PROCESSED FOOD KNOWLEDEGE PORTAL

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PROCESSED FOOD KNOWLEDEGE PORTAL

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Thesis submitted in partial fulfillment of the requirements
for the award of the degree of
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SUPERVISOR'S DECLARATION

I/ We* hereby declare that I/We* have checked this thesis/project* and my/our* opinion, this thesis/project* is adequate in terms of scope and quality for the award of the degree of Bachelor of Computer Science (Software Engineering).

Signature
Name of Supervisor:
Date:

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I hereby declare that the work in this thesis/project* is my own except for quotations and summaries which have been duly acknowledged. The thesis/project* has not been accepted for any degree and is not concurrently submitted for award of other degree.

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ABSTRACT

Processed food knowledge portal (PFKP) is concerned with delivering a suite of knowledge contents to users via the internet. However, some of the potential entrepreneurs often face the problem to get the guidance from the expert entrepreneurs who have more knowledge on processed food business. This knowledge portal site allows the members to create and share their knowledge since the portal containing three difference levels of users namely Expert Entrepreneur, Potential Entrepreneur, and Customer. The main objective for this project is to develop a knowledge portal for processed food industry. The processed food portal can assist the potential entrepreneurs in getting knowledge and can provide experts a facility to share their knowledge at forum. The portal also provides assistance in financing, training, and marketing to these potential entrepreneurs. The portal provides variety of products by category, tips, expert experiences, forum and financial assistance. Currently there is no government portal that specifically focuses on the processed food. The iterative and increment development methodology are used in developing the portal. This methodology can get the higher satisfaction from the users. The benefit of this project is to provide the communication between experts and potential entrepreneur and help the potential entrepreneur by giving them guidance and needed assistance information on their business. The users also can get the latest news and information about processed food. The project has successfully developed the portal with its features, and should be tested by various users to get their feedback on its benefits.

ABSTRAK

Portal pengetahuan makanan yang diproses (PFKP) adalah portal yang dapat memberikan pengetahuan kepada penguna melalui internet. Walau bagaimanapun, terdapat usahawan yang berpotensi sering menghadapi masalah untuk mendapatkan bimbingan daripada pakar usahawan yang mempunyai pengetahuan yang lebih dalam mengenai perniagaan makanan yang diproses. Terutama sekali, portal pengetahuan membolehkan usahawan dan pakar usahawan untuk berkongsi pengetahuan atau pengalaman mereka disertai PFKP terbahagi kepada 3 tahap pengguna iaitu pakar usahawan, usahawan yang berpotensi and pelanggan. Objektif utama dalam kertas ini adalah untuk membangunkan satu portal pengetahuan bagi industri makanan yang diproses. Oleh itu, pembangunan portal ini boleh membantu usahawan yang berpotensi mendapatkan bantuan daripada pakar usahawan dalam forum. Portal ini juga menyediakan pelbagai perkhidmatan contohnya pemasaran, latihan, kewangan kepada usahawan yang berpotensi. Portal daripada kerajaan masih tidak spesifik pada makanan diproses. PFKP ini menyediakan pelbagai kategori produk, tips, pengalaman pakar usahawan, forum dan kewangan. Metodologi lelaran dan tokokan digunakan semasa membangunkan projek ini supaya produk yang dikeluarkan dapat memenuhi permintaan pelanggan. Faedah dalam dalam projek ini dapat memberkan komunikasi antara pakar usahawan dan usahawan yang berpotensi. Di samping itu, ia juga dapat memberikan bimbingan and maklumat yang diperlukan untuk usahawan yang berpotensi. Pelanggan juga dapat maklumat yang terbaru setiap masa. Walaupun, skrin dan beberapa ciri-ciri portal dapat dibangunkan dengan jayanya,pengguna portal perlu cuba manggunakannya bagi mendapat maklumbalas dari mereka.

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CHAPTER 1

INTRODUCTION

This chapter discusses about the need to have a knowledge portal for food processed. This chapter comprises of five sections: The first section describes the background of the project. The second section describes the problem statement of the project. The third section describes the objectives for the project and follow by the fourth section describes the scopes for the project. Finally the paper organization is described in section five.

1.1 Background

Food is an essential resource in the human lives. In Malaysia, Department of Agriculture in each state play an important role in the development of enterprise processed food in food industry. There are varieties of ways to produce a processed food and the raw materials used are also varied, such as from grain, fruit, vegetables, and from livestock such as fish poultry, lamb and cattle.

Starting an agricultural based processed food business is not difficult but to be a successful entrepreneur is somewhat difficult. Currently, entrepreneurs in Malaysia who are venturing into processed food have carried out on their own or by the assistance from the Department of Agriculture to launch their business processed food. There are

a variety of processed foods carried out in Malaysia. This is based on from my observation from after meeting with some entrepreneurs in Kuantan. I also gain a lot of information and knowledge from them on how to manage their processed food business.

Nowadays, some potential entrepreneur want to get further information the about the processed food in their business, they need to find by themselves to get the information, meet the Department of Agriculture for each state, or from the expert entrepreneur to get the information. Since this is due to the potential entrepreneur lack of information on the internet about the need of industry processed food.

Seeing the importance of this information to the entrepreneur, it is better if we can use internet to develop a database or portal that can be used by entrepreneur and to share their opinion or give some idea or suggestion. The proposed portal also benefits any individual in Malaysia and other countries to understand and know how to develop a food processing business. Thus the proposed development of processed food portal can assist the potential entrepreneurs in starting their processed food business, as well as providing the expert entrepreneurs to provide information and share knowledge of processed food business. Besides, this portal also developed to support the Department of Agriculture to assist entrepreneur on process food knowledge.

1.2 Problem Statement

Processed food is the food to give convenient to all consumers such as children, adult, worker, or housewife. However, there is no a certain portal specific for processed food to the potential entrepreneur in Malaysia. Some entrepreneurs face have difficulty in finding guidance from expert entrepreneur who have better knowledge on how to start the processed food business. The entrepreneurs need to find the expert entrepreneur through the person that they know or they need to find on their own.

The entrepreneurs often face problems in marketing their product because lack of marketing and promotional knowledge. The entrepreneur just selling their products where near from their house without selling their product to other place.

Besides, entrepreneurs have lack of information available to them especially financial assistance from varies sources in Malaysia**.** The financial assistance can help the entrepreneur, especially potential entrepreneurs who want to start their business on the processed food industry.

1.3 Objective

The objectives of the research are to:

I. Develop a knowledge portal for processed food industry.

II. Provide features in the portal as the followings:
   a) Guidance to potential entrepreneur in processed food.
   b) Information on promotional and marketing
   c) Information on industrial support and financial assistance.

III. Support the Department of Agriculture to assist entrepreneur on Process Food Knowledge Portal.

IV. Get the feedback from the entrepreneurs on the effective uses of the portal.

1.4 Scope

The following are the scope of this project:

I. The system will provide the information only on processed food especially for Malaysia entrepreneur.

II. The information gain and based on Kuantan entrepreneur.

III. The system will be a webpage system.

IV. The intended users for the system will following :
   a) Potential processed food entrepreneur.
   b) Expert entrepreneur.
   c) Department of Agriculture.
   d) Potential buyers of the product.

1.5 Thesis Organization

This paper consists of six (6) chapters. **Chapter 1** is discussing briefly on the introduction, problem statement, objective, scope and paper organization to the system. Introduction allows the readers to get the general idea in this knowledge management system that will be developed. It's will include the background information on this paper topic, goals that will be going to achieve and the direction of this paper research development also will discuss briefly in this chapter. Problem statement states the problems which cause this knowledge management portal system to be developed. Objective is the objective of developer who develops in this KMS portal. The scope is the limitation for this proposed system and users. The thesis organization is the sequence chapter will be discussing in this paper. **Chapter 2** discussed literature review will divide to two parts: explain about the researches that had been conducted which related with the current system and sources that can get from the journal, conference or the article and the technique will be used in conducting this system. **Chapter 3** is the Explanation about the methodology, the method, technique or approach that will be used for this project. Chapter 4 is discussing about the implementation, how to store database in this system. **Chapter 5** discusses the result and discussion. Example result analysis (objective is parallel to the problem project), project limitation (described the lack of this project) and the suggestion and project enhancement (idea that can improve in this project) in this system. **Chapter 6** is the last chapter discusses the conclusion which summarize about the developed system.

CHAPTER 2

LITERATURE REVIEW

This chapter discusses on what is knowledge management and knowledge management portal, the current knowledge portals available for processed food industry, and the categorization of processed foods. Then, the tool for development and methodology used are also discussed, and end up with the proposed software and hardware used for the project.

2.1 Knowledge and Knowledge Management

Knowledge is derived from theory, information and experience as shown in Figure 1, and through learning, knowledge and experience, we will gain wisdom. According to Oduoza and Harris (2011), there are two forms of knowledge—tacit and explicit. Tacit knowledge is a type of knowledge that is in a person brain, such as his expertise, perspective and values from his experience. Explicit knowledge covers the knowledge that can be presented and transmitted among individuals using information technology (Oduoza & Harris, 2011; Massa & Testa, 2009).

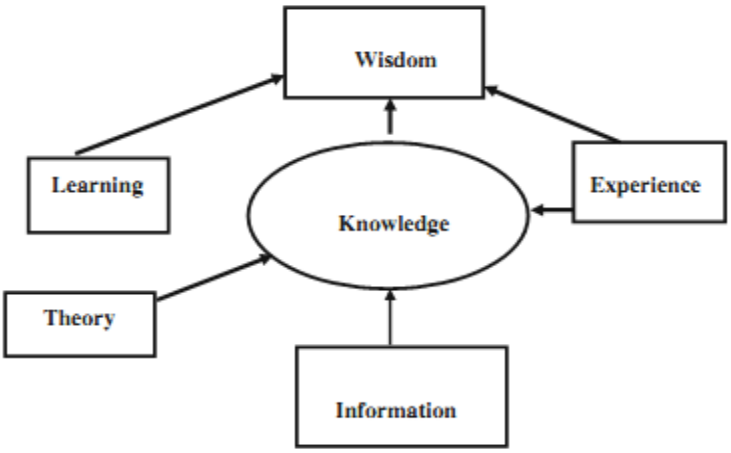

Figure 2-1: Knowledge derived from theories, information and experience

Nie, et al., (2010) stated that “knowledge management is mainly the management of knowledge itself, including knowledge creation, knowledge acquisition, knowledge processing, knowledge storage, knowledge dissemination and knowledge application”. Knowledge management also includes the management of resources and assets related to knowledge such as the process management on knowledge organization, knowledge infrastructure, knowledge assets, knowledge activities and knowledge staff; which aimed to improve the organization's innovation capability and efficiency and to achieve the value of knowledge assets (Ni et al., 2010). Capturing, storing, sharing, and creating the knowledge are processes in knowledge management which can be described into several steps as the followings (Ni et al., 2010; Massa & Testa, 2009):

1. Acquisition and processing of knowledge
2. Storage and retrieval of knowledge
3. Share and exchange of knowledge
4. Application and innovation of knowledge

2.2 Knowledge Management Systems

According to Xiao (2009) knowledge management system means how a system can store the knowledge base and makes the discovery, creation and use of knowledge under the specific context. Massa (2009) state that "De Carvalho and Ferreira argue that, although technology is not the main component of a KMS, it would be ''a naive attitude'' to implement a KMS without any technological support, whereas Walsham (2001) claims that leveraging knowledge through ICT is often hard to achieve". Knowledge merely accumulated in workers' brains, there is no way of recording it systematically and knowledge that is recorded in documents, it is very complicated to search for, retrieve, or review it. So, it is the reason why KMS encourage implementing in an enterprise (Tseng, 2008).

2.3 Knowledge Management Portal

A knowledge portal provides an interface or platform that can allow communication between each other through the portal (Zheng, 2010; Zulhafizsyam, 2011). The knowledge portal can help interested individuals and researchers to identify other experts that working in the same area. With the help of an information-filtering system, users of knowledge portal can collect useful knowledge quickly and easily from a Web database. Currently, commercial search engines such as Yahoo!, Lycos, and Google are ineffective for searching scientific publications accurately (Zulhafizsyam, 2011). According to Zheng (2010), there are certain characteristics that a knowledge portal should have which listed as the followings:

a. Sharing the right knowledge to the right people at the right time.
b. Focus locating and capturing knowledge, sharing and transfer knowledge and taking part in generating new knowledge.
c. Provide knowledge as personnel-based solutions.
d. Design - knowledge structure and logic
e. Security – very important especially enterprise in supply chain.
f. Navigation System- system of links in a web site that allow users to move from one place to another within the site. It is easy to find the information they want.

g. Labeling system- describes how to name different type knowledge, and make a uniform identification rules to avoid synonymy, ambiguity and inconsistency exist.

2.4 Small and Medium Industries (SMIs)

Food processed based small and medium Enterprises (SMEs) has been recognized as one of the most important contributors for the economic development of many countries (Alam, 2011). SMEs also contribute in particular halal food because the growing demands of international markets. Most of the SMEs mostly face problem when they are growing compare to the large business. Factor affected their growth is increasing value of halal markets, substantial number of global Muslim population, expansion of consumers including the non-Muslims and potential market of in the Asian region. So, example institute plays significant role in make sure the raw material always available, expand the processing activity and promoting the growth of the targeted areas, R&D and enhance the competition (Alam, 2011). According to Omar and M.Yusof (2010) “Currently, the SMIs constitute approximately 84% of the manufacturing establishments in Malaysia.” It is meaning the percentage is quite high in Malaysia since the demand increase consistently due to the effort of Malaysia to be an industrialized country by 2020.

2.5 Processed food

Processed foods are produced from the raw ingredients into neatly packaged by using the manufacturing methods which have a longer shelf life. So to make sure the processed food have a longer live, some of the artificial ingredients needed to use. Example monosodium glutamate (MSG), flavors, preservatives, hydrogenated oil, fillers or artificial sweeteners. It mostly gives the convenience to save consumers time who can prepare their food quickly allowing immediate intake (Bolen, 2007).

2.6 Malaysia Processed food Products

Processed food industry is increasing year by year and one of the important components in the agro-based industry. According to Brant and Yong (2010), it has contributed about 10% of Malaysian manufacturing output which owned mostly by Malaysian. Table 2-1 shows the category and sub- categories of processed food.

Table 2-1: Processed Food Categorization (Boudro, 2009; Brandt, 2010).

