

# UNIVERSITI MALAYSIA PAHANG

## BORANG PENGESAHAN STATUS TESIS ♦

JUDUL: CoP for MAMPU

SESI PENGAJIAN: 2011/2012

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## **ACKNOWLEDGEMENTS**

I am grateful and would like to express my sincere gratitude to my supervisor Prof Wan Maseri Binti Wan Mohd for knowledge, invaluable guidance, continuous encouragement and constant support in making this research possible. She has always given me advices, critics, help and more to finish this thesis. I appreciate her consistent support from her compact explanation and clarification which I have been able to produce such a great proposal, which meets the requirements.

My sincere thanks go to all my friends, family and lecturers, who helped me in many ways and made my stay at UMP pleasant and unforgettable. I feel so proud and glad because I have been able to complete my PSM thesis within the time given. Besides that, even though my parents are not around me, but I can feel that their support for me to accomplish this task.

My special appreciation also goes to my friends that have been helping and giving me some useful knowledge during study and analysis of this project.

## **ABSTRACT**

First of all, Community of practice (CoP) Portal is being design based on the purpose of sharing knowledge and experiences among peers in certain industry field. Thus, with the research that made for the Community of Practice, it been discovered that it is a virtual platform that shall enhancing users to prevent ones from made the same mistake, miscommunication among peers and more timing for ones to acknowledge certain collaboration activities. Continuously, Knowledge is type of information or skills that allows user to study, learn and gain when certain information is unclear and unknown. Thus, CoP Portal is also been considered as part of the Knowledge Management. The methodology used for this portal is iterative and incremental model. The design will consist of logical user case, database design, workflow and diagrams to develop the system. In conclude, CoP Portal shall acknowledge users to be more innovative and creativities in the working area and future lifestyle.

## ABSTRAK

Pertama sekali, Community of Practice (CoP) Portal merupakan suatu reka bentuk yang berdasarkan tujuan pengkongsian pengetahuan dan pengalaman antara kalangan rakan-rakan dalam bidang industri tertentu. Oleh itu, penyelidikan yang dibuat daripada mengikut Community of Practice, ini telah didapati bahawa ia adalah satu platform maya yang boleh diggunakan untuk meningkatkan kefahaman pengguna, menghalang seseorang daripada membuat kesilapan yang sama, salah faham di kalangan rakan-rakan sekerja dan masa yang berlebihan bagi sesetengah orang yang telah menjalankan sesuatu aktiviti kerja yang sama sebelum ini. Oleh itu, kerjasama antara seseorang akan meningkat. Berterusan juga, Pengetahuan merupakan suatu jenis kemahiran yang membolehkan penggunaannya mengkaji, belajar dan mendapatkan maklumat tertentu yang tidak jelas dan tidak diketahui. Oleh itu, Portal CoP juga dianggap sebagai sebahagian daripada Pengurusan Pengetahuan. Kaedah yang digunakan untuk portal ini adalah menggunakan model iterative dan incremental. Reka bentuk akan terdiri daripada kes pengguna logik, reka bentuk pangkalan data, aliran kerja dan rajah untuk membangunkan dan menjelaskan sistem ini. Kesimpulannya, Portal CoP dapat membantu pengguna untuk menjadi seseorang yang lebih inovatif dan kreatif dalam ruang perkerjaan dan gaya hidup pada masa depan.

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# CHAPTER 1

## INTRODUCTION

This chapter briefly describes the “**Community of Practice Portal**” that will be developed later. This chapter comprises five sections: The first section describes the background of the project. The second section describes the problem statement and motivation of the project. The third section describes the objectives for the project. The fourth section describes the scopes for the project. Finally the thesis organization is described in section five.

### 1.1. Introduction

Knowledge Management (KM) as researched and can be define as a range of strategies and practices that may be used in an organization to create, identify, distribute and would enable the adoption of an insight and experiences. Thus, ones can use such insight and experiences to comprise their knowledge into certain organization or company to process and practice them. Continuously, Knowledge Management System (KMS) refers to the management of a system related to knowledge in certain field of expertise for more on exporting, storage and dissemination of information. Related to the CoP Portal, Knowledge Management System can be used as technique to success the CoP Portal.

The advantages that claimed in KMS are such as sharing of some valuable and precious organizational information throughout the organizational hierarchy. It shall then

avoid the re-inventing the direction and makes reduce from the redundant and repetition works. Thus, it may reduce training time for new fresh peers.

Community of Practice (CoP) shall consider being part of the successful components for KM. CoP Portal is a portal that interacts with network for individuals with the common problems or interests. They would get together in purpose to explore for ways of working, identify the common solutions and share good practice, opinion and ideas. This is a web-based implementation system that will simplify and easy using system to sharing each knowledge and documents.

Technology nowadays allows people to share network and develop practice online entirely. Through the peer-to-peer collaborative activities, members of Communities of Practice are coming together willingly to share information, build knowledge, develop expertise and solve problems with each others.

