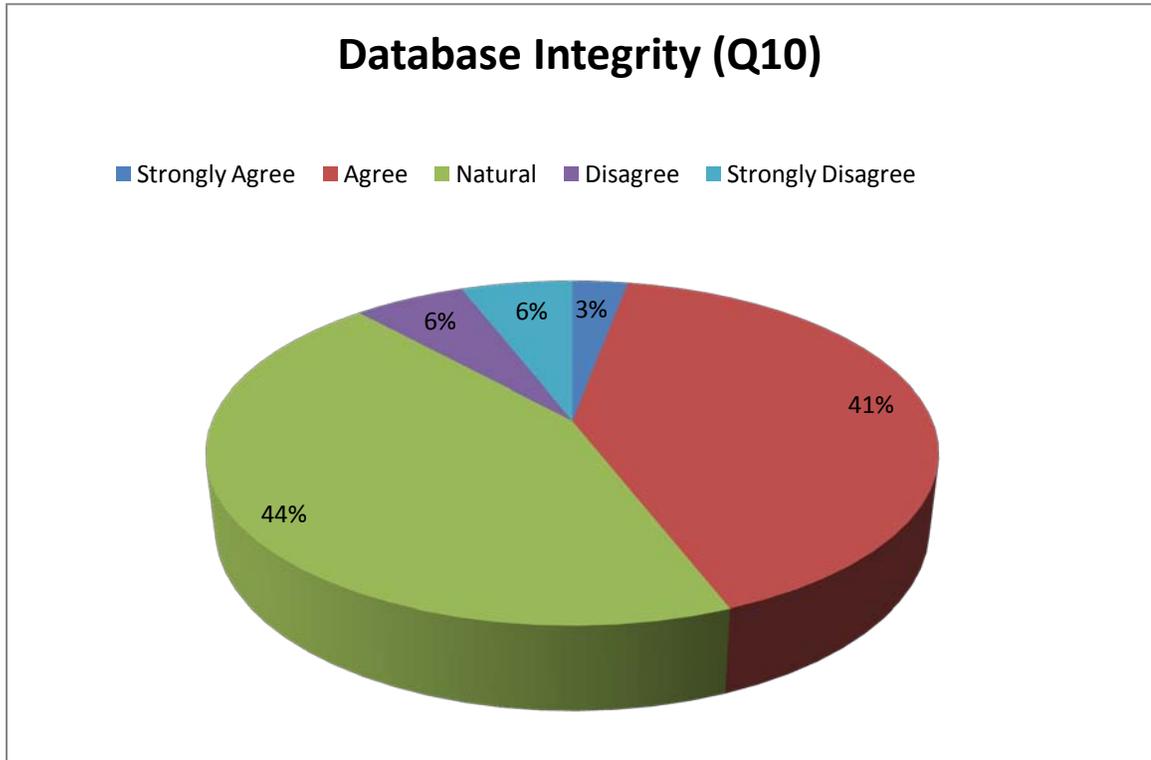
Question 12: Rating PETRONAS systems provided

Most of the employee seems happy with the system provided by Petronas. Somehow give some disappointment to the employees. But this does not mean PETRONAS did not give good systems, but it provided the best it could to the subsidiaries and affirmatives.



### 4.3 DISCUSSIONS

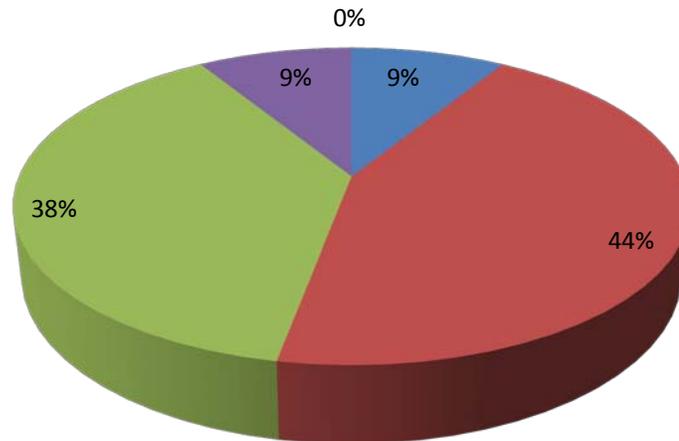
Based on the results from the survey, student finds that the employees are aware of the importance of having a centralized database system. They also understand that every data in the system are important. However there is still some room for improvement.