Main category	Sub-categories	Examples of products
fish and fish products	processed seafood products such as frozen and canned fish, crustaceans and mollusks, shrimp and shrimp products	surimi, crackers, fish ball, belacan, fish fillet,
Livestock And livestock products	poultry and eggs, beef	Canned meat, Cured meat, Ham, Lunch meat, Sausage, Bacon, Gelatins, Fresh meat with additives
Dairy products	Cheese, Cheese food, powder	milk powder, sweetened condensed milk, milk (pasteurized , homogenized , skim, low-fat), sterilized liquid milk, ice cream, yogurt and other fermented milk, White flour, White rice, Salt, Macaroni
Fruit and vegetable	mangos, star fruits and papayas, dragon fruit	Canned fruit, Frozen fruit, sauces, Jellies, Jams, Pie fillings, juice, apple source Canned, Frozen vegetables,, French fries, potato chip
Beverage	soft drinks and mineral water	Instant breakfast drinks, Pepsi, coca cola, monster, iced tea, smoothies, tonic water
Baked foods	Biscuits, Cookies, Breads, Pastry, Pies, Cakes, Twice-baked goods, Tarts	Pasta, Cake mixes, Pie crust mixes, butter cookie, cookie Monster. Zwieback, Rusk, Egg Tarts, ,Butter tart, Belgian bun

fats and oils product	Animal and vegetable fats and oils, Oilseeds	Refined oils, Cooking spray, Margarine, Salad dressing, BBQ sauce, Mustard, Ketchup, Mayonnaise, Peanut butter
Convenience foods	Snack foods, Street food	Pizza, Precooked foods, Frozen dinners, Breakfast cereal, Granola, Energy bars, coffee
Confections product	Candy, sugar, chocolate, Frozen desserts	White sugar, Brown sugar, Corn syrup, Rice syrup, Honey (unless raw), Syrups, Soft candies, Pudding, Dessert mixes, Whipped cream, black and white Chocolate, Marshmallows, Shredded coconut, Sugar substitutes. Rowntree's, Tootsie Roll

2.7 Processed food Portal in Malaysia

The current Processed food portal in Malaysia such as Jabatan Pertanian Pahang Portal, Agribazaar Portal, Direktori Industri Kecil & Sederhana Portal and Rasmi RISDA Portal. Comparison between four current processed food portals in Malaysia showed at APPENDIX I.

2.7.1 Jabatan Pertanian Pahang Portal (PJPP) (Portal Rasmi Jabatan Pertanian Negeri Pahang)

Jabatan Pertanian Pahang provide quality and effective services operators to entrepreneurs with the latest technology and regulatory services for increasing agricultural productivity and ensure the safety food in agriculture sector. Portal Jabatan Pertanian Pahang (PJPP) still has some unavailable module.

2.7.2 Agribazaar Portal (Agribazaar)

In Malaysia, a virtual one stop center call Agribazaar has been developed by the government for whose specialized interest in agriculture to purchasing or selling

agricultural-based products (Ahmad, 2008). Agribazaar is an information-based portal provided by the Department of Agriculture, Ministry of Agriculture and Agri-based Industry. The aim of this portal is to improve market reach, efficiency, and productivity among individuals or businesses. According to Ahmad and Zakaria (2008) “percentage of usage of the Agribazaar portal could be increased if it is made more competitive”. It means that Agribazaar has been found to be successful in connectivity between users locally and globally. The applications also has been accepted and utilized by a large number of users not just in Malaysia but also other countries as well.

2.7.3 **Direktori Industri Kecil & Sederhana Portal (IKS)** (Portal Direktori Industry Kecil)

IKS is the portal for connecting all the SMEs in the Malaysia and the best B2B (Business To Business) Platform for promoting the product locally as well as to Global Market. IKS will allow companies to sell their products online and making the possibility of having online revenue to be part of major companies income.

2.7.4 **RISDA Official Portal** (RISDA)

Portal Rasmi RISDA constitutes of the smallholder community that is progressive and prosperous through farming and commercial activities.

2.8 Studies on Technology

This section will discuss about the Programming Language, Database Language and Operation systems.

2.8.1. Programming Language

A programming language is a computer language programmers use to develop applications, or other set of instructions for a computer to execute. Below is a listing of several different programming languages such as PHP, ASP.NET, and JSP.

2.8.1.1. PHP

The PHP language is widely used as a popular server side language. A great number of open source software and company's web sites use PHP since it can enable high software productivity (Suzumura, 2008; Cholakov, 2010). Most of the PHP texts concentrate on algorithms and processes which data entering and retrieving data from MSQL databases. PHP include validating data, error checking and data security. All of the algorithms for accessing and using the data-base through SQL commands are very simple (Willian, 2010).

According to Yu (2010), advantage of the PHP as followings:

a. Free
b. Strong supporting
c. Good portability
d. Simple grammar
e. Rapid development

2.8.1.2. ASP.NET

ASP.NET is an integral part of Microsolf.NET. It is very valuable tool for programmers and developers to build their web sites and web applications which can compiled with the languages VB and C# (Kozyk, 2008).

According to Kozyk (2008) and Php (2009), advantage of ASP.NET as followings**:**

a. The code-behind allows you easier to maintain the code when it comes to large websites.
b. ASP.NET drastically reduces the amount of code required to build large applications.
c. With built-in Windows authentication and per-application configuration, your applications are safe and secured.
d. Freedom of choosing from multiple languages (C#, VB.NET, C++, etc.)
e. SQL Server is also very fast, secure, and it can store extremely large amounts of data; actually, there's no limit

f. The Visual Studio .NET IDE, makes coding much, much easier. It can highlight syntax, let you know when the wrong stuff is commented, do command completion, and just plain help you organize better. Visual Studio has a really nice debugger.
g. The Compiled Code (vs. PHP Interpreted Code)
h. In ASP.NET it's easy to use threads and builds asynchronous handlers in your server-side web code.
i. The ASP.NET framework is complemented by a rich toolbox and designer in the Visual Studio integrated development environment.

2.8.1.3. JSP

Java Server Pages (JSP) is a technology develops web sites based on the Java language JSP was developed by Sun Microsystems to allow server side development. JSP files are HTML files with special Tags containing Java source code that provide the dynamic content (Einstein, 2008).

According to Einstein (2008), advantage of JSP as followings:

a. JSP are translated and compiled into JAVA Servest but are easier to develop than JAVA Servest.
b. JSP have all advantages of Java i.e. write once run anywhere
c. JSP uses simplified scripting language based syntax for embedding HTML into JSP.
d. JSP containers provide easy way for accessing standard objects and actions.
e. JSP use HTTP as default request /response communication paradigm and thus make JSP ideal as Web Enabling Technology.

2.8.1.4. PHP vs. ASP.NET vs. JSP

The table 2-2 shows the comparison between ASP.NET, PHP and JSP in security, Platform incompatibility, operating efficiency and cost. From the comparison, PHP is the suitable programming use to develop the portal. It is because security PHP is recognized safety performance, security in a system is the most important. PHP is the

multiplatform that enables works on many platforms, including Windows, Linux, BSD, Solaris, and Mac OS. It operating efficiency is higher if compare to ASP.NET. The PHP is free of charge, if compare to the ASP.NET and JSP, it need the higher cost. Table 2-3 is comparison number of registered project per platform between ASP.NET, PHP, and JSP. The number of register is the highest if compare to ASP.NET and JSP. The number of registered project per platform in years 2006 is 13167 and year 2008 is 11728.

Table 2-2 : Comparison between ASP.NET, PHP and JSP (Yu, 2010).

	PHP	ASP.NET	JSP
security	PHP is a recognized safety performance	Safety is good, but there exist certain degree of security vulnerabilities	Safety is the highest
Platform incompatibility	multiplatform	Single platform	multiplatform
operating efficiency	higher	high	highest
cost	free	high	high

Table 2-3: Comparison number of registered project per platform between ASP.NET, PHP, and JSP (Cholakov, 2008)

Number of registered projects per platform			
Language	ASP.NET	PHP	JSP
01.02.2006	210	13167	288
01.04.2008	3739	11782	718

2.8.2. Database Language

Database Language is a generic term referring to a class of languages used for defining and accessing databases. MYSQL is the database languages will use to develop the PFKP.

2.8.2.1. MYSQL

DBMS using with PHP has MySQL, ORACLE and so on. Developers mostly use MySQL for it is open source, free, and efficient. MySQL is perfect database server software for medium and small application system. On the Unix/Linux system, MySQL also supports the multi-thread. MySQL is the choice PHP website for it is open source (Yu, 2008).

The database is the core of website, in which the data security is very important. The damage and lose or illegal duplication of data can cause a lot of trouble, moreover the mistake is very difficult to restore (Yu, 2008). MYSQL security measures as followings:

Account security: Each account of MySQL is composed of user name, password as well as the position, which includes reasonable rights and security check. There are three different security checks in the MySQL:

a. Register confirmation
b. Authorization
c. Access control.

Stored data encryption: information encrypt to a small part, the password is the good example. These passwords should not store in the form of plaintext but encryption in the database. In general, the sensitive data is encrypted.

Characteristic of MYSQL as following: (Goritz, 2005)

a. Free open source
b. Compact
c. Fast
d. Reliable
e. Robust
f. Multiuser database server that can compile on many platform
g. MYSQL database can easily be administered with the free tool MYSQL Control Center.

2.8.3. Operation systems

Windows is an operating system that provides a graphical user interface (GUI), virtual memory management, multitasking, and support for many peripheral devices (Webopedia, 2011).

Linux is a freely-distributable source operating that runs on a number of hardware platforms. Linux has become an extremely popular alternative to proprietary operating systems because it's free, and can runs on many platforms, including PCs (Webopedia, 2011). Characteristic LINUX is user ability to run Linux on multiple hardware platform and freedom to modify and customize the open source code.

2.8.3.1. Window VS Linux

Table 2-4 shows the comparison characteristic between window and Linux. Table 2-5 shows the comparison common desktop virtual machines between Windows and LINUX OS operating system.

Table 2-4: Comparison between window and Linux (LinuxRSP.Ru, 2007).

Description of the program, executed task	Windows	Linux
Web browser	IE, Netscape, Mozilla, Opera, Firefox	Netscape / Mozilla, Opera, Firefox, Galleon
License	RM 266,000	free
Application Deployment Time(Each Application)	18 days	12 to 18 months
Console FTP-clients	FTP in Far, ftp.exe, Ncftp	Ncftp, Lftp.Avfs.
Work with compressed files	a. WinZip b. WinRar c. 7-Zip d. Win ACE e. Ultimate Zip	a. LinZip. b. Gnozip. c. Unace. d. Gnochive. e. File Roller.
CD player	a. CD player, b. Win amp, c. Windows Media Player	a. Sadp. b. Workman. c. Xmcd. d. Grip
Powerful graphic editor in Photoshop style	a. Adobe Photoshop b. Macromedia Fireworks	a. Gimp. b. ImageMagick. c. Pixel32.

	c. Paint Shop Pro d. Pixel32 e. Corel Photo Paint	d. CinePaint. e. Corel Photo Paint
Indemnification and Product Warranty	1 years product warranty	Warranty not provided

Table 2-5: Comparison common desktop virtual machines between Windows and LINUX OS operating system (Kind, 2009).

Host O	Virtualization Software	WINDOWS as Guest OS	LINUX as Guest OS	Mac OS X as Guest OS
Windows	VMware Workstation	Yes	Yes	no
	Microsoft Virtual PC	Yes	Yes	no
	SUN Virtual BOX	Yes	Yes	no
LINUX	VMware	Yes	Yes	no
	Citrix XEN	Yes	Yes	no
	Virtual Iron	Yes	Yes	no

2.9 Development tool

The development tool used in this project in designing the graphic user interface is Adobe Dreamweaver. Adobe Dreamweaver is one of the most powerful software programs in the creative design industry these days. There are a lot of advantages using Dreamweaver.

Dreamweaver is easy and efficient to use because it has the ability to select different views when creating web pages. Inside the Dreamweaver, we can see there are divided into three parts such as code view, design view and split view. A code view shows only the HTML code for the page while design view gives an indication of how the HTML page will appear in a browser. A split view allows you to see the code view and design view at the same time. If there is any change at the code, the effect of the change can be seen immediately (Dreamweaver, 2007).

Another great feature in Dreamweaver is the layout tool. You can use this to get an idea of where you put your navigation, menus, pictures, etc. Dreamweaver creates a lot of the code for the user already, it useful for those who have no idea what they are

doing and, for the people who do know how to code html, they can always add it to the written code a lot easier (Dreamweaver, 2007).

Besides, Dreamweaver has the ability to create consistent looking web pages for the project. This software includes templates for web pages to assist in the design process. For example, if a website is made up of twenty pages based around a particular template design, it will have a consistent style and therefore be more users friendly.

2.10 Development architecture method

This processed food knowledge portal is a web-based system. This portal has the log-in section that separate into two parts such as administrator and user, which can be used for expert entrepreneur, user, and potential entrepreneur and Agricultural Department officer to access this portal.

CHAPTER 3

METHODOLOGY

This chapter discusses the methodology and the framework of the Processed Food Knowledge Portal (PFKP). PFKP is developed using the iterative and incremental development methodology.

3.1 Iterative and Incremental Development Methodology

According to Roman, the incremental development consists of work being break up into smaller pieces which were scheduled, developed and integrated when completed as shown in Figure 2. Iterative development means the product was built in iterations; each iteration expands the product until the project completed (Software development Service, 2010).

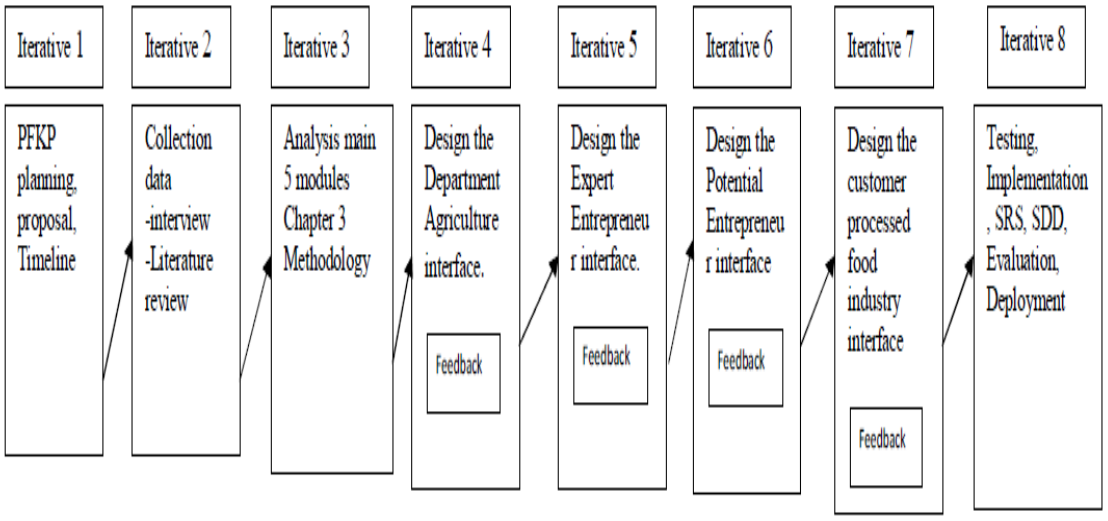

Figure 3-1: Iterative and Incremental Development Methodologies

As the process is incremental, the increments are developed in sequence leading to the end product at the end of the last increment. Each iteration will include parts of all phases such as each iteration; there are analysis, design, and testing (Software development Service, 2010). All forms of iterative development provide a way to continuously integrated and validated the evolving product, frequently demonstrate progress, alert developers early on about problems, deliver subset capabilities and systematically incorporate the inevitable rework that occurred in software development (Fairley, 2005).