Communities of Practice Portal shall have pool resources related to a certain specify area of knowledge and experiences. Knowledge can refer as the theoretically or practically understanding on a subject. It may be considered as implicit with practical skill or expertise for understanding certain things. On other hands, it can be explicit as with the theoretical understanding of a subject. Thus, it shall be more or less formal and systematic ways of representation the interaction among peoples. Informal communities might exist in some form in every organization. So, the challenge in CoP Portal is to support the users for enable to create and share organizational knowledge due to improve the sharing knowledge process whether in formal or informal ways.

For information, this type of learning practice has been existed for long time as ones have been learning and sharing their ideas and experiences through certain storytelling. Wenger coined out the phrase inside his 1998 book named, Communities of Practice: identity, learning and meaning. So, there will be space for members to share and learn from each other's model like a forum.

CoP participation in general should not be appropriate for non-practitioners. The purpose of a CoP, as discussed above, is to provide a way for practitioners to share tips

and best practices, ask questions about their colleagues and then provide support for each other. Membership is dependent on expertise and sector - one should have at least some recent experience performing in the role or sector area of the CoP.

## **1.1 Problem Statement and Motivation**

The purpose for the portal needs to be developed because the needs of the members to update current information with other users. As noticed, the current system did not fulfill the needs of the members to discuss and sharing their news, documents and knowledge. This will limited the communication and iteration between users.

Besides, the lack of the functionality of current online system will stop the user from sharing a good experience. Thus, members cannot develop ideas and more innovations. So, a new online web system is needed to avoid the duplication of work among each user.

Motivation to share knowledge is critical to success in Communities of Practice Portal. Studies had show that members are motivated to become active participants in a CoP. When ones are interest in certain knowledge about things, then one shall alike the discussion with others that having the common interest with ones.

Members of a community of practice can also be motivated to participate by using tangible returns such as promotion, raises or bonuses. Thus, in return of participation, the community may interest to exchange of practice related knowledge, interaction or intangible returns like reputation or self-esteem in society.

## **1.2 Objective**

- a. To develop a portal that can assist users to connect to other users that has similar interest.

- b. To develop a portal that has the feature of Communities of Practice to share documents and experience.
- c. To assist members of Community of Practice to exchange knowledge through forum for helping them in day to day work.

### **1.3 Project Scope**

The scope is the features and functions that characterize the system that is going to be developed.

- a) Functionalities ( refer figure 1.1 )
  - i. Home page - relevant information and news on the progress of related activities or projects, ongoing activities, online discussions and others related modules.
  - ii. Members' registration - Login and Registration for members.
  - iii. Forum – Ask questions and post information. Simple and easy using for member and admin to view and reply the topic that being discusses.
  - iv. Article Sharing – Members can view and submit articles.
  - v. Documents Sharing – Members can upload and download their article/documents to the system.
  - vi. Total Visitor – To view the total participate of visitor in the portal.
  - vii. Members Directory –For acknowledge members and admin to notice each other in forum and system site.
  - viii. Admin Site – For admin to log in, participate and validate the module in the portal.
  - ix. Event Calendar – To share and publish events for each class member.
  - x. Private Message – Members and admin can communicate privately about certain issues.
  - xi. Site Map - The menu of the system for users to acknowledge the system better.

- xii. Member Site - Members can change their profile and participate in the module in CoP Portal.
- xiii. Guestbook– Members can give comment and suggestion about the system.
- xiv. Web links- Member can post and view the links about other website.
- xv. Frequently Asked Questions (FAQ) – Some common question with answer along about the system. The guideline to help member to recognize the system.
- xvi. Forgotten Password – When member forget the password, the system will send the password to member’s email account.
- xvii. RSS News feeds – Delivers relevant content to other related website about the system.
- xviii. Contact – Information about admin.
- xix. Search facility - search for documents, people, events and others in the system.
- xx. Expert List – For members to notice the expert in certain field through the system.
- xxi. Shouts Box – Users including Guest may voice out their expression about the recent status of the system. It is an Informal ways of communication modules.