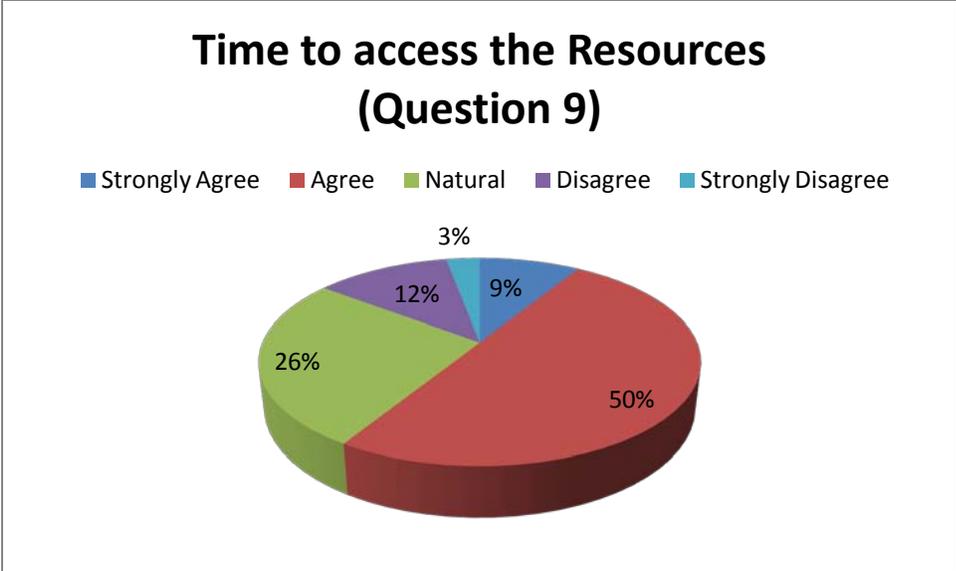
Almost half of the respondents agree that the company does not have an integrated database. It is true that the documents are stored in one place but most of them cannot be related and very hard to connect between two documents. With different data models it is hard for them to combine two different documents and produce with a new data model which everybody can adapt to it. This is the importance of having a standard data model where the platform is shared among the documents created in the company. It shows that the company needs to come with a proper database management system. However it does not mean the company does not have a good database management, however by having a centralized database and integrated system; this will help the data sharing activity better.

## Data Anomalies (From Question 4, 5, 6 )

■ Strongly Agree ■ Agree ■ Natural ■ Disagree ■ Strongly Disagree



The chart above shows the results of combining Questions 4,5,6 and 7. This data shows data anomalies experienced by the employees using the database they had currently. More than half of the agreed and strongly agreed that there are data anomalies within the database. They experienced data missing, data inconsistency, and outdated data. With data anomalies, this makes the database less reliable and gives the manager a hard time to make decision. A decision with insufficient data will results in a bad business decision. As a solution, by having a standard recordkeeping procedure, this will help the company to reduce data anomalies within the database and helps the managers to make a good decision for the goodness of the company. The data will be more reliable, traceable and the most important, precise to the user. The system too will help the company to set up a centralized system which is better and adaptable to the fast-growing business trends.



About half of the respondents agreed that it takes more than one minutes for them to get to the resources they wanted. They have to open a folder with subfolders with subfolders and they have to open other windows to open other subfolders. This cause the task bar filled with windows and cluttered the screen.

By using web application, all they have to do is to open a new tab for new resources. Web application makes the job easier. The experience is like browsing the Internet. Instead, they open their web browser to do their job. All data will be there and just one click, their information is right upon their eyes. Employees too want to make their job faster, easier but yet complete and correct. This will motivate the employees to work better for the company hence gives the company a quality employee who loves the company so much. Motivated employees will eventually lead the company to become more profitable in the future.

**Data**

The data circulated in the system is simply for tasks delegation, updating the tasks given and view trainings' validity. All data in the system will come from the staffs in the company. The data will be stored or delegated in the system. Once it is delegated, it will go to specified people as assigned. The staff will decide who will be assigned on which assignment. Any manipulation of data will be allowed for specific people to specific records.