Iterative and incremental method absorbs significant changes to requirements, design constraints, or environmental factors such as changes to middleware application programming interfaces (APIs) or hardware features which require significant rework to the design and existing code (Fairley, 2006). There are seven phases in the methodology model namely planning, requirement, analysis and design, implementation, testing, evaluation and finally the deployment of the product to the customer. Figure 3 shows the workflow of the PFKP project. The project started with the planning and ended with the deployment.

3.2 The Justification of Iterative and Incremental Development Methodology

The main reason to choose Iterative and Incremental Development methodology as the methodology used to develop the FPKP is because this approach can help the client achieve the desired result which able to assist in identifying the true needs of the clients. This approach will enhance the software based on the consistent feedback and input from the client, stakeholders and developers (Software development Service, 2010). This feedbacks result is then adapted to change the specification and then come out with a product that meets the client demands and overall expectations.

The past experiences using Iterative and incremental model indicated that the resulting products rating are higher in customer satisfaction and had low defect levels (Fairley, 2005). This is because of each iteration subsumes the previous iteration's software and adds capabilities to the evolving product to produce a next version.

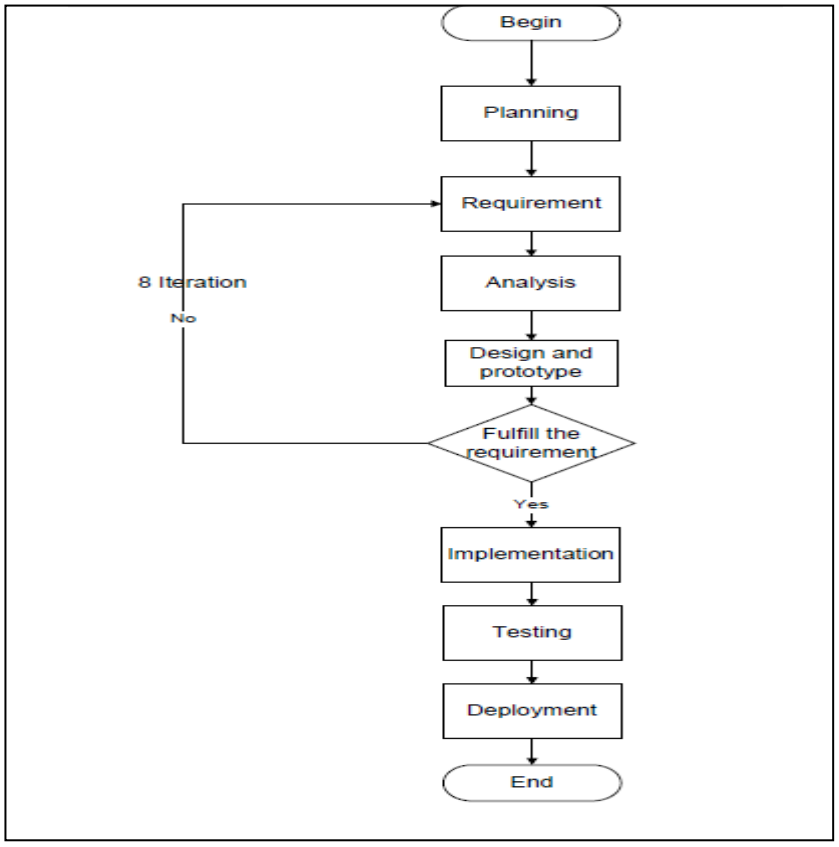

Figure 3-2: Workflow of PFKP development process

Each iteration can provide a learning opportunity, and each step in the process involves a decision point at which the project team could put the learning outcomes to good uses (Erdogmus, 2005). This process had been proven in numerous successful releases to the market.

3.3 Methodology Development Phases

The process to develop the portal using the Iterative and Increment Methodology is shown in Appendix II. Table 3-1 shows the summary of the activities in the iterative process:

Table 3-1: The PFKP development process using the Iterative and Increment Methodology

ITERATION	ACTIVITY
First	Plan and doing the proposal, timeline for the project.
Second	Collect data by interview the users and literature review.
Third	Analysis the all the main five requirement module from the user. Browse the internet to get idea how to design a good portal and chapter three methodologies.
Fourth	Design the Department Agriculture interface.
Five	Design the Expert Entrepreneur interface
Six	Design the Potential Entrepreneur interface
Seven	Design the customer processed food industry interface
Eight	Testing the system, Implementation activity, Evaluation the portal by user, SRS, SDD and finally Deployment.

3.3.1 Planning Phase

Planning phase was the first phase for stating how to complete a project within a certain timetable. The activity involved in this phases was defines objective of project, scope, collection data, defines resource, risk, and scheduling to complete the Processed Food Knowledge Portal. The scheduling of Processed Food Knowledge Portal was showed at the Gantt chart. The Gantt chart showed at Appendix IV.

3.3.2 Analysis Phase

The activity in the analysis phase included the specification requirement from the user, methods, and tools used in the project. The analysis critical risk and control the risk was done at this phase. The Software Requirement Specification was prepared in this phase.

3.3.3 Design Phase

The prototype for each module Processed Food Knowledge Portal is designed in the design phase. Each module was evaluated one time by the supervisor to get the feedback. Iteration is done continuously for each modules prototype. The entire module in the Processed Food Knowledge Portal is being developed in incremental manner. If the modules are not satisfied by the user, those modules will be redesigned according the user specifications.

This portal has been developed in eight iterations. It is developed based on the users need according to the different level of the users. There are four types of users being catered in this portal namely Agricultural Department, Expert Entrepreneur, Potential entrepreneur, and customers of processed food industry.

Processed Food Knowledge Portal has five main modules. The first module is Registration, a second module is Product Profiling, a third module is Expert entrepreneur profiling, fourth module is Forum and last is Assistance financial module.

Registration – User need to register before login into the PFKP. Log in is the page for users to login before they can log in into their certain page. At this portal there are divide into three difference level of log in users. Each level user is based on their requirement on this processed food knowledge portal. If the username forget their username or password, they can click “forget your password” to ensure they can login back to the portal.

Product Profiling - This module is for the administrator to add the expert's product before the experts can modify or update their product. This page, there have divide into six category such as fish, livestock, fruits, vegetable, baked food and dry products. The products from the experts needs to add at the product profiling before the other user can view the product that the experts have provided. The product add by the administrator and modify by the experts will show at the others user page.

Expert entrepreneur profiling – At this modules, the administrator need to register an account for the experts before the experts can login into the page. The experts cannot register by themselves. The register need verify by the administrator first. After that, experts can update their information after the administrator makes the registration for them. The expert's information will show at the potential entrepreneur page and others user page.

Forum – at this module is for the experts to share their knowledge, guidance or opinion to the potential entrepreneur users and potential entrepreneur can post their comment and the problem that face by them then the experts give the opinion on the problem they face. The users who as a viewer just can view the comment without post any comment at the forum.

Assistance financial – At this module, the potential entrepreneur can get much assistance from this module when they are login. The assistance will provided at these modules such as training, assistance financial, the tools or machine to make the processed food product from many difference departments that will provide that kind of services.

3.3.4 Implementation

The implementation stage is where the developer writes the coding and makes the installation. The structure of the database and the interface design are also done at this phase.

3.3.5 Testing

The testing stage is the stage where the system has been tested by using a testing tool. This stage is used to find out any error in the system which may cause system failure and error occurrence.

3.3.6 Evaluation

This stage, the evaluation would be done by the user. PFKP will be evaluated to get the feedback from the user. User provides feedback to developer while the developer is relatively confident that the software meets the requirements. After PFKP already fulfill the requirement after users evaluation, the next phase would be the system deployment.

3.3.7 Deployment

The system is released so that it can be used by the users. Any new changes or requirements from the users will be used as the enhanced version of the system in the future.

3.4 System Requirement

This section discusses on the technical requirement including the hardware, software and tools used for the PFKP development.

3.4.1 Hardware Requirements

Table 3-2 shows the hardware requirements for the system where a laptop is used to develop the system, and to prepare the required documents (SRS, STD etc) and research report. The printer is used to print the document and the proposal. Besides, that, the hardware USB storage and external hard disk is used to store and backup the data and files.

Table 3-2: Hardware requirements for PFKP development

Hardware	Specification	Purpose	Quantity
Laptop	TOSHIBA Intel(R)Pentium(R) 2.13GHZ, Hard Disk 300GB 4GB DDR3 Memory	-Used to develop the system -Prepare document and proposal	1
Printer	HP Deskject 2000	Print document, proposal	1
USB storage device	Kingston 8GB	Backup data and files	1
External Hard Disk	Samsung 500GB	Backup data and files	1

3.4.2 Software Requirement

Table 3-3 shows the software requirements for PFKP system development. The open source Dreamweaver is used as a tool to develop and design the screen layout of the portal. Rational Rose is used to draw process requirement model for the system. Microsoft Word 2007 is used for documentation and proposal, while Microsoft Project 2007 is for drawing the Gantt chart which shows the progress of the project. Microsoft Visio 2007 is used to draw chart and diagram in the report. The Microsoft Operating System Window 7 is a platform used to run and develop the PFKP. Xampp is used as the Apache server to save the database.

Table 3-3: Software requirements when to develop Processed Food Knowledge Portal

Software / Tools	Purpose
Adobe Dreamweaver CS3	Develop and Design PFKP
Rational Rose version 7.0.0	To draw process requirement model.
Microsoft Office Microsoft Word 2007 Microsoft Project 2007 Microsoft Visio 2007	Prepare documentation and proposal. Prepare the Gantt Chart Design the draw chart and diagram.
Microsoft Operating System Window 7	A platform for a software to run and used to develop the Processed Food Knowledge Portal
Xampp 1.7.4	As the apache server that save database server.

CHAPTER 4

IMPLEMENTATION, TESTING AND RESULT

This chapter discusses the implementation, testing and result of the Processed Food Knowledge Portal (PFKP).

4.1 Implementation

This chapter discusses on the database design, software and hardware development environment setup and XAMPP Configuration of Processed Food Knowledge Portal (PFKP).

4.1.1 Database design

Database design shows the structure of the database. It can divide into conceptual database design and logical database design.

4.1.2 Conceptual and Logical Database Design

Database is a very important element in a system. With suitable design of database, it can avoid data redundant and inefficiency of the system. Furthermore, it

also can safe up a lot of memory space in the database which will affect the speed of the system or efficient of the system. Below is figure 4-1 shows the ERD diagram that shows the conceptual and logical view of the database in this processed food knowledge portal system.

PFKP ERD Diagram

Figure 4-1: PFKP ERD Diagram

4.1.3 Physical Database Design

The purpose of designing physical database is storing and retrieving data by translate the logical description of data into the technical specifications. Below figure 4-1 is the table for administrator. Figure 4-2 is the commands to create the Administrator table.

Table 4-1 shows the attribute inside the Administrator table.

Table 4-1: Administrator table

Browse | Structure | SQL | Search | Insert | Export | Import | Operations | Empty | Drop

	Field	Type	Collation	Attributes	Null	Default	Extra	Action
	admin_id	int(11)			No	None	AUTO_INCREMENT	
	user_id	int(11)			No	None		
	name	varchar(50)	latin1_swedish_ci		No	None		
	tel	varchar(20)	latin1_swedish_ci		No	None		
	address	varchar(100)	latin1_swedish_ci		No	None		

Figure 4-2 is the commands to create the Administrator table in pfkp_database as show below.

```
Table structure for table `admin`
--

CREATE TABLE IF NOT EXISTS `admin` (
  `admin_id` int(11) NOT NULL AUTO_INCREMENT,
  `user_id` int(11) NOT NULL,
  `name` varchar(50) NOT NULL,
  `tel` varchar(20) NOT NULL,
  `address` varchar(100) NOT NULL,
  PRIMARY KEY (`admin_id`)
) ENGINE=InnoDB  DEFAULT CHARSET=latin1 AUTO_INCREMENT=8 ;
```

Figure 4-2: Commands create the Administrator table

Table 4-2 shows the attribute inside the experts' table.

Table 4-2: Experts table

Browse | Structure | SQL | Search | Insert | Export | Import | Operations | Empty | Drop

	Field	Type	Collation	Attributes	Null	Default	Extra	Action
	expert_id	int(11)			No	None	AUTO_INCREMENT	
	user_id	int(11)			No	None		
	name	varchar(50)	latin1_swedish_ci		No	None		
	ic	varchar(50)	latin1_swedish_ci		No	None		
	tel	varchar(50)	latin1_swedish_ci		No	None		
	address	varchar(100)	latin1_swedish_ci		No	None		
	picture	varchar(50)	latin1_swedish_ci		No	None		
	supplier	varchar(200)	latin1_swedish_ci		No	None		
	course	varchar(200)	latin1_swedish_ci		No	None		
	description	varchar(5000)	latin1_swedish_ci		Yes	NULL		
	experience	varchar(5000)	latin1_swedish_ci		Yes	NULL		
	tip	varchar(5000)	latin1_swedish_ci		Yes	NULL		

Figure 4-3 is the commands to create the Experts table in pfkp_database as show below.

```
Table structure for table `expert`
--

CREATE TABLE IF NOT EXISTS `expert` (
  `expert_id` int(11) NOT NULL AUTO_INCREMENT,
  `user_id` int(11) NOT NULL,
  `name` varchar(50) NOT NULL,
  `ic` varchar(50) NOT NULL,
  `tel` varchar(50) NOT NULL,
  `address` varchar(100) NOT NULL,
  `picture` varchar(50) NOT NULL,
  `supplier` varchar(200) NOT NULL,
  `course` varchar(200) NOT NULL,
  `description` varchar(5000) DEFAULT NULL,
  `experience` varchar(5000) DEFAULT NULL,
  `tip` varchar(5000) DEFAULT NULL,
  PRIMARY KEY (`expert_id`)
) ENGINE=InnoDB  DEFAULT CHARSET=latin1 AUTO_INCREMENT=31 ;
```

Figure 4-3: Commands to create the Experts table

Figure 4-4 shows the Add new entrepreneurship expert form. All the information will insert into database when the registration of experts after click the 'create Account' button. After Administrator make the registration for expert, the expert can update their profile. The update expert profiling form as shown at figure 4-29 refers to the Appendix

IIV. Administrator can view all the experts entrepreneur as shown at figure 4-28 refer to Appendix IIV. The insert commands to add the new entrepreneur into database shows at Figure 4-5 below.