b) Target User

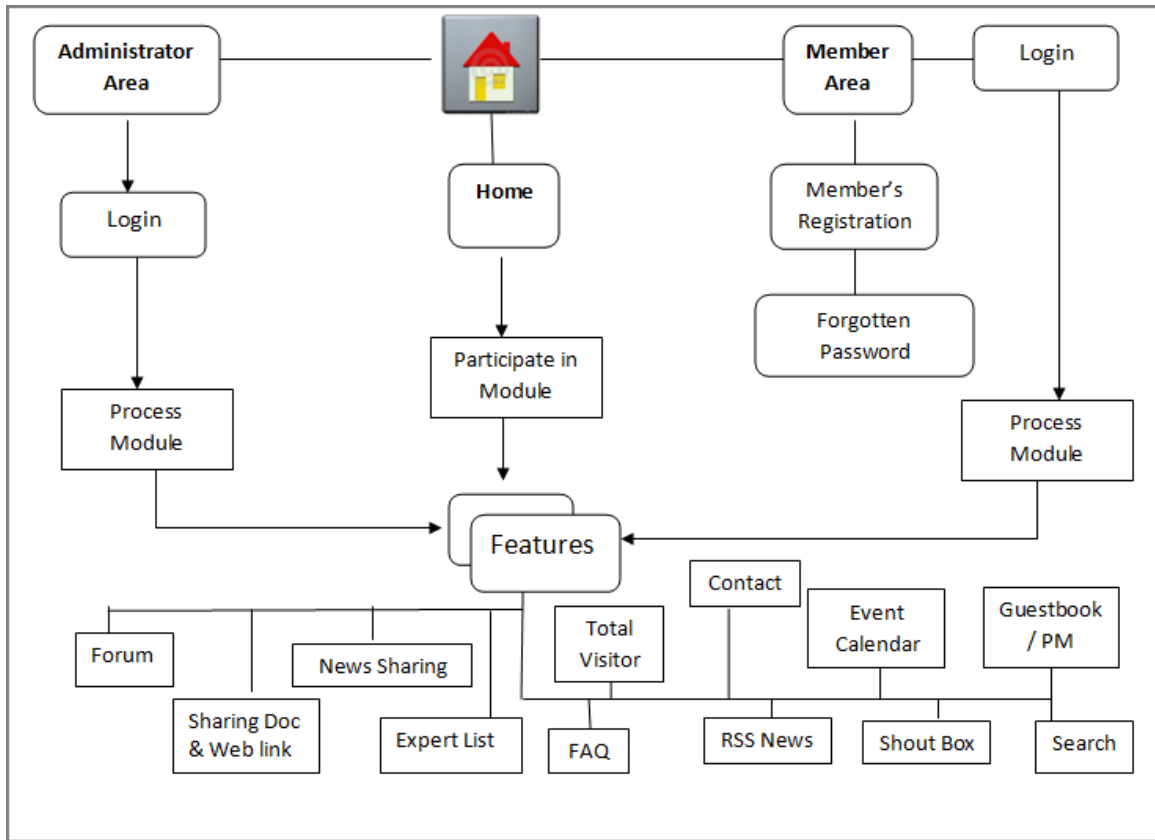
- i. Administrator – Administrator that has no or less knowledge on php language or other programming languages to validate the website.
- ii. Member of CoP - Member can register into different user class and use the functionality of the system.
- iii. Visitor – They may view and voice their opinion or suggestion about the system.

c) Techniques

- i. Knowledge Management System (KMS)

d) Tools

- i. PHP language and MYSQL database.
- ii. Notebook or Laptop – which got internet access.



**Figure1.1** Storyboard of the CoP Portal

## 1.4 Thesis Organization

The users of the system shall be able to participate in the module of the system. Besides, they may share knowledge and documents and others in the portal. Thus, security of the system will be improving from time to time.

This thesis consists of five chapters.

## Chapter 1: Introduction

The purpose of this chapter is to introduce to the reader about the project that will be developed later. In this chapter, it contains introduction, problem statement, objective, scope and thesis organization.

## Chapter 2: Literature Review

This chapter will do and notice the reader about the reviews for the project. This chapter is divided into two sub reviews that require students to study to get complete information about the project.

## Chapter 3: Methodology

The purpose of this chapter is to discuss the approach and framework for the project. Method and technique that will be and will be used while designing and implementing the project will be included in the content. Approach method and hardware and software should be stated clearly.

## Chapter 4: Implementation

This Chapter acts to document all process that involve in the development of the project. Project design and project development are explained. The content of the project depends on the system. It contains information of the database and tools used. Data in database is shown in this chapter.

## Chapter 5: Results and Discussion

The purpose of this system is to explain about the results and analysis that had been acquired. Result analysis, project limitation and suggestions and project enhancement are content for this chapter.

## Chapter 6: Conclusion

This chapter will explains briefly and summarizes the developed project.

## **CHAPTER 2**



## LITERATURE REVIEW

This chapter briefly describes the review on existing techniques related with “**Community of Practice Portal**”. This chapter comprises two sections: The first section describes the comprehensive review on existing related systems. The second section describes the review on method, equipment, and technology previously used in the same domain.

### 2.1 Introduction

A literature review is refer to research that had ones made for better knowledge including the substantive findings such as in theoretical and methodology contribution to one special and particular subjects or topic. The review of this critical point of information will acknowledge one when stating certain system development. . This chapter will briefly describes the review on existing techniques related with Community of Practice (CoP) that will be developed later.

A well-structured literature review shall enable ones to review the logical flow of ideas for the system, formal and appropriate referencing style, recent and related references with similarity to software system, proper use of terminology and an unbiased and comprehensive view of the previous research on the topic <sup>[14]</sup>.

The literature review is specified and precisely to summarize the research that related to Community of Practice (CoP) to develop project in a coherent way. The current system and paper that had done by others profession about this project will be study due to better understanding to the background of the system.