The expected data entered into the database is merely for the surface level of the business. For the beginning of the development, there will be no confidential data included in the system and distributed over the system. The data inserted are mostly used for notification purpose and simple job delegation. The confidentiality of data is depends on the application in the program if the program requires distribution of confidential data, then security issue might need further discussion.

#### 4.4 PROTOTYPE

##### Login Page



The image shows a login page for iPETLIN. At the top center is the PETLIN logo, which consists of a stylized 'P' shape in grey and orange, with the word 'PETLIN' in bold black letters below it. Underneath the logo is the text 'iPETLIN'. The main content area contains a login form. It starts with the label 'Username' above a text input field containing the placeholder text 'Username'. Below that is the label 'Password' above a text input field containing the placeholder text 'Password'. To the right of the password field is a link that says 'Forget your password?'. Below the password field is a checkbox labeled 'Keep me logged in'. To the right of the checkbox is a blue rounded button with the text 'Login'. At the bottom of the page, in a light blue footer area, is the text 'Petlin (Malaysia) Sdn Bhd © Copyright of Petlin'.

## Dashboard Page

**iPETLIN**

**Welcome!**  
**Razali Ali**

[Dashboard](#)

**Logout**  
Training:   
Date:      
[Check calendar value](#)  
  
Date Selected  
Your Training will expire in  
365 days more

Department
Human Resource & Administration
Health, Safety & Environment
Operational Excellence
Engineering
Technical
Operation
Quality

*Any task delegation will be posted on this column.*

*Employees update their own trainings. At this column and notified on expired training*

Petlin (Malaysia) Sdn Bhd  
© Copyright of Petlin

## Signup Page



**iPETLIN**

### SIGNUP

Name :

Email :

Password :

Confirm Password :

Gender :

IC/Passport No. :

Address :

Department :

Code :

*Employee signup for their details and verification code will be given by HR department for verification*

Petlin (Malaysia) Sdn Bhd  
© Copyright of Petlin

## **CHAPTER 5**

### **CONCLUSIONS AND RECOMMENDATION**

#### **1.1 Relevancy of the Project**

This project is relevant for the company because it help the company to have an integrated database which gives a centralized all data in the company and enable them to search the data in one place. Thus, by having this integrated database, this will enable the employees to reach the resources faster. This will reduce the time taken to reach the resources, hence make the employees to work faster. By setting up a standard record keeping procedure, this will reduce data missing, data redundancy, data inconsistency and unreliable data in the database. This will produce better quality information in the future. Thus give the managers reliable information when making a decision. This system to help in delegating tasks among the employees thus increase the effectiveness in tasks delegating job and make all tasks are coordinated and done successfully.

#### **1.2 Recommendation and Future Work**

It is recommended for the next developer to bring this system to the next level where all documents and data in the company are integrated in the system. The dashboard and the view pages are simply displaying the data which is mined from the database. More applications can be included in the system where it can be leant by the employees by themselves.

## REFERENCES

- [1] Kohan, B. *Guide to Web Application Development- Guides, Resources and Best Practices*. [Cited: October 25, 2011.] <http://www.comentum.com/guide-to-web-application-development.html>
- [2] Pratt, P.J. Adamski, J.J. (2008): *Concepts of Database Management* 6th edition, Thompson Course Technology, Boston, Massachusetts
- [3] Ricardi, G. (2001): *Principles of Database management System, with internet and java Applications*, Addison Wesley Publishing Company, Florida, USA
- [4] Silberschatz, A. Korth, H.F. Sudarshan, S. (2011): *Database system concepts*. McGraw Hill, New York, USA
- [5] Pressman, R.S. (2010): *Software Engineering, A Practitioner Approach*, Mc Graw Hills, 7th Edition, Singapore
- [6] Shklar, L. Rosen, R. (2003): *Web Application Architecture: Principles, Protocols and Practices*, John Wiley and Sons, Ltd, West Sussex, England.
- [7] Shklar, L. Rosen, R. (2009): *Web Application Architecture: Principles, Protocols and Practices*, 2nd Edition, John Wiley and Sons, Ltd, West Sussex, England
- [8] Watson, R.T. (2002): *Data Management. Databases and Organizations*. 3rd Edition. John Wiley & Sons.. New York, USA.
- [9] Liu, M.L. (2004): *Distributed Computing, Principles and Application*. Pearson Education, USA
- [10] Chorafas, D. N. (2011): *Cloud Computing Strategies*., CRC Press Taylor & Francis Group, USA
- [11] Hueman, B. *The Five Signs That an Application is Ripe for The Cloud*, [Cited: November 1, 2011.] <http://www.readwriteweb.com/cloud/2011/11/the-five-signs-that-an-applica.php>