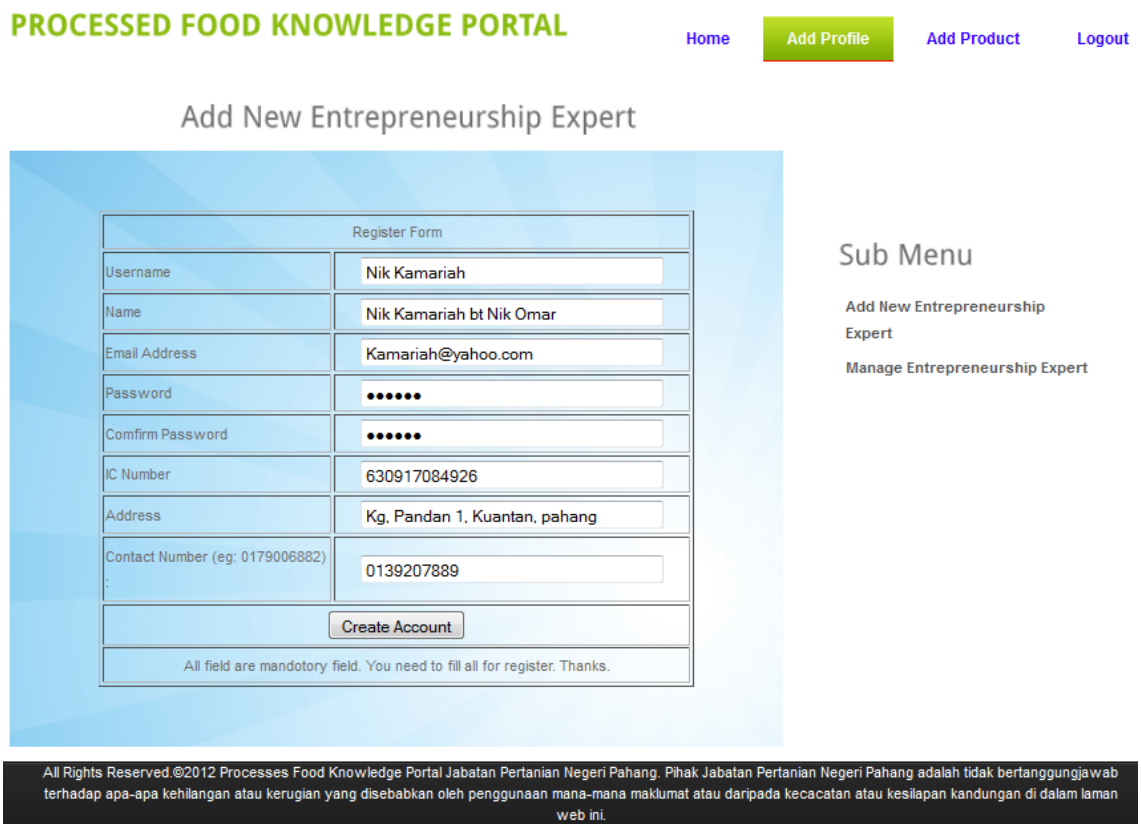

Figure 4-4: Add new entrepreneurship expert form.

```
<?php
if($username && $name && $email && $password && $confirmPwd && $address
&& $contactno && $ic)
{
        if(!preg_match("/^[_\.0-9a-zA-Z-]+@([0-9a-zA-Z][0-9a-zA-Z-]+\.)+[a-zA-
Z]{2,6}$/i", $email))
        {echo "<script type='text/javascript'>
        alert(' InvalidEmail Address!! ');       history.back();</script>";}

        else if($password != $confirmPwd)
        {echo "<script type='text/javascript'>
        alert(' Password and Confirm Password not match!! ');       history.back();
        </script>";}
        else
        {
        $sql="INSERT        INTO        user        (email,password,username)
VALUES('".$email."','".$encry_pass."','".$username."')";
        $result = mysqli_query($mysqli,$sql);
        $sql2 = "SELECT MAX(user_id) AS maxid FROM user";
        $query = mysqli_query($mysqli,$sql2);
        $result2 = mysqli_fetch_array($query);
        $new_id =  $result2["maxid"];
        $sql3="INSERT                    INTO                    expert
(user_id,name,ic,tel,address,picture,description,experience,tip)
VALUES('".$new_id."','".$name."','".$ic."','".$contactno."','".$address."','".$picture."','
".$description."','".$experience."','".$tip."')";
        $result3 = mysqli_query($mysqli,$sql3);
        echo "<script type='text/javascript'>
                                alert(' Register new expert Sucessfully!!
');       history.back();</script>";
        }
}
        else {echo "<script type='text/javascript'>
```

Figure 4-5: The insert commands to add the new entrepreneur into database.

Table 4-3 shows the Category of baked food for cookies table.

Table 4-3: Category of baked food for cookies table

Browse | Structure | SQL | Search | Insert | Export | Import | Operations | Empty | Drop

	Field	Type	Collation	Attributes	Null	Default	Extra	Action
☐	bakedCookies_id	int(11)			No	None	AUTO_INCREMENT	
☐	catProduct_id	int(11)			No	None		
☐	expert_id	int(11)			No	None		
☐	admin_id	int(11)			No	None		
☐	bconame	varchar(50)	latin1_swedish_ci		No	None		
☐	bakedCookiesPic	varchar(100)	latin1_swedish_ci		No	None		

Figure 4-6 is the commands to create the cookies table in pfkp_database as shown below.

```
Table structure for table `bakedcookies`
--

CREATE TABLE IF NOT EXISTS `bakedcookies` (
  `bakedCookies_id` int(11) NOT NULL AUTO_INCREMENT,
  `catProduct_id` int(11) NOT NULL,
  `expert_id` int(11) NOT NULL,
  `admin_id` int(11) NOT NULL,
  `bconame` varchar(50) NOT NULL,
  `bakedCookiesPic` varchar(100) NOT NULL,
  PRIMARY KEY (`bakedCookies_id`)
) ENGINE=InnoDB  DEFAULT CHARSET=latin1 AUTO_INCREMENT=2 ;
```

Figure 4-6: Commands to create the cookies table

Figure 4-7 shows the Add baked food products form. Administrator need to insert the information such as the product name, product picture and expert name. Then click the ‘submit’ button. All products already insert will shows at the figure 4-25 refers to the Appendix IIV. The products will add by the administrator and the product information will insert into database by using the commands below figure 4-8.

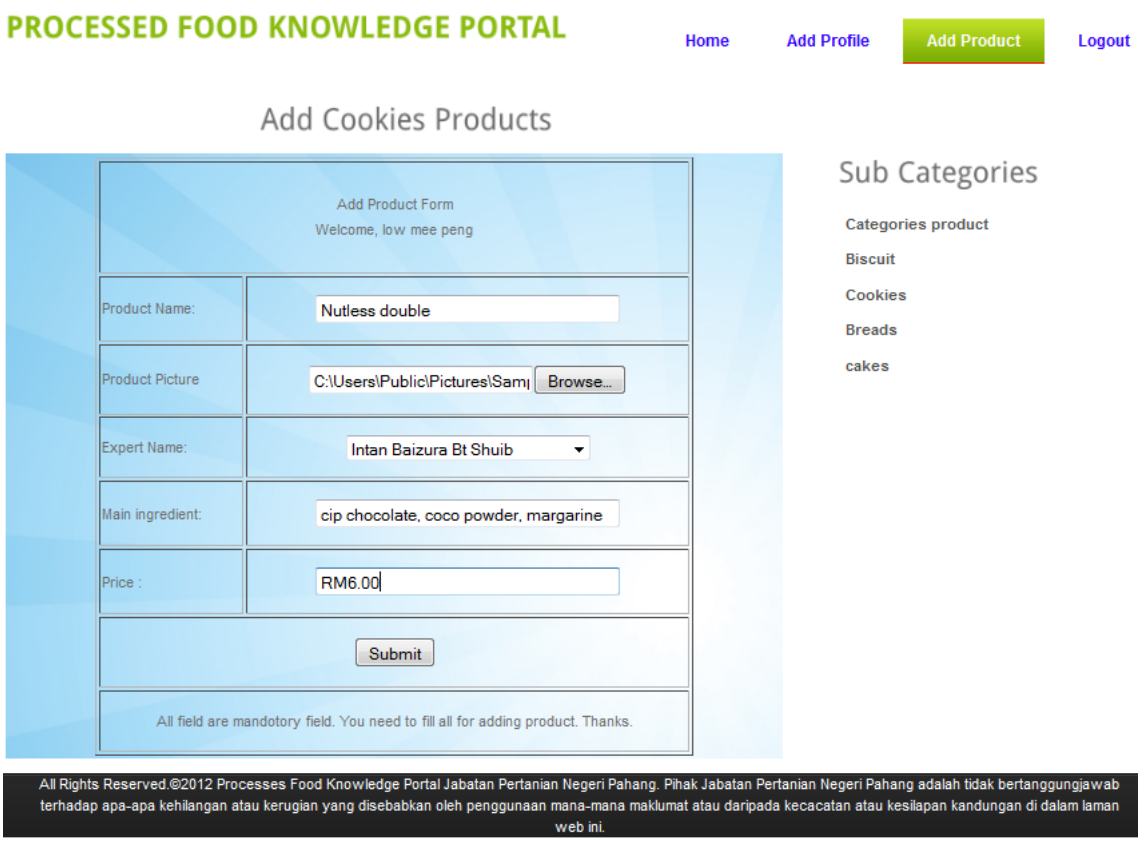

Figure 4-7: Add baked food products form

```
<? php
if($name && $newname)
        {
$sql2 = "SELECT * FROM expert, vegeFried where expert.expert_id =
vegeFried.expert_id";
 $query = mysqli_query($mysqli, $sql2);
$result2 = mysqli_fetch_array($query);
$new_id = $result2["maxid"];
$sql="INSERT INTO
 bakedCookies(catProduct_id,expert_id,admin_id,bconame,bakedCookiesPic)
VALUES (5,'".$expert_id."','".$admin_id."','".$name."', '".$newname."')";
$result = mysqli_query($mysqli,$sql) or die("Error: ".mysqli_error($mysqli));
header("location:/PFKP/bakedCookies.php");}
        else
        {echo "<script type='text/javascript'>
alert(' Saving fail, please fill all blank text field! ');  history:back();</script>";}
?>
```

Figure 4-8: The commands insert the products information into database.

Table 4-4 shows the create topic table which is the experts and register user as the potential user can create the topic at forum. The below commands is use to form the create topic table as show at figure 4-9 below.

Table 4-4: Create topic table

	Field	Type	Collation	Attributes	Null	Default	Extra	Action
	topic_id	int(8)			No	None	AUTO_INCREMENT	
	topic_subject	varchar(255)	latin1_swedish_ci		No	None		
	topic_date	datetime			No	None		
	topic_cat	int(8)			No	None		
	topic_by	int(8)			No	None		

```
Table structure for table  topics
--

CREATE TABLE IF NOT EXISTS `topics` (
  `topic_id` int(8) NOT NULL AUTO_INCREMENT,
  `topic_subject` varchar(255) NOT NULL,
  `topic_date` datetime NOT NULL,
  `topic_cat` int(8) NOT NULL,
  `topic_by` int(8) NOT NULL,
  PRIMARY KEY (`topic_id`),
  KEY `topic_cat` (`topic_cat`),
  KEY `topic_by` (`topic_by`)
) ENGINE=InnoDB  DEFAULT CHARSET=latin1 AUTO_INCREMENT=18 ;
```

Figure 4-9: Commands is use to create topic table.

Figure 4-10 shows the create topic from at the forum. Experts and register user as the potential entrepreneur insert the subject as the topic, choose the category and add the message. Then click ‘Create topic’ button. The category is only can create by the experts. The topic and message will insert into the database by click the create topic button. The experts can view the topic at the home for forum at figure 4-30 refer to the Appendix IIV. The command shows at figure 4-11 below.

Figure 4-10: Create topic form

```
<?php
$sql = "SELECT topic_id, topic_subject FROM topics WHERE topics.topic_id = " .
mysqli_real_escape_string($mysqli, $_GET['id']);
        $result = mysqli_query($mysqli, $sql);
if(!$result)
{echo 'The topic could not be displayed, please try again later.';}
else
{if($result->num_rows==0)
        {echo 'This topic doesn&prime;t exist.';}
        else
        {while($row = $result->fetch_assoc())
                {echo '<table class="topic" border="1">
                <tr><th colspan="2">' . $row['topic_subject'] . '</th><tr>';
        $posts_sql = "SELECT posts . * , user . * FROM posts JOIN user ON
posts.post_by = user.user_id WHERE posts.post_topic = " .
mysqli_real_escape_string($mysqli, $_GET['id']).";
                        $posts_result = mysqli_query($mysqli,$posts_sql);
                        if(!$posts_result)
                        {echo '<tr><td>The posts could not be displayed, please try
again later.</tr></td></table>';}
                        else {while($posts_row = $posts_result->fetch_assoc())
                                {echo '<tr class="topic-post"><td class="user-post">' .
$posts_row['username'] . '<br/>' . date('d-m-Y H:i', strtotime($posts_row['post_date']))
. '</td><td class="post-content">' .
htmlentities(stripslashes($posts_row['post_content'])) . '</td></tr>';
}
}
                        if(!$_SESSION['id']) {echo 'you already sign in!';}
                        else {echo '<form method="post" action="reply.php?id=' .
$row['topic_id'] . '">
        <textarea name="reply-content"></textarea><br /><br />
        <input type="submit" value="Submit reply" />
        </form></td></tr>';
```

Figure 4-11: Commands insert the topic into the database.

The file such as the paper for journal, article or magazine will upload by administrator shows at the figure 4-12.

Figure 4-12: upload file

Figure 4-13 shows the login form. The administrator, experts and potential entrepreneur need to login by input the username and password before they can login into their certain page. The next page after expert's login shows at the figure 4-31 refers to the Appendix IIV and the home page for administrator shows at figure 4-32 refers to Appendix. The below figure 4-14 is the command shows the command login.

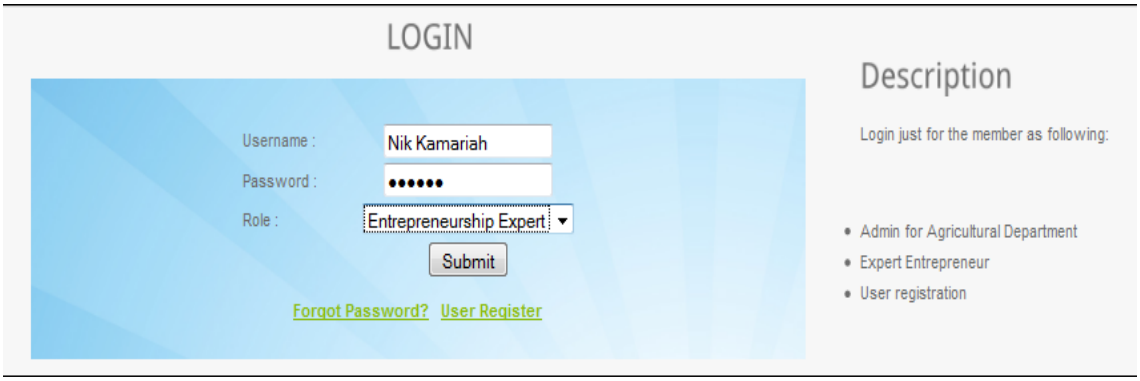

Figure 4-13: Login form.

```
if($role == "admin")
        {
                $sql="SELECT * FROM user, admin WHERE user.user_id =
admin.user_id and user.username='$name' and user.password='$encry_pass'";
                $result=mysqli_query($mysqli,$sql);
                        if($result)
                                {
while($newArray= mysqli_fetch_array($result,MYSQLI_ASSOC))
{
        $name = $newArray['name'];
        $id = $newArray['admin_id'];
}
        }
$count=mysqli_num_rows($result);
if($count==1)
        {
                $_SESSION["name"]=$name;
                $_SESSION["id"]=$id;
                $_SESSION["mail"]=$mail."@@".$_SESSION["id"];
                        header("location:/PFKP/manageArtical.php");
}
                else
                        {echo "<script type='text/javascript'>
                        alert(' Login Fail !! Your username or password not match in
the database !! ');       history.back();</script>";}
```

Figure 4-14: Login commands for users by input the username and password.