## 2.2 Community of Practice

Knowledge Management can be define as a high-level plan that wish to support the organization or company with the knowledge resources that needs to carry out its vision, mission and goals. As a result, the Knowledge Management must have a closely aligned or perspective to the overall system strategy and must produce a logical and tangible result to the system as a whole ideas for develop certain software product <sup>[8]</sup>.

One of the thought-leader or expert about Communities of Practice in knowledge management is Etienne Wenger who have declare CoP as “groups of people who passion for certain things have share a concern or a passion for something they interest, do and shall learn on how to do it better as they will interact regularly” (Wenger, 2004a). Three characteristic dimensions are defined and crucial about CoP (Wenger, 1998; 2004a) <sup>[7]</sup>:

- i. The domain
  - Joint enterprise: Members of certain community of practice have shared similarity and shared domain of interest that differences and distinguishes ones from other people.
- ii. The community
  - Mutual engagement: Relationships between the members are guided and constructed by the learning aspect of interaction.
  - Sharing and explore the new knowledge and information shall engage in a joint activities and discussions. This will help each other to forms a better and responsible community.
- iii. The practice
  - Shared repertoire: Members of a community of practice are generally practitioners in certain things.
  - They usually will develop a shared repertoire of resources such as stories, experiences, ways of addressing recurring problems and tools in a shared practice platform.

- This takes time and sustained interaction.

Formal departments, project teams and operational within an organization or company seem to become less sufficient for utilization of knowledge <sup>[20]</sup>. Mostly, people would require support of less formal communities. One of the most reputable types is to coin a community of practice (CoP). This referred to as a group of practitioners who had working on the same topic or system but on the same project <sup>[9]</sup>.

This system is developed based on the needs of ISP Mampu Strategic Plan (2006-2010). In addition, this system also covers the functional requirements for the application of the Public Sector Community of Practice (CoP). CoP is designed to enable knowledge-sharing networks do virtually among all civil servants who have registered with this application. The purpose of this application was developed to make information sharing as a culture of civil servants. One-stop information center is proposed to be established to facilitate civil servants make a referral.

This application will also be used as a reference for other agencies to develop a portal of Community of Practices (CoP) for their own. Applications consumer for CoP involves all civil servants who register as members. This will also facilitate the sharing of knowledge among public officials across agencies and unlimited to internal agency.

### **2.3 Existing System**

Currently, there is no any online system involving using application community of practice. The current system is using hardcopy system. There involved of a lot of paper and face-to-face meeting for sharing and acknowledge each other's experience.

But there are also some systems that are having the similar concept using this application to develop a portal to sharing and managing each other knowledge and documentation. With this, certain portal is being research and studies. There are:

- i. MAMPU's OSCC Knowledge Bank
- ii. Communities of Practice for Public Service
- iii. UK Local Government Alliance for International Development (LG alliance)
- iv. The Local Government Innovation and Knowledge Exchange Network (IKEN)
- v. The Improvement Service of local public services in Scotland (IS)

### **2.3.1 MAMPU's OSCC Knowledge Bank**

MAMPU's Knowledge Bank website is a type of public Community of Practice area for the Open Source Software Implementers. These practice areas will provide some facilities towards the aim to learn and share what they know. Thus, Ones can learn from one another regarding some perspective of their work and then provide a social context for that work <sup>[13]</sup>.

The available menus on this site include members, solution areas, events, news, e-marketplace, practice areas, case studies and support. While in practice area, there include some practice and resources such as articles, software and organizations to ones to sharing their knowledge. This related to Health ,Education ,Software, Government, Development ,System Administration , Forum, Research and Development <sup>[2]</sup>.

This portal also wins the Case Study Awards 2010. In a total of 92 case studies that have been received that year. The award is created for the purpose of knowledge sharing. The best case studies had been carefully and fairly selected by the panel of judges. The winners were announced during MyGOSSCON 2010 which was then held on November 2010 at Putrajaya International Convention Centre <sup>[2]</sup>.

Advantages:

In this portal, member or user can notice the recent activity and news by clicking the menu on top of the portal. Besides, in practice area, the user and member can download the documents and information as they wish easily. A simple forum is provided for member and admin to participate on topic of discussion. Besides, the language can also be change to Malay as it is the national language of Malaysia <sup>[16]</sup>.

Disadvantages:

In this portal, there are no guidelines for the user to show how the portal is executed. Next, this system also no provided the help system or popular frequently ask question (FAQ) for user that have problem on participation the system.