- [12] O'reilly, Tim, *What is Web 2.0: Design Patterns and Business Models for the Next Generation of Software. Communications & Strategies*, No. 1, p. 17, First Quarter 2007 <http://ssrn.com/abstract=1008839>
- [13] Murugesan, S.; "*Understanding Web 2.0*," IT Professional, vol.9, no.4, pp.34-41, July-Aug. 2007 Doi: 10.1109/MITP.2007.78 [Cited: November 9, 2011.]: <http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=4287373&isnumber=4287363>
- [14] Winer, D. (2000): *What is a Web Application?*, DaveNet [Cited: November 7, 2011.] <http://scripting.com/davenet/2000/03/12/whatIsAWebApplication.html>
- [15] Lash, D. A. (2003): *The Web Wizard's Guide to PHP*. Pearson Education. USA
- [16] Nations, D. *What is a Web Application?*. About.com [Cited: November 13, 2011.] [http://webtrends.about.com/od/webapplications/a/web\\_application.htm](http://webtrends.about.com/od/webapplications/a/web_application.htm)
- [17] Yan Liu, Xin Liang, Lingzhi Xu, Staples, M., Liming Zhu, "*Using architecture integration patterns to compose enterprise mashups*", Software Architecture, 2009 & European Conference on Software Architecture. WICSA/ECSA 2009. Joint Working IEEE/IFIP Conference on, on page(s): 111 - 120, Volume: Issue: 14-17 Sept. 2009 [Cited: November 22, 2011.] <http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=5290797&tag=1>
- [18] Kienle, H.M., Muller, H.A., "*Research challenges in management and compliance of policies on the web*", Web Site Evolution, 2008. WSE 2008. 10th International Symposium on, on page(s): 83 - 92, Volume: Issue: 3-4 Oct. 2008 [Cited: November 22, 2011.] <http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=4655400>
- [19] Sabouri, M., Jalali, A.A., "*Evaluating Web 2.0 Services Based on 7C Framework*", Information Technology: New Generations, 2009. ITNG '09. Sixth International Conference on, On page(s): 1693 - 1694, Volume: Issue: , 27-29 April 2009 [Cited: November 22, 2011.] <http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=5070905>
- [20] Libin Zhang, Qianyu Zhu, Wei Wang, Pengcheng Zhang, "*Web 2.0 and Semantic Web Based Intelligent Service System for Tourism*", Wireless Communications, Networking and Mobile Computing, 2008. WiCOM '08. 4th

- International Conference on, on page(s): 1 - 4, Volume: Issue: 12-14 Oct. 2008  
[Cited: November 22, 2011.]  
<http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=4681100>
- [21] Jiehan Zhou, Junzhao Sun, Athukorala, K., Wijekoon, D., "*Pervasive Social Computing: Augmenting Five Facets of Human Intelligence*", Ubiquitous Intelligence & Computing and 7th International Conference on Autonomic & Trusted Computing (UIC/ATC), 2010 7th International Conference on, On page(s): 1 - 6, Volume: Issue: , 26-29 Oct. 2010 [Cited: November 22, 2011.]  
<http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=5667101>
- [22] I-Ching Hsu, "A Semantic-Based Transcoding Mashup Server for Web 2.0 Sites", Complex, Intelligent and Software Intensive Systems, 2009. CISIS '09. International Conference on, on page(s): 59 - 66, Volume: Issue: 16-19 March 2009 [Cited: November 22, 2011.]  
<http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=5066769>

## APPENDICES

### Connection.php

```
<?php
/*
** filename : connection.php
** This file creates a connection to mysql via mysql_connect(hostname,
    username, password).
** STEP 1: mysql_connect creates a connection between a php program and a
    MySQL server.
** STEP 2: mysql_select_db selects the named database and makes it current.
*/
$host = "localhost:3306";
$username = "root";
$password = "";
$db_name="ipetlin_1";
$connection = mysql_connect($host, $username, $password) or die ("Cannot
    connect to the MySQL server". mysql_error()); //step 1: connect to the
    MySQL server
mysql_select_db("$db_name") or die ("Cannot select database " .
    mysql_error()); //step 2: Select a database
?>
```