Figure 4-15 is the command for the connection to the database. All the data can insert, delete, view and search if the data is connect to the database.

```
<?php
$host="localhost";
$username="root";
$password="";
$database="pfkp_db";
$mysqli=mysqli_connect("$host","$username","$password","$database");
if(mysqli_connect_errno())
{
        echo "<h1>ERROR CONNECTION<br/>";
        echo "<h2>Fail connect to MySQL<br/>";
        echo "<h3>Please check you connection and refesh this page";
        printf(mysqli_connect_error());
        //exit();
}
?>
```

Figure 4-15: Commands connect to the database.

The figure 4-16 shows the registration form for potential entrepreneur. After registration, potential entrepreneur can get the experts entrepreneur information based on their expert field. The figure shows at figure 4-33 refer to Appendix IIV.

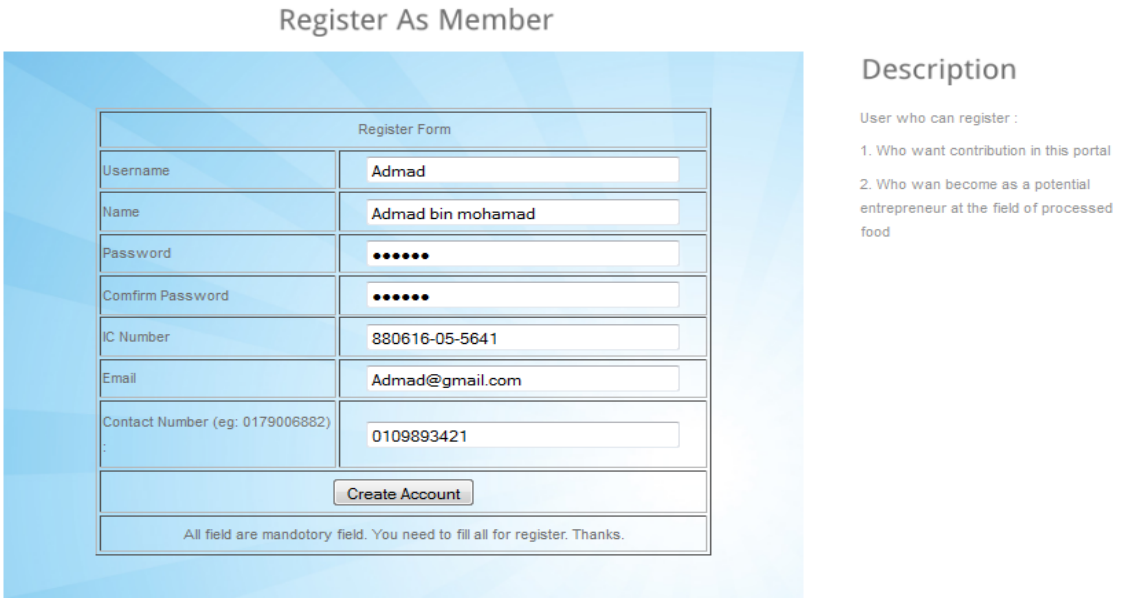

Figure 4-16: User as the potential entrepreneur register form.

Potential entrepreneur can get the assistance information such as financial, training, and so on from difference department as shown at figure 4-17. Beside, Potential entrepreneur can post their comment at the forum and also can post their homemade processed food as shown at the figure 4-34 and figure 4-35 refers to Appendix IIV.

Figure 4-17: Assistance information from difference Department.

4.1.4 Software and Hardware Development Environment Setup

In computing, a hardware and software development environment is the entire environment that provides comprehensive facilities to computer programmers for software development. Processed food knowledge Portal (PFKP) is a web-based application; before the system can be implemented, suitable software have to be installed:

- MySQL Database
- PHP Script Language
- Apache Web Server

In this project, the environment setup contains client computer, web server and database server. In client computer, it contains web browser which can run the html script as the client side scripting. In the database server, it contains MySQL as the database. The PHP script will pass the SQL query to access the database.

4.1.4.1 XAMPP Configuration

XAMPP is a single package and light Apache distribution containing the most common web development technologies. It contains Apache HTTP Server, phpMyAdmin, PHP, MySQL, Openssl, and SQLite. XAMPP can download everywhere for free and various use specially for web developer. Figure 4-18 to figure 4-23 is XAMPP configuration.