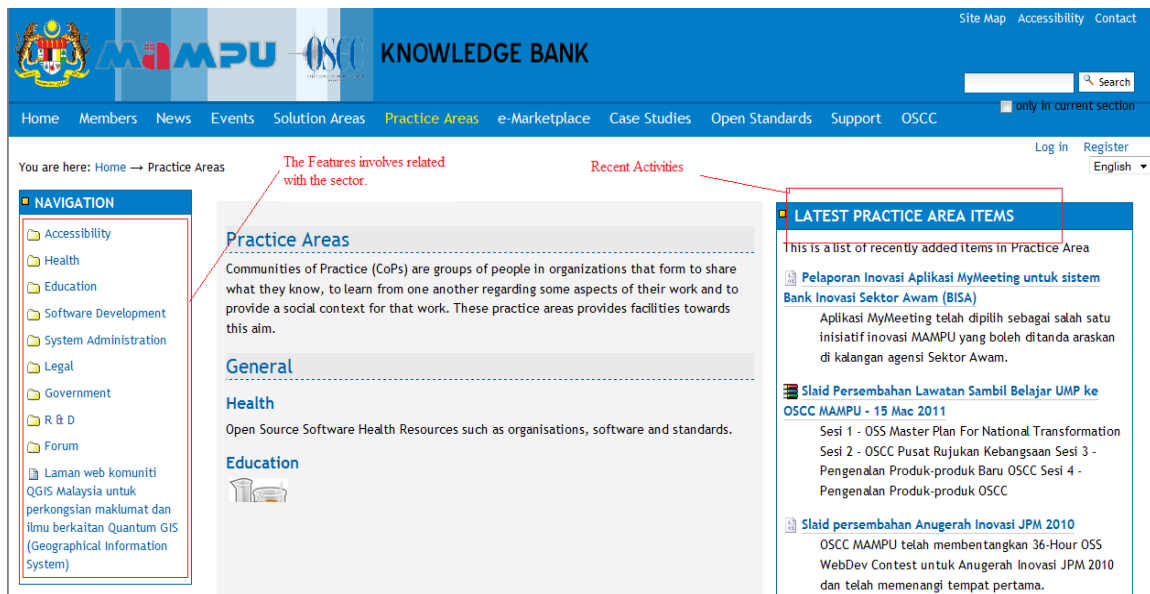


Figure 2.1: Practice Area of MAMPU OSSC Knowledge Bank

### 2.3.2 Communities of Practice for Public Services

This is a community platform that supporting collaborative networks platform for those involved in local delivery. Examples are local authorities, central departments, health staff, people working in charities sectors and the private sector. Those people are in same sector on how to delivering for the information to the public. This service is

provided by Local Government Improvement and Development in Scotland who in place with the Improvement Service<sup>[3]</sup>

Advantages:

This CoP based portal runs using uses javascript in the text editing areas in the communities that allowing members to hyperlink between sections such as events, library and external portals without the use of long URL's. Enabling Javascript is not sufficient to use in the portal but it will help make the user experience much more comfortable. Besides, the information of member is secure without reviewing by others<sup>[3]</sup>.

Disadvantages:

The portal is easily registered by user as long as a user got a valid email address. This will makes more users simply join the community and cause the portal became less controversy. Other than that, there are only one language is benefit for user to communicate and no widely participating by whom that are no knowing English language.