### Signup.php

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN">
<html>
<link rel="stylesheet" type="text/css" href="signup_css.css">
<head>
```

```

<title>SIGNUP</title>
<meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1">
</head>
<body>
<div id="container">
  <div id="header">
    <p><br/></p>
    <center>
      
      <br/>
      <a href="index.html">
        
      </a>
    </center>
  </div>
  <div id="primary">
</div>
<div id="content">
  <table width="100" border="0" align="center" cellpadding="0"
cellspacing="1">
<tr>
  <td>
    <form name="form1" method="post" action="<?php print
$_SERVER['PHP_SELF']?>">
    <table width="100%" border="0" cellspacing="1" cellpadding="4">

```

```

<tr>
    <td colspan="4"><h1><strong>SIGNUP</strong></h1></td>
</tr>
<tr>
    <td width="90">Name</td>
    <td width="3">:</td>
    <td width="250"><input name="name" type="text" id="name"
size="40"></td>
    <td width="98"></td>
</tr>
<tr>
    <td>Email</td>
    <td>:</td>
    <td><input name="email" type="text" id="email" size="40"></td>
    <td></td>
</tr>
<tr>
    <td>Password</td>
    <td>:</td>
    <td><input name="password" type="password" id="password"
size="40"></td>
    <td></td>
</tr>
<tr>
    <td>Confirm Password</td>
    <td>:</td>

```

```
<td><input name="password2" type="password" id="password2"
size="40"></td>
```

```
<td></td>
```

```
</tr>
```

```
<tr>
```

```
<td>Gender</td>
```

```
<td>:</td>
```

```
<td><SELECT name="gender" id="gender">
```

```
<OPTION>Male </OPTION>
```

```
<OPTION>Female </OPTION>
```

```
</SELECT></td>
```

```
<td></td>
```

```
</tr>
```

```
<tr>
```

```
<td>IC/Passport No.</td>
```

```
<td>:</td>
```

```
<td><input name="ic" type="text" id="ic"></td>
```

```
<td></td>
```

```
</tr>
```

```
<tr>
```

```
<td>Address</td>
```

```
<td>:</td>
```

```
<td><input name="addr" type="text" id="addr" size="40"></td>
```

```
<td></td>
```

```
</tr>
```

```
<tr>
```

```

<td>Department</td>
<td>:</td>
<td><SELECT name="dept" id="dept">
    <OPTION>Human Resource and Administration </OPTION>
    <OPTION>Health Safety and Environment</OPTION>
    <OPTION>Operational Excellence</OPTION>
    <OPTION>Engineering</OPTION>
    <OPTION>Operation</OPTION>
    <OPTION>Technical</OPTION>
    <OPTION>Quality</OPTION>
    <OPTION>Supply Chain</OPTION>
</SELECT>
</td>
<td></td>
</tr>
<tr>
<td>Code</td>
<td>:</td>
<td><input name="kod" type="text" id="kod"></td>
<td></td>
</tr>
<tr>
<td colspan="4" align="center"><input type="submit"
name="submit" value="Submit">
<input type="reset" name="reset" value="Reset" />
</td>

```

```
</tr>
</table>
</form>
    </td>
</tr>
</table>
</div><!--End of the content division-->

<?php
include "connection.php";
if(isset($_REQUEST['name'])) // and or any other checking
{
    $name=$_REQUEST['name'];
}
if(isset($_REQUEST['email'])) // and or any other checking
{
    $name=$_REQUEST['email'];
}
if(isset($_REQUEST['password'])) // and or any other checking
{
    $name=$_REQUEST['password'];
}
if(isset($_REQUEST['gender'])) // and or any other checking
{
    $name=$_REQUEST['gender'];
}
```