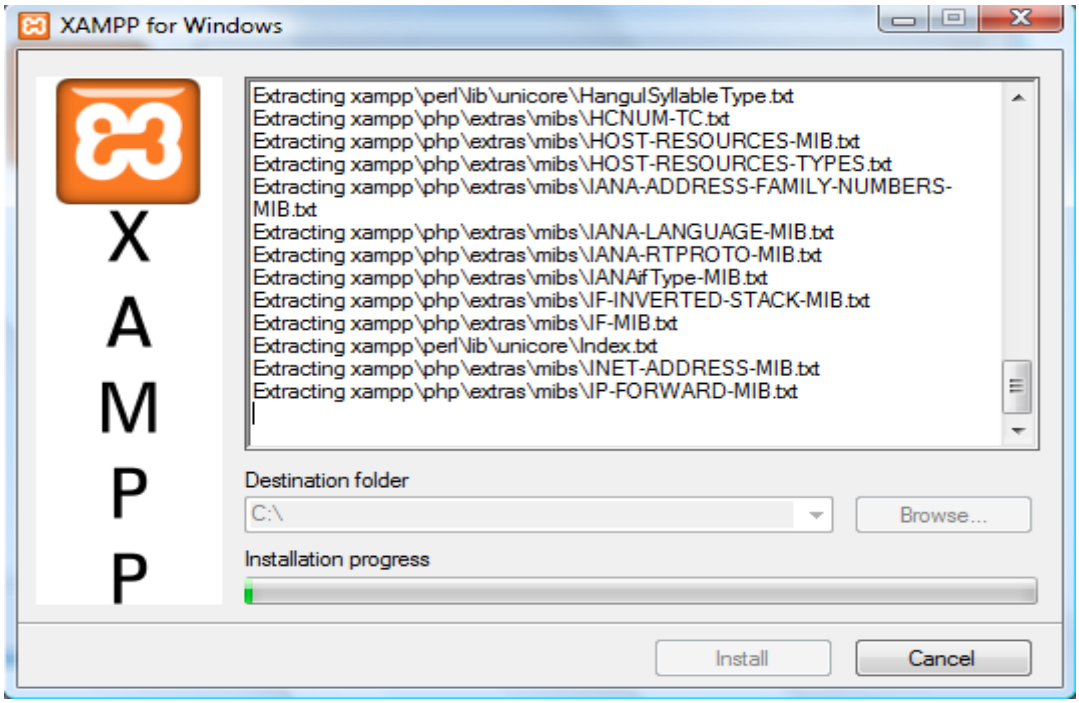

Figure 4-18: XAMPP contain Apache HTTP Server, PHP, MySQL, phpMyAdmin

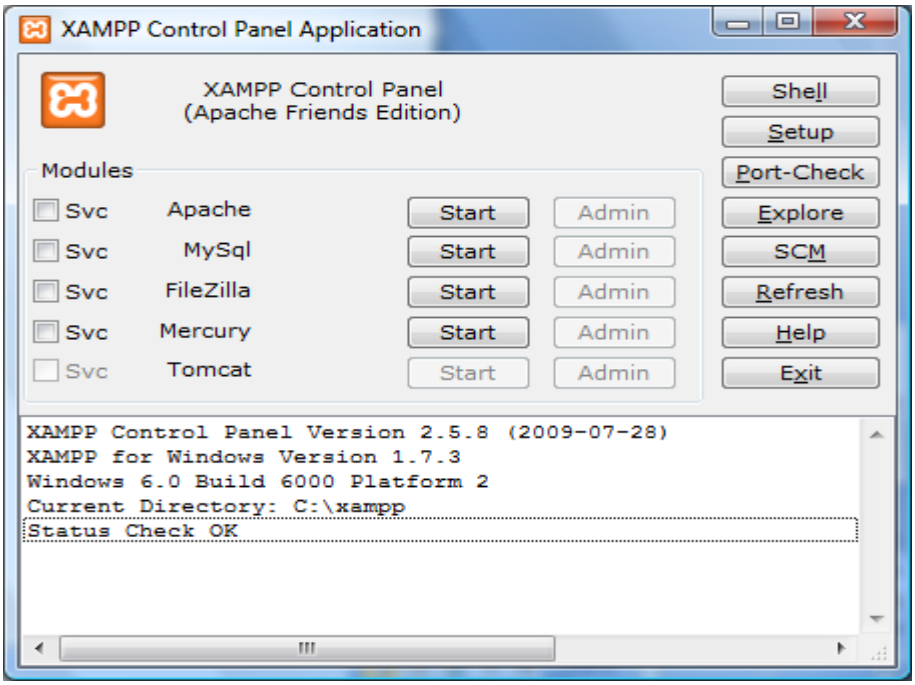

Figure 4-19: XAMPP Control Panel Application

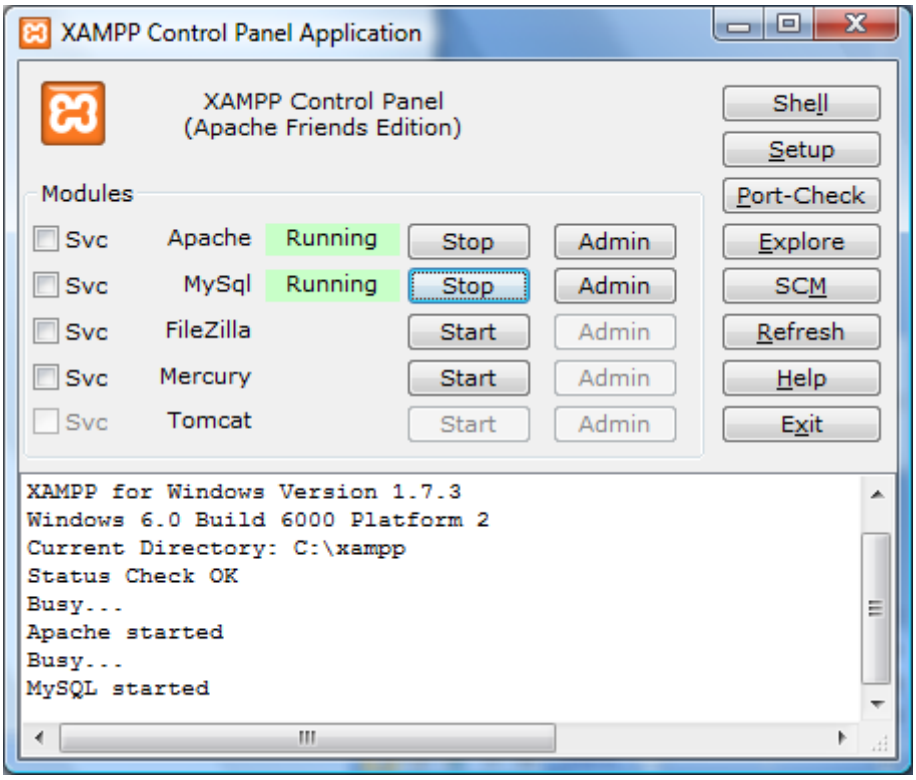

Figure 4-20: Start the Apache Server and MySQL

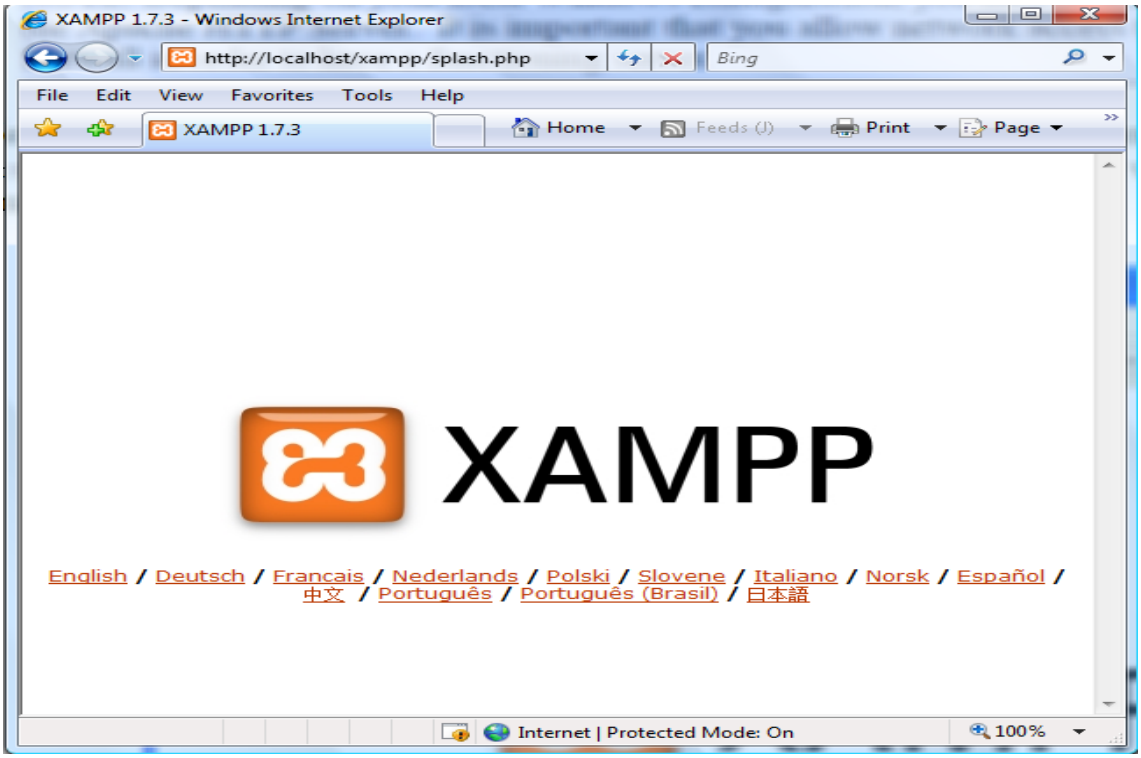

Figure 4-21: Test the server is running

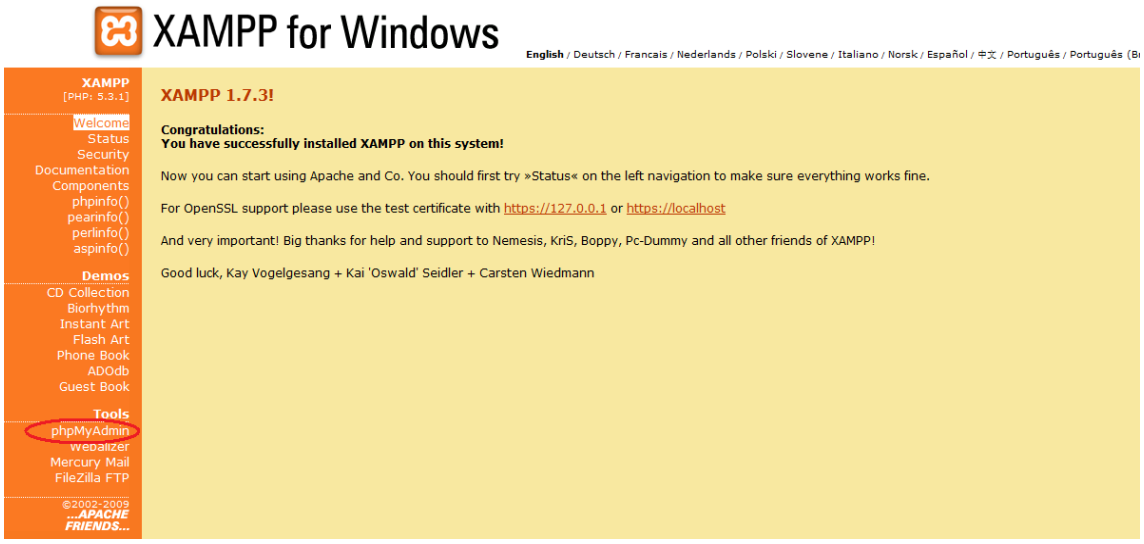

Figure 4-22: Create Database by click the phpMyAdmin at the left menu

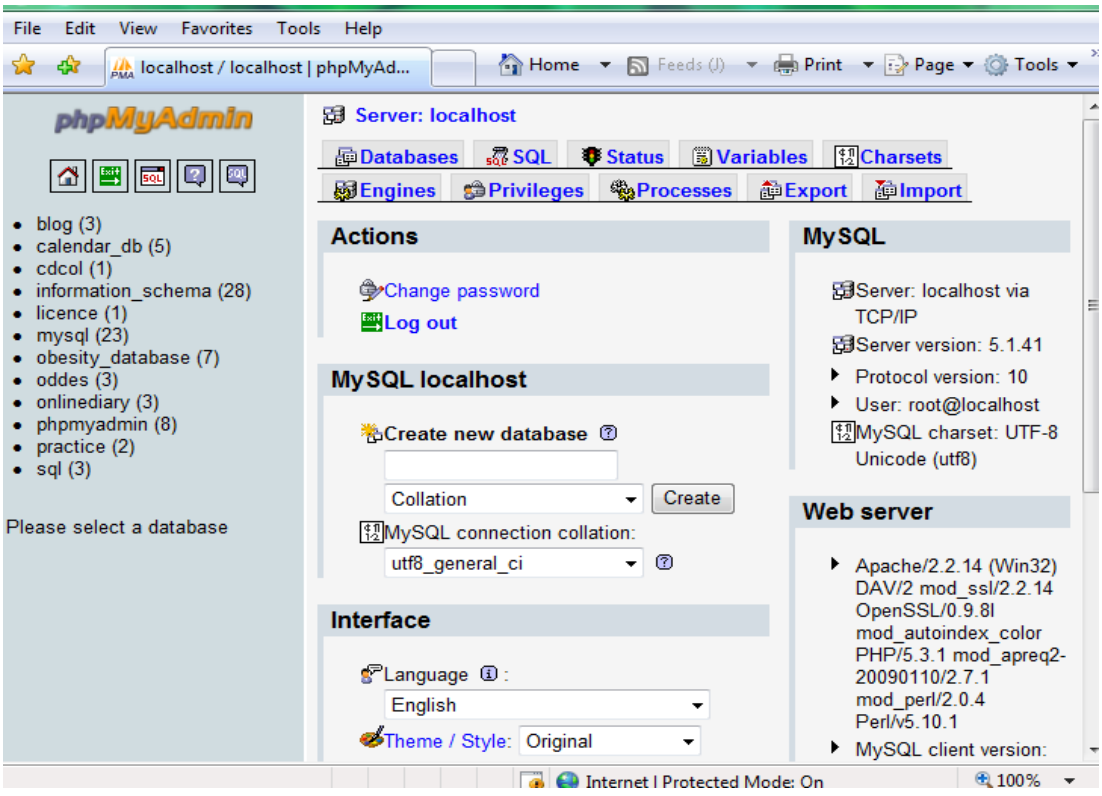

Figure 4-23: phpMyAdmin Start Page

4.2 Testing

This chapter discusses on the testing and the result of Processed Food Knowledge Portal (PFKP). Based on the testing result, this can determine whether the products can works under certain situation or not. Testing on the system can compare the quality of system develop under the same specification based on the result from same test.

4.2.1 System Testing

System testing will be done in PFKP to verify completeness of the system. System testing conducted to ensure the system does not fail in the functional and non-functional in the system.

4.2.2 Test Case

Test case is a set of the condition or variables to determine the system is working correctly or not. Example test cases have been conduct as shown at the Appendix III.

4.3 Result

This chapter discusses the on results of the proposed project and followed by discussion.

The Processed food knowledge portal (PFKP) is success to be developed. The functional requirements already develop and the system is no any bugs make the system failure so the system can work properly.

All the features have been achieved at this portal. This portal has the interaction between experts and potential entrepreneurs. The potential entrepreneur can post their problem at the forum site as shown at the figure 4.10 at chapter four. From the forum,

experts will reply potential entrepreneur by giving them the guidance or suggestion how to solve the problem are face by the potential entrepreneur. Experts give the feedback as shown at figure 4.34 refer to Appendix IIV.

Other from that, this portal can help the potential entrepreneur in problem of marketing and promotion for their product. There are difference department is providing at this portal. The marketing assistance as shown at figure 4.36 refers to Appendix IIV. All products are classification into category products shows at the figure 4.25 refer to Appendix IIV. All the users can get to know the expert entrepreneur product by view the product profiling or product gallery as shown at the figure 4.26 and figure 4.37 at the Appendix IIV.

Based on Departments have been provide in this portal, there are Department that provide the service such as training, financial assistance, machine to potential entrepreneur. The assistance information as shown at figure 4.38, figure 4.39, and figure 4.40 at the Appendix IIV.

Processed food knowledge portal (PFKP) can assist the Department by provide a lot of information and knowledge that already mention at above. All the news, paper, product and assistance information is focus on the processed food field. Although all the feature and screen is success to be developed, some constraints also need to be highlighted. The constraint is PFKP not yet tested by others user. It should be tested by various users to get their feedback on its benefits.

4.3.2 Project limitation

The development constraints and system constraints will discuss in this section that the processed food knowledge portal will be developed.

4.3.3 Development constraints

There are some development constraints during development. The constraint is project takes longer time to be developed because use the iterative and increment methodology to develop the project. It need take the feedback from the supervisor. Each week need to meeting with supervisor during development of the system.

Data collection from the expert entrepreneurs is limited because of the problem of transportation to get the vehicle to get the interview from the expert's entrepreneur from other state. Besides, the reason is the hostel problem. The data collection is done during the holiday, so the time stay at hostel is limited. The data collection is from the Kuantan area only which is the entrepreneur near Kuantan area and the entrepreneur who come exhibition when Mini MAHA at Gebeng.

Data collection is done in two ways which is getting the data from expert's entrepreneur by using interview method and literature review. After collect the data, the data need more time to analysis and make the classification for each category of processed food products based on the feature and characteristic.

Difficulty on retrieve data from difference table and insert the data into more than one table. Besides, difficulties make connection from mysql to the middleware and processed food portal by using the php and Dreamweaver as the tool to connect to the database.

4.3.4 System constraints

There are some system constraints in the PFKP portal. The constraint is Experts' registration need verify or register by the administrator before the experts can login into process food knowledge portal. After registration, experts just can update their profile.

Users such as potential entrepreneur need to register before they can login access into the certain page at the processed food knowledge portal when they are online. The user only can get more information after they are register. The registration only for the users is interest and who want to make the contribution on the PFKP.

The next constraint is the knowledge portal is especially for processed food only. Other fields are not related to the processed food will not found at this portal.

4.3.5 Suggestion and project enhancement

The suggestion and project enhancement for this system is can get more data from other area of experts' entrepreneur and not just in area Kuantan or area Pahang. More experts and other users use this portal will make sure the information is not out of date but will update from time to time. It also get help in make successful in marketing of processed food industry.

Furthermore, this portal provides the functionality for dialogue session in the portal. The users such as experts and potential entrepreneur can make the discussion straight forward on the right time.

Finally is providing the functionality for online ordering and online payment. The customer can get the product they are required. They can get more choices of processed food product from the PFKP system based on the category products already classify.

CHAPTER 5

CONCLUSION

This chapter is summarizing about the development project Processed Food Knowledge Portal. The summary of project, literature review, methodology and suggestion and approach enhancement in this project will discuss in this session.

A knowledge portal provides an interface or platform that can allow communication between each user through the portal. The knowledge portal can help interested individuals and researchers to identify other experts that working in the same area. Users who use processed food knowledge portal can collect useful knowledge quickly and easily because it is specify on processed food and contain the useful information.

There is no government portal that specific focus on the processed food. By comparison the existing processed food portal from research, there are some feature do not contain at the portal such as category products, tips, experience, forum, assistance financial. The features will contain at the Processed Food Knowledge Portal.

There are many existing portal that do not have the module like Process Processed food, tips, forum for potential and expert entrepreneur exchange their

experience or opinion. So it is the opportunity Processed food knowledge portal to be developed, because it is not standalone will specific focus on Processed food Field and provide some modules that do not have in the existing portal.

The methodology used in this project is Iterative and Increment Methodology This approach has helped the users achieve the desired results. The iterative methodology can helps to identify the true needs of the clients. This feedback result will be adapted to change the specification and then come out with a product that meets the client demands and overall expectations. The phases in methodology are Planning, Requirement, Analysis and Design, Implementation, Testing, Evaluation and Deployment.

The suggestion and approach enhancement is the implement Processed Food Knowledge Portal hope can attract the expert entrepreneurs from other state not only at area Kuantan and area Pahang. Secondly, get more feedback from all level of users. Finally, there can have the dialogue session functionality in the portal since the portal just limited post comment by users (expert entrepreneurs and potential entrepreneurs).

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APPENDIX

APPENDIX I

Table 5-1: Comparison feature between the four existing system

Features	Jabatan Pertanian Pahang Portal (PJPP)	Agribazaar Portal	Direktori Industri Kecil&Sederhana Portal (IKS)	Rasmi RISDA Portal
Product Profiling	Available	Available	Available	Available but only partial entrepreneur.
Entrepreneurs Profiling	Available	Not available	Available, but only information on name, address, telephone and enterprise name.	Available, but only on name, address, telephone and enterprise name
Expert Profiling	Available	Not available	Not available	Not available
Processing food	Not available	Not available	Not available	Not available
Risks and challenge	Not available	Not available	Not available	Not available
Success Stories	Available	Not available	Not available	Available, but are mix all field together.
Suppliers and Customers	Not available	Available	Not available	Not available.
Marketing Strategies	Not available	Available	Available	Available
Product pricing	Not available	Available	Available but only partial entrepreneurs	Not available.

Journals/papers about the specific products	Not available	Not available	Not available	Not available
Picture gallery	Available	Available	Available, but only partial entrepreneurs.	Not available
Activity gallery	Available	Available	Not available	Available but only partial entrepreneur.
Forum	Not available	Available	Not available	Available
News	Available	Available	Not available	Available but mix with other field.
Knowledge Bank (journal/articles/papers etc)	Not available	Not available	Not available	Not available
Tips	Not available	Not available	Not available	Not available
Entrepreneur experience	Available	Not available	Not available	Not available

APPENDIX II

Table 5-2: The PFKP development process using the Iterative and Increment Methodology

Iteration 1		
Phases and task	**Expected outcome**	**Deliverables**
Planning - Identify the scope of the project - The scheduling PFKP shown at the Gantt chart - Submission chapter one	Timeline , estimate the time and cost need in this project	Gantt chart (shown at the appendix IV)
Iteration 2		
Requirement - Get data from entrepreneur and expert entrepreneurship -Requirement list : 5 modules - Browse the internet to get idea how to design a good portal	To gather enough knowledge about Knowledge portal	-Submit chapter 2 Literature review -5 modules a. Login modules b. Product profiling c. Expert profiling d. Forum e. Assistance information
Iteration 3		
Analysis -determine and analysis the requirement user - determine the Problem, risk and the constraint when develop the project - Analyze the software and hardware need in the project	-Detail problem space containing at least a generic scenario, constrains, assumptions, requirements -The project PFKP able to register all users into the database.	-Analyses each modules model -DFD -UML diagram

- Modules 1: - Login session - Registration - Forget password Modules 2: - Information about the processed food product All type categories processed food. Modules 3: The information from the expert entrepreneur such as name, address, company name, contact number, etc Modules 4: The comment or discussion between the potential entrepreneur and expert entrepreneur Modules 5: Homemade recipe from potential entrepreneur	-Administrator able to manage the registered users in the database. -The system provides forum platform for the potential and the expert entrepreneur to discuss or sharing their opinion and experience. -Administrator always update their information such as news. -To ensure more potential entrepreneur participant and access into this PFKP, review how the expert entrepreneur to get success in their business. Homemade processed food -Instruction making processed food	
Iteration 4		
Design the Department Agriculture interface	Fulfill the requirement from the Department Agriculture	Prototype Department Agriculture interface
Evaluation	To ensure Department Agriculture interface fulfill the users requirement	Evaluate by the users
Iteration 5		
Redesigns the interfaces at iteration 4 if not fulfill the requirement from the user. Design the Expert Entrepreneur interface	Fulfill the requirement of Expert Entrepreneur	Prototype Expert Entrepreneur interface
Evaluation	To ensure Expert Entrepreneur interface fulfill the users requirement	Evaluate by the users
Iteration 6		

Redesigns the interfaces at iteration 5 if not fulfill the requirement from the user. Design the Potential Entrepreneur interface	Fulfill the requirement of Potential Entrepreneur	Prototype Potential Entrepreneur interface
Evaluation	To ensure Potential Entrepreneur interface fulfill the users requirement	Evaluate by the users
Iteration 7		
Redesigns the interfaces at iteration 6 if not fulfill the requirement from the user Design the customer processed food interface	Prototype user processed food customer interface	Fulfill the requirement of user processed food industry.
Evaluation	To ensure user processed food customer interface fulfill the users requirement.	Evaluate by the users
Iteration 8		
Design - Redesign the modules at iteration 7 if not fulfill the users requirement.		
Evaluation	To ensure whole system fulfill the users requirement	Evaluate by the users
Testing	- find out any error which may cause the system failure and error happen - Increase the quality of the software.	Test cases
Implementation	Training, practice how to the users.	Installation system
Documentation	- The relation between the class and the object - Logical deign, Physical design	-SRS, SDD Package model, Component model
Deployment	Expected system require by the user.	The final system was release to the user.