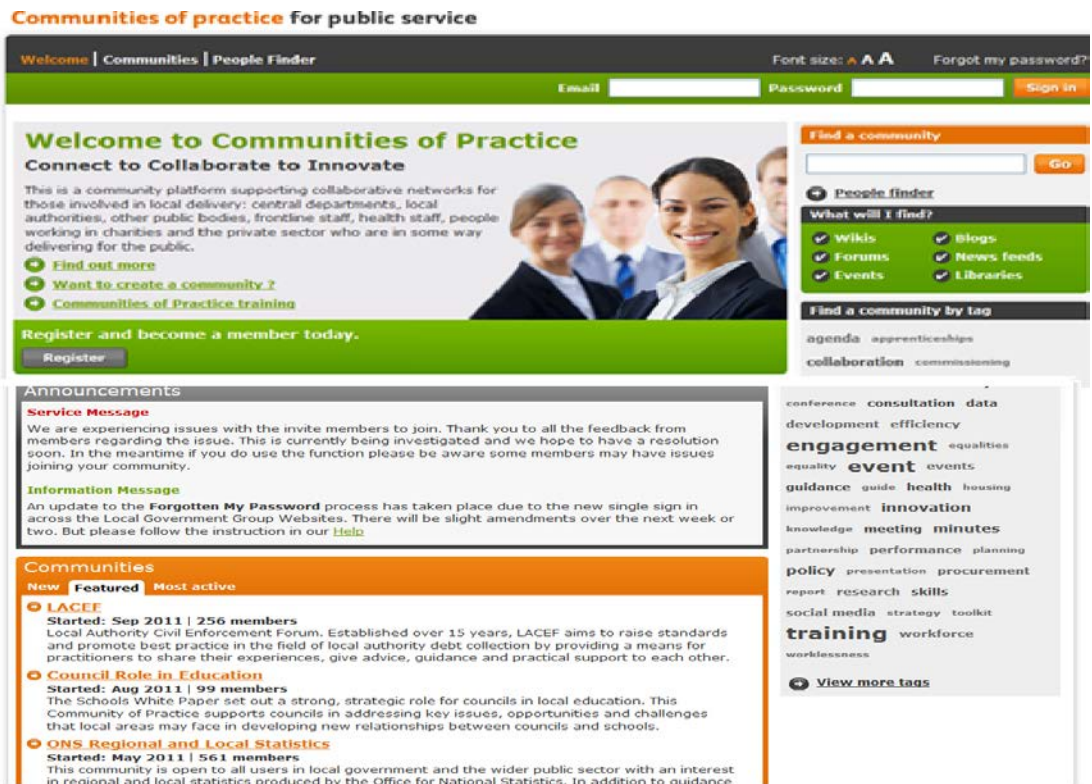


Figure 2.2: Main interface of Communities of Practice for Public Services

### 2.3.3 UK Local Government Alliance for International Development

The purpose of the portal to be developed due to the officers needing some advice to get an international project off the ground, a councilor trying to work out how a council could get involved or just someone who sees that there is an opportunity for local government to do more to help in the fight against global poverty <sup>[4]</sup>.

Within the portal, there are a variety of tools, activities and techniques employed to aid and enhance conversations with the transfer of knowledge. While the Local councils are to delivering basic services such as health, sanitation, education and encouraging local enterprise or services essential to reducing poverty among citizens <sup>[4]</sup>.

## Advantages:

In the portal, user can just follow a link and select the "Register" button to become a community of practice member today. Continuously, user can follow some simple steps to set up ones' profile. Besides, it also got a Search Facility which the user may search for documents, wikis, blogs, people and events in the site. The site also well manages the menu for user to participate in it.

## Disadvantages:

The site is basically same as Communities of Practice for Public Service. There are lack of creativity and innovative. Too much link pages will interrupt the user performance. This will then cause a user less usability the system.

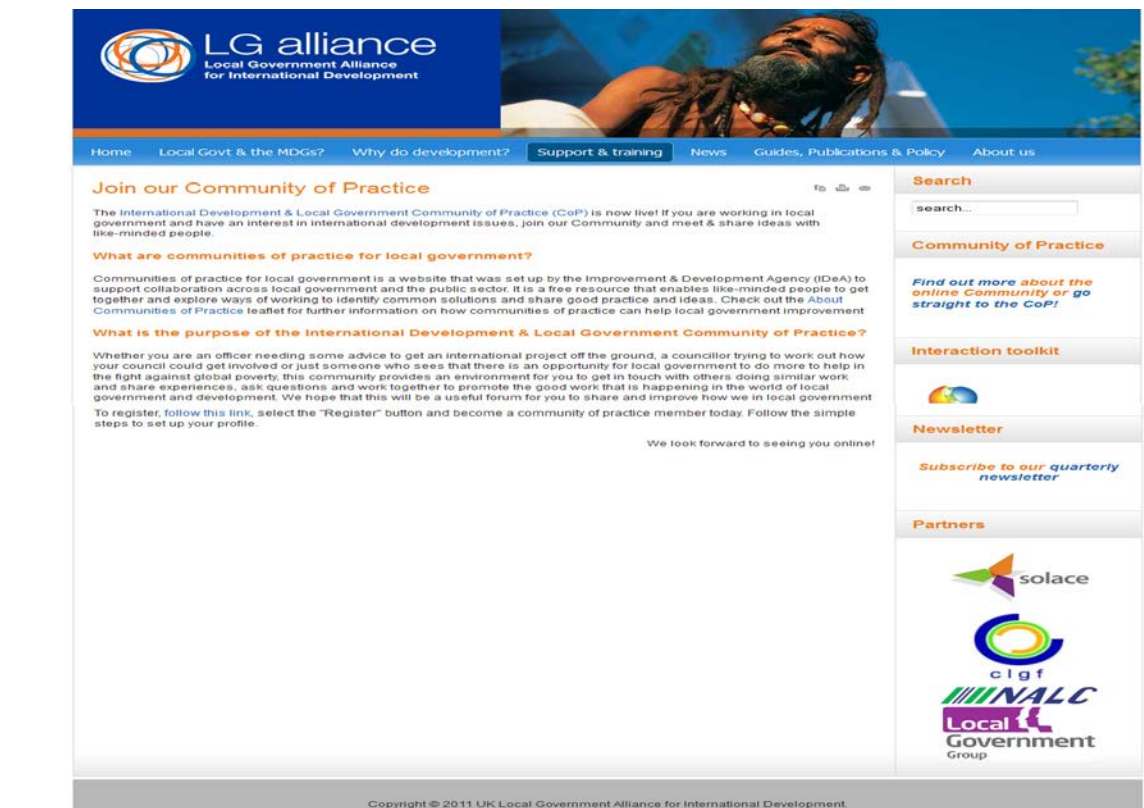


Figure 2.3: Main Page of UK Local Government Alliance for International Development



### **2.3.4 The Local Government IKEN**

Within IKEN, each “Community of Practice” (COP) is based around a key menu or set of menu of importance and relevance for local government practitioners. There are eight COPs provide a space for practitioners to openly and unlimited sharing examples of innovation and better practice. This is assist with problem solving, produce discussion on a range and specify current issues, access peer-reviewed of different case studies and members profiles plus with an obtain of some information, support and resources <sup>[5]</sup>.