```

if(isset($_REQUEST['ic'])) // and or any other checking
{
    $name=$_REQUEST['ic'];
}

if(isset($_REQUEST['addr'])) // and or any other checking
{
    $name=$_REQUEST['addr'];
}

if(isset($_REQUEST['dept'])) // and or any other checking
{
    $name=$_REQUEST['dept'];
}

if(isset($_REQUEST['kod'])) // and or any other checking
{
    $name=$_REQUEST['kod'];
}

extract($_REQUEST);

    if (!empty($name) && !empty($email) && !empty($password)&&
!empty($gender)&& !empty($ic)&& !empty($addr)&& !empty($dept)&&
!empty($kod))

        { $sql = "INSERT INTO signup (name, email ,password, gender, ic, addr,
dept, kod) VALUES
(' $name', '$email', '$password', '$gender', '$ic', '$addr', '$dept', '$kod)";

        $result = mysql_query($sql) or die ("Execution error");

            if($result)
                {

                    echo("<br>Input data is Success!");
                }
            }

```

```

        header("location: index.php");
    }
    else
    {
        echo("<br>Input data is fail");
    }
}
else
{
    if (isset($submit))
    {
        printf("<script language='\"javascript\"'>window.alert (\"You
cannot leave the text fields blank!\");</script>");
    }
}
?>
<div id="footer">
    <p><center><a>Petlin (Malaysia) Sdn Bhd</a> <br/>
    <a>&copy; Copyright of Petlin</a> </center></p>
</div>
</div>
</body>
</html>

```

## Dashboard\_css.css

```
#container {  
    width: 960px;  
    margin: 0 auto;  
}  
  
#header{  
    background-color:#FFA500;  
}  
  
#logobar {  
    float: left;  
    width: 240px;  
    height: 30px;  
    background-color:#FFD700;  
}  
  
#middlebar {  
    float: left;  
    width: 480px;  
    height: 30px;  
    background-color:#FFD700;  
}  
  
#profbar {  
    float: left;  
    width: 240px;  
    height: 30px;
```

```
        background-color:#FFD700;
    }
    #linkcolumn {
        float: left;
        width: 240px;
    }
    #content {
        float: left;
        width: 480px;
    }
    #noticolumn {
        float: left;
        width: 240px;
    }
    #footer {
        clear: both;
        background-color:#FFA500;
    }
```

```
Signup_css.css

@charset "utf-8";

/* CSS Document */

#container {

    width: 960px;

    margin: 0 auto;

}

#header{

    background-color:#FFA500;

}

#primary {

    float: left;

    width: 300px;

}

#content {

    float: left;

    width: 350px;

}

#secondary {

    float: left;

    width: 240px;

}

#footer {

    clear: both;

}
```

**index.php**

```
<!DOCTYPE HTML>

<html>

<head>

<title>Simple Login Form</title>

<meta charset="UTF-8" />

<meta name="Designer" content="PremiumPixels.com">

<meta name="Author" content="$hekh@r d-Ziner, CSSJUNCTION.com">

<link rel="stylesheet" type="text/css" href="css/reset.css">

<link rel="stylesheet" type="text/css" href="css/structure.css">

</head>

<body>

  <form class="box login">

    <div>

      <center>

        <br/>

      </center>

    </div>

    <fieldset class="boxBody">

      <label>E-Mail</label>

      <input type="text" tabindex="1" placeholder="E-Mail" required
id="email">

      <label><!--<a href="#" class="rLink" tabindex="5">Forget your
password?</a>-->
```

## Password

</label>

<input type="password" tabindex="2" placeholder="Password" required id="password">

</fieldset>

<footer>

<label><input type="checkbox" tabindex="3" id="remember">Keep me logged in</label>

<input type="submit" class="btnLogin" value="Login" tabindex="4">

</footer>

<p>

<center>

New in Petlin? Register now!<br/><br/>

<a href="signup.php">REGISTER</a>

</center>

</p>

</form>

<footer id="main">

<a>Petlin (Malaysia) Sdn Bhd</a> <br/>

<a>&copy; Copyright of Petlin</a>

</footer>

<?php

include "connection.php";

// Inialize session

session\_start();

```
// Check, if user is already login, then jump to secured page
if (isset($_SESSION['email'])) {
header('Location: dashboard.php');
}
?>
</body>
</html>
```

### Logout.php

```
<?PHP
include_once("connection.php");
session_start();
session_unset();
session_destroy();
if(!$_SESSION['email'])
    { echo "Successfully logged out!<br/>";
    } else
    {echo "Error occured! <br/>";
    }
?>
```