APPENDIX III

Table 5-3: Test cases

ID	Unit to test	Assumptions	Test Data	Steps to be Executed	Expected result	Actual Result	Pass /Fail
1	System login	1.If the user does not fill in all the require field, the error message box will displayed to notice user to insert all the field(s) 2. If invalid username or password, the system will display a message box to notify user the username or password have been wrong.	1. Username = variable. 2. Password = Number	1. enter the username and password 2. Choose the 'Role' 3. Click the 'Submit' button.	1. For member, user home page display. 2. For administration, administer home page display. 3. For Expert, expert home page display.	1. For member, user home page display. 2. For administration, administrator home page display. 3. For Expert, expert home page display.	PASS
2	Registration For Potential user and Expert	1. If the user (potential user, expert) does not fill in all the require field, the error message box will displayed to notice user to insert all the field(s). 2. User (potential user, expert) enter invalid email, the error message will be	variable	1. Register user Click link 'Sign up 'below the 'Enter' at login page. 2. The Register form display. 3. Experts register form display. 4. Enter all the	The Login page display.	The Login page display.	PASS

		display. 3. User (potential user, expert) does not allow enter more number that is already specified at the test field if not the error message will be display. 4. If the password and the confirm password are not match, error message will display.		require user requirement and click' Submit'.			
4	Update expert profile	After the modification has been done by the expert, the latest information will be update at the database.	variable	1. Click the 'Edit Expert Profiling'. 2. The Edit Expert Profiling page display. 3. Enter the information need to be change or add. 4. Click 'Submit 'button. 5. The 'display again.	View 'Expert Profiling', the updated expert information will show at the expert profiling.	View 'Expert Profiling', the updated expert information will show at the expert profiling.	PASS
5.	Add Products	The product will add into the database and can view at the products menu at homepage.	variable	1. Click the 'add product' menu. 2. chose the categories of product need to be add.	The products already will display at the products menu.	The products already will display at the products menu.	PASS

				3.if all the field is fill in then click 'submit' button.			
6	Create topic at forum	The topic that already will insert into topic table in database.	variable	1. Click the link 'create a topic'. Then input the subject, choose the category and message. 2. then click 'create topic 'button.	A message 'You have successfully created your new topic.' shown.	A message 'You have successfully created your new topic.' shown.	PASS
7	post comment	The comment will insert into reply table in database.	variable	Input the comment then click' submit reply'	The comment will show at the home forum.	The comment will show at the home forum.	PASS
8	Add news	The news add by the administrator will insert into the database.	variable	1. Click 'add news'. 2. input the news title and description. 3. click 'submit' button.	The news will show at the homepage of processed food portal	The news will show at the homepage of processed food portal	PASS
9	Manage news	The news have been selected will be deleted from the database.	variable	1. Select the news. 2. Click delete.	Delete successful.	Delete successful.	PASS

APPENDIX IV

GANTT CHART

APPENDIX IIV

USER MANUAL

Homepage

Figure 5-1: Home page of PFKP

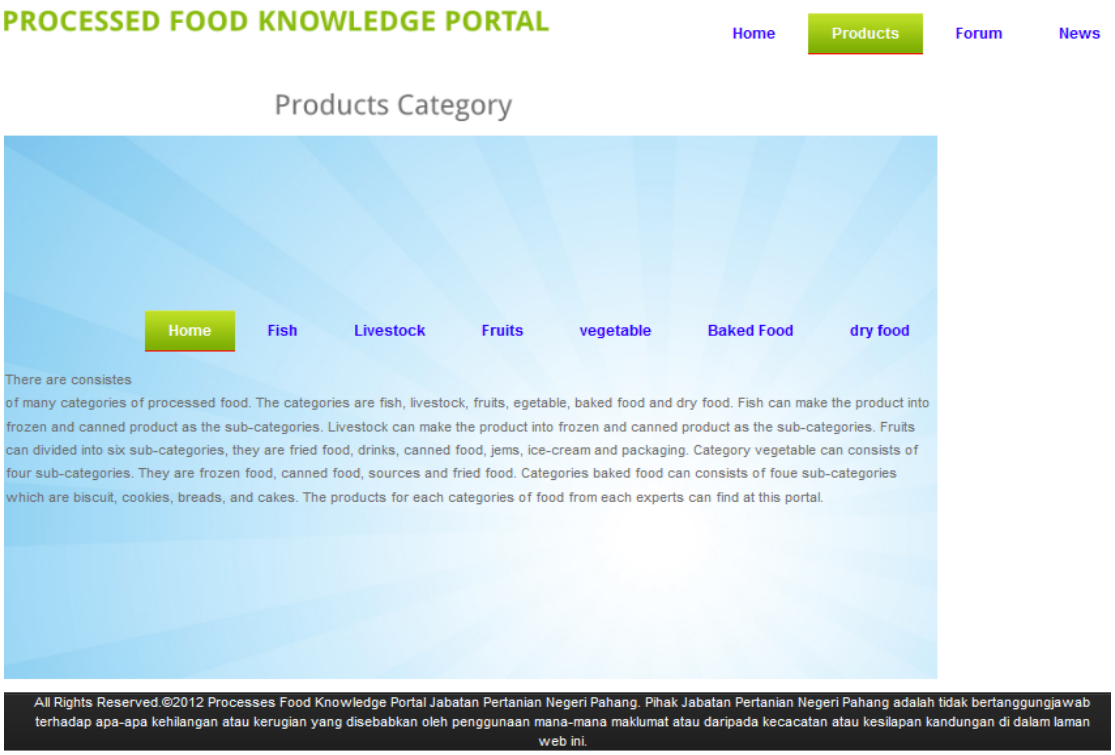

Figure 5-2: Product category

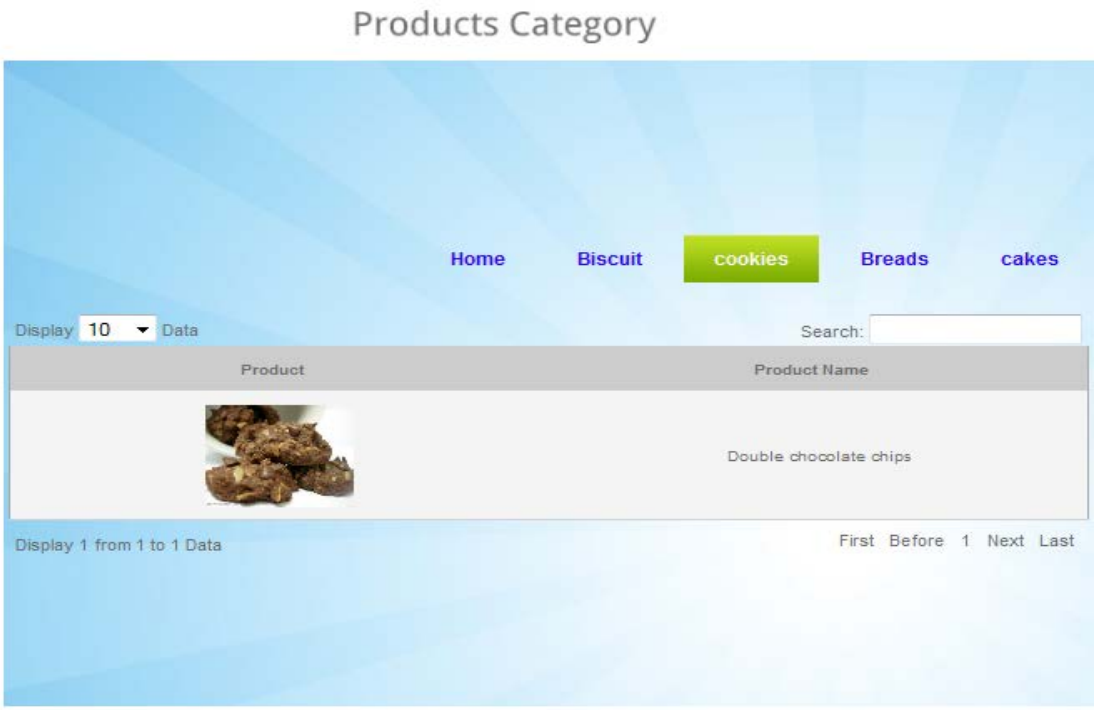

Figure 5-3: Product category for baked food.