IKEN is managed on behalf of people in the Australian Centre of Excellence for Local Government (ACELG) by the University of Canberra. This interactive in the online space provides a range of tools, mutual learning, shared insights and collaboration <sup>[5]</sup>.

#### Advantages:

Easy to access and thoroughly validated case studies, profiles highlight and promote innovative program and projects from across the local government sector nationally. Besides, user can find a range of materials that relate to this Community of Practice. User can also review who else is part of the IKEN community is and see all posts from all Communities of Practice in the one place once user registered.

#### Disadvantages:

The drop-down menu is no quite comfortable when using by a user although it will saving a lot of space in the portal. Less labeling number will make a user find some difficulty to involve in the portal and the user list should be a private list to make sure the safety of the users.

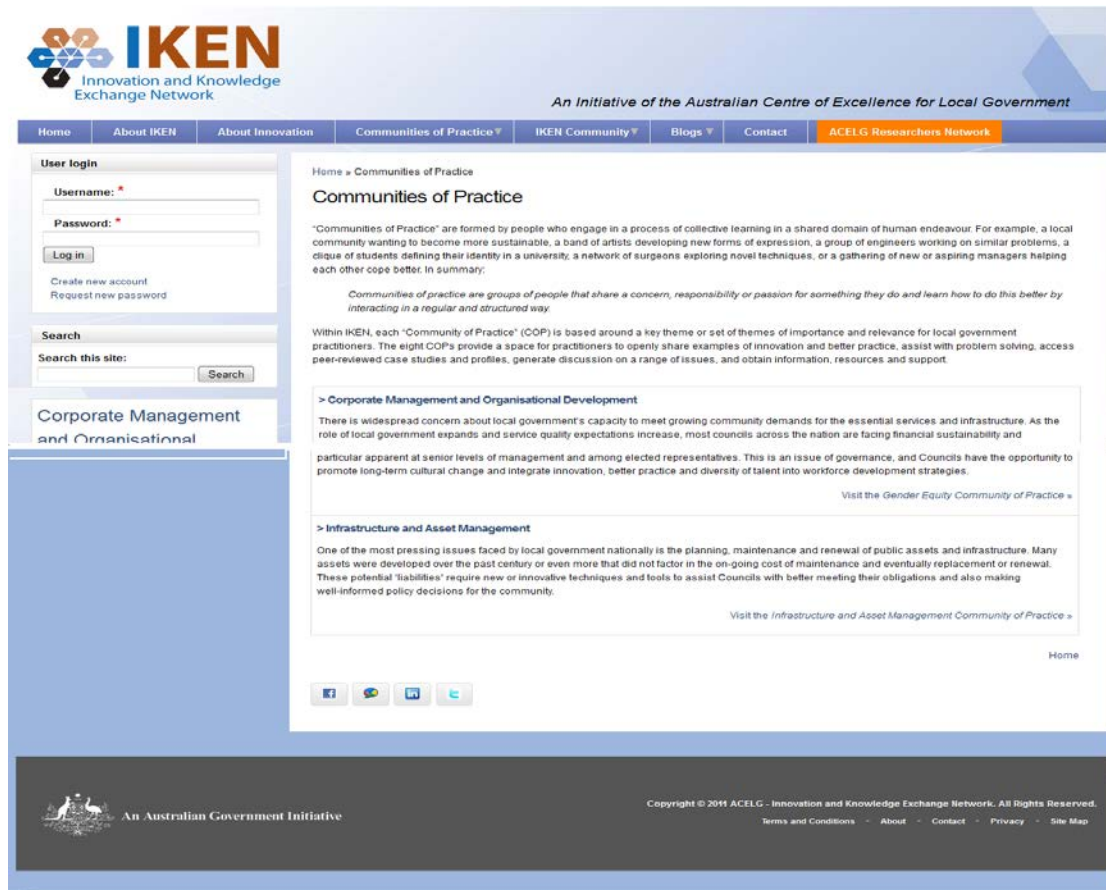


Figure 2.4: Main Page of the Local Government IKEN

### 2.3.5 The IS of Local Public Services in Scotland

The Improvement Service was built in 2005 to help ones for improving the efficiency and quality of local public services in Scotland. It then provides consultancy, advice and programmer to support their councils and partners. The purpose is to help councils and their partners to improve the quality of life, health and the opportunities of all people in Scotland to get through the improvement in community leadership and the delivery of high quality and efficient local services <sup>[6]</sup>.

Advantages:

A Members' Portal is designed to support Scottish councilors by providing them with access to an easy-to-use online caseload management solution for managing constituents' caseloads at home, in the office or in their surgeries. It also have Events Calendar, which find out about all the events and activities organized by the Improvement Service or of interest to Scottish local authorities.