Figure 5-4: Upload and view file

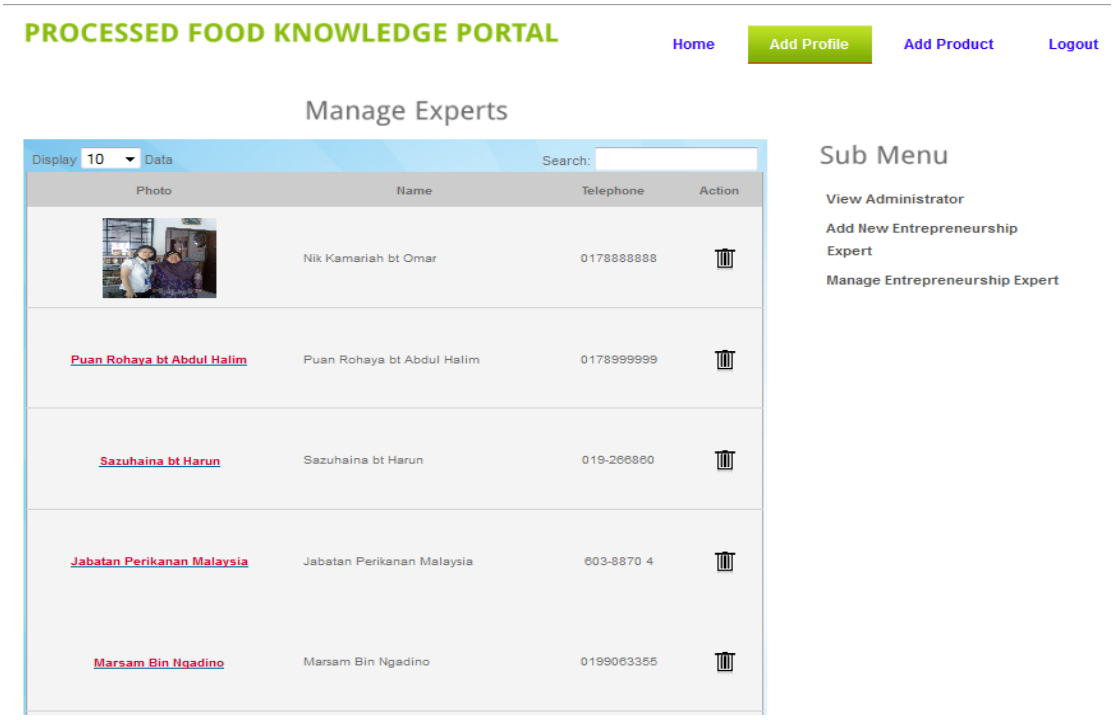

Figure 5-5: View all Expert entrepreneurs

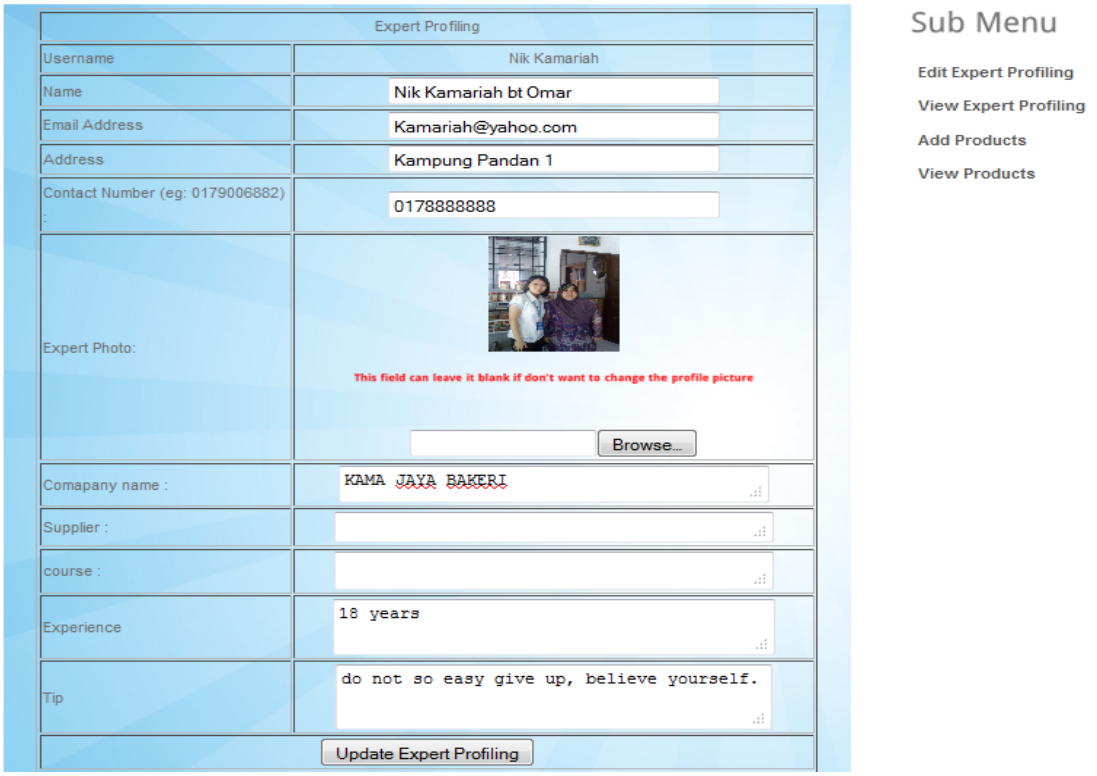

Figure 5-6 : Update experts profiling

Figure 5-7: Forum

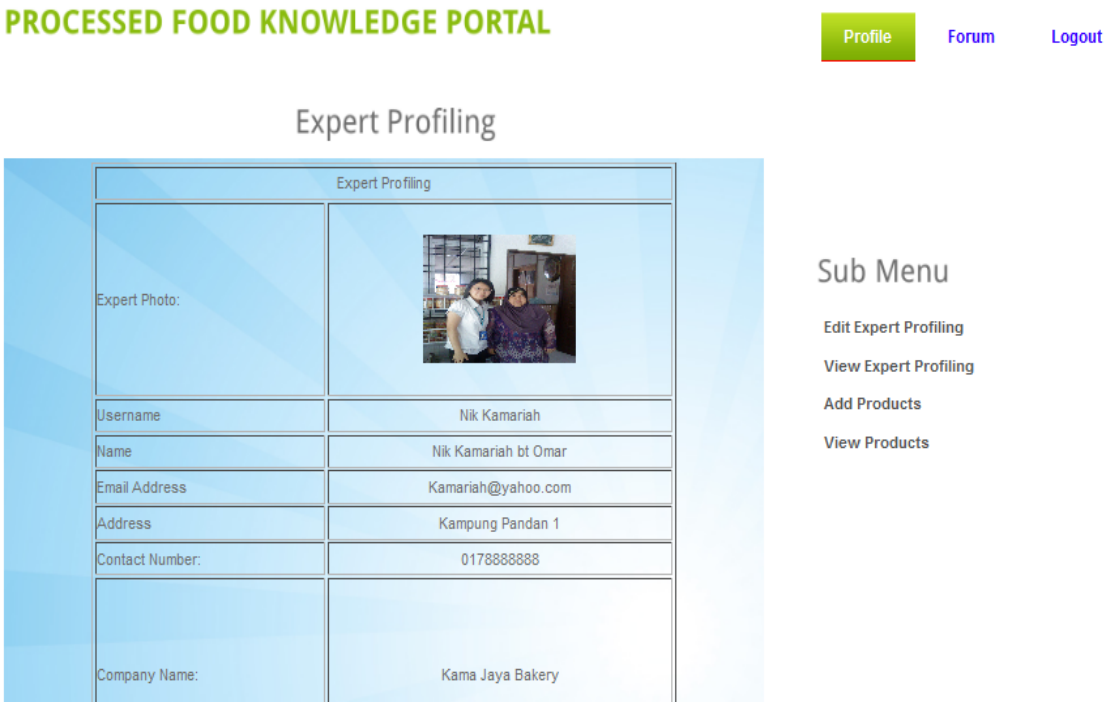

Figure 5-8: View experts profiling

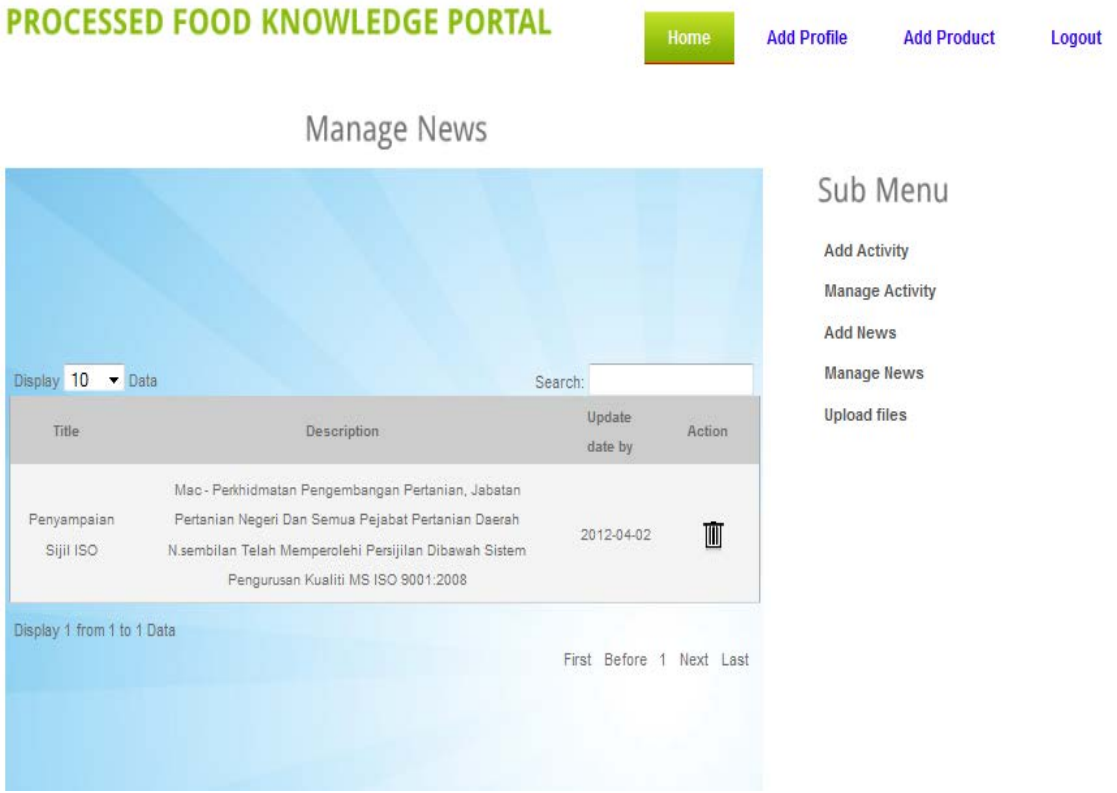

Figure 5-9 : View and delete News

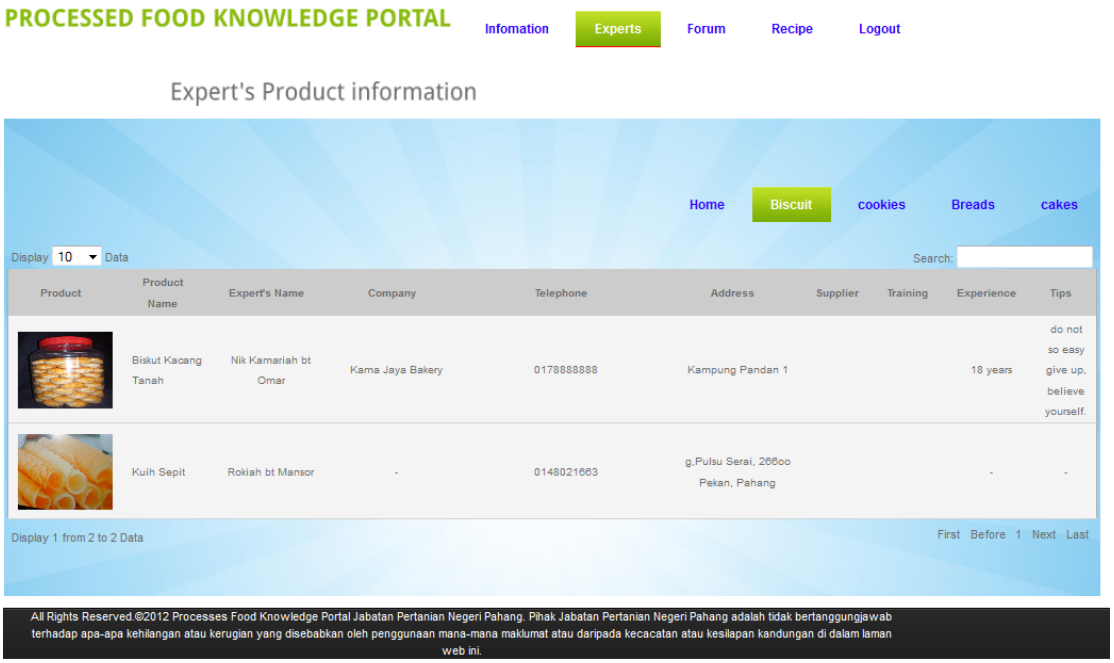

Figure 5-10: Expert's Product information

Figure 5-11: Forum post comment

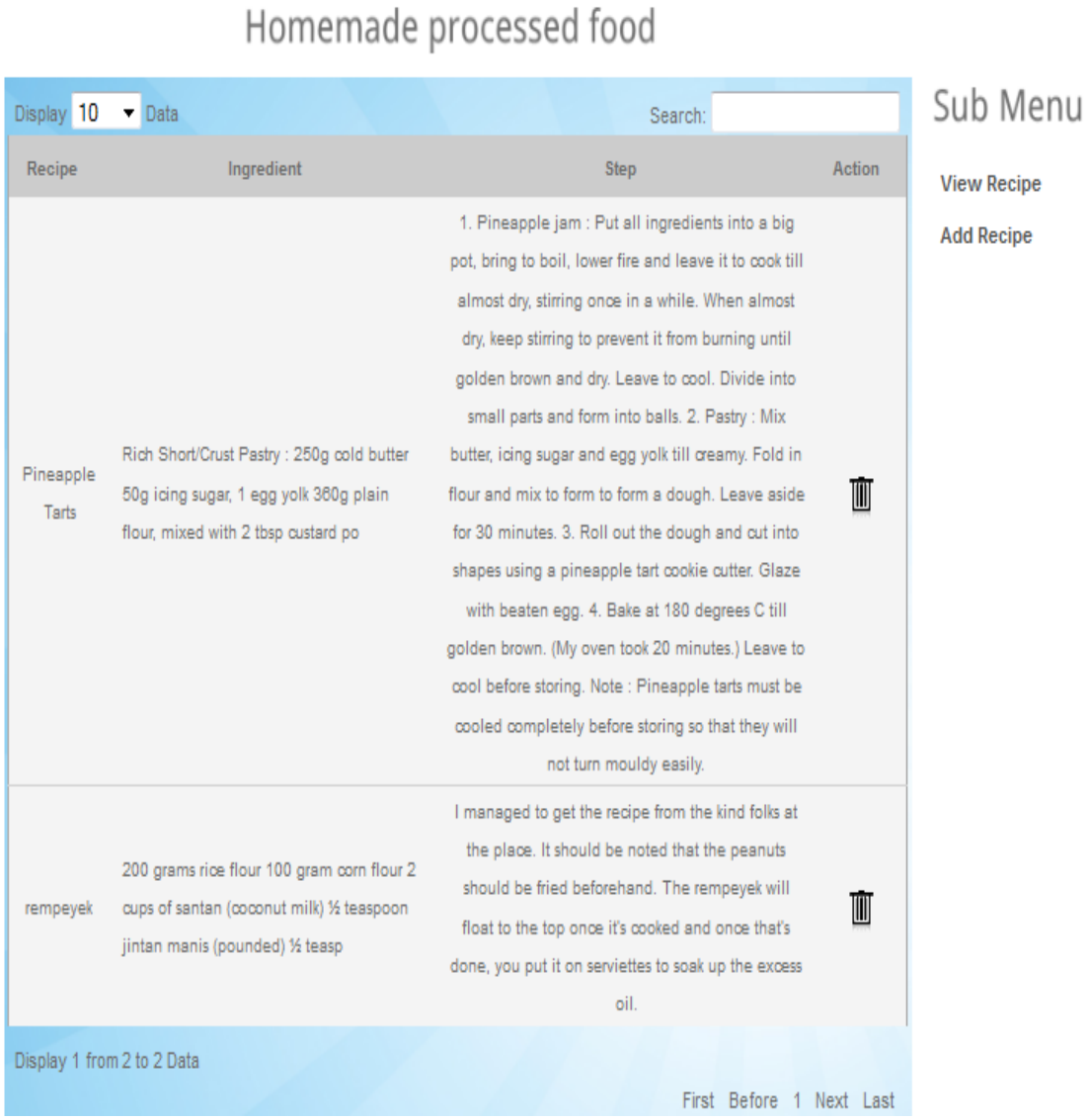

Figure 5-12: Homemade processed food

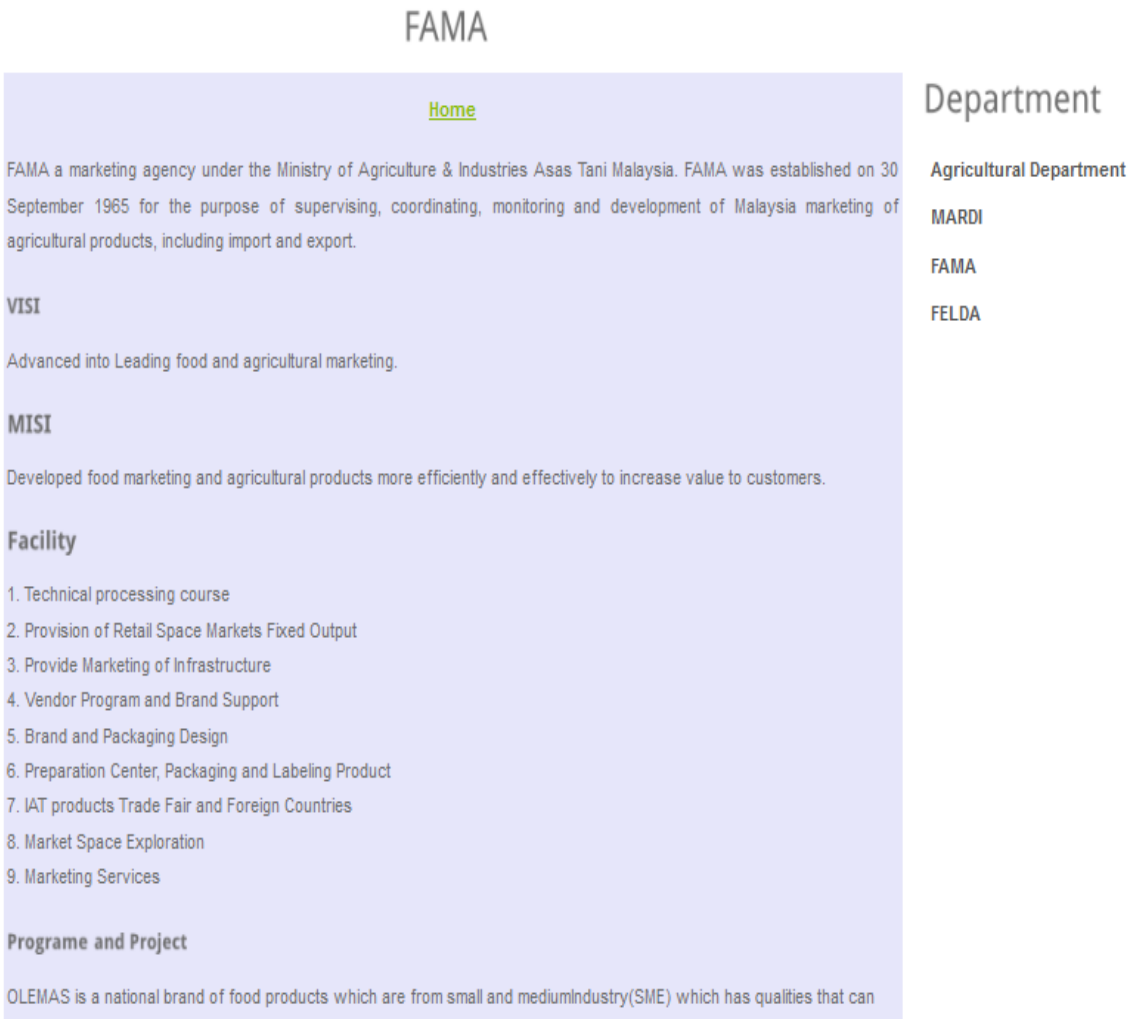

Figure 5-13 : Marketing Assistance

Figure 5-14: Product Gallery

Figure 5-15: Training Assistance

Figure 5-16 : Financial Assistance

Figure 5-17: Machine Assistance