### Disadvantages:

In the registration for user area, there are too many notices for user to register the portal. Next, forgot login is a mistake in word writing that can mislead the user, it should be forgotten password area.

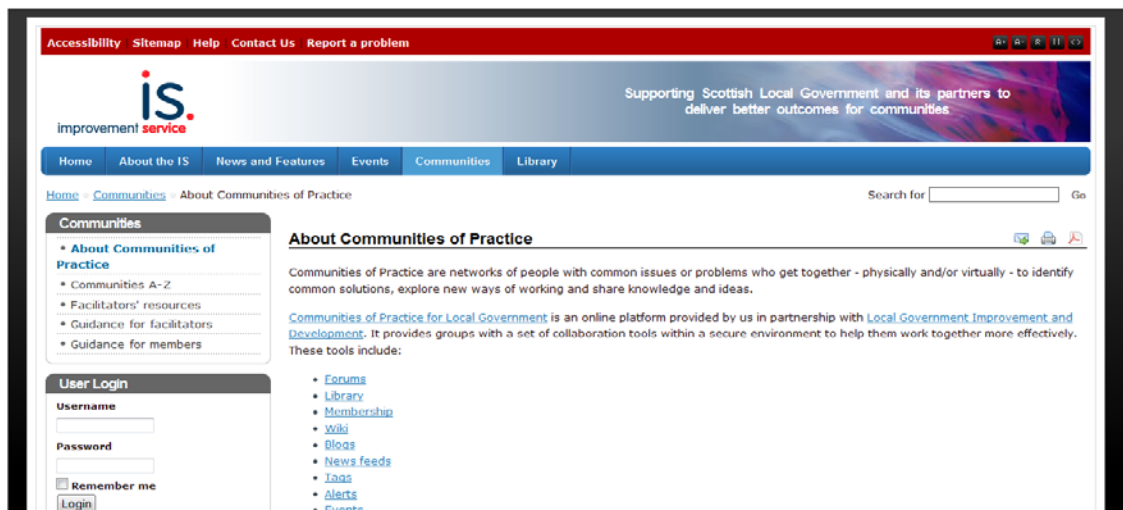


Figure 2.5: Main Page of the IS of Local Public Services in Scotland

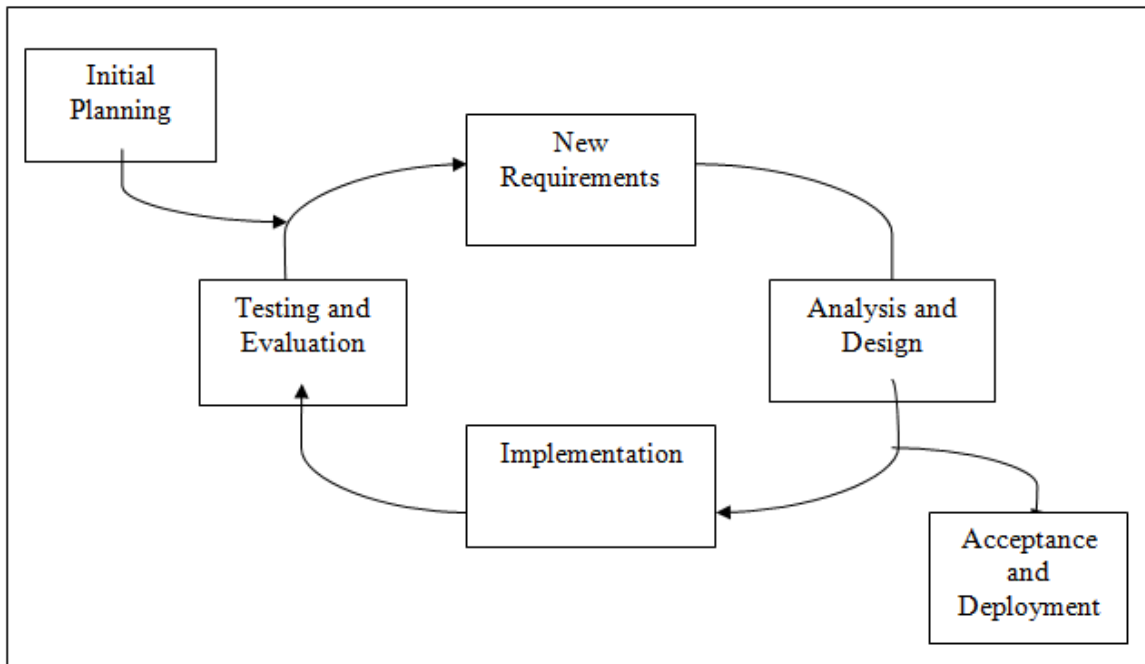
<b>List of Features included</b>	<b>MAMPU's OSCC Knowledge Bank</b>	<b>Communities of Practice for Public Service</b>	<b>UK Local Government Alliance for International Development (LG alliance)</b>	<b>Local Government Innovation and Knowledge Exchange Network (IKEN)</b>	<b>The Improvement Service of local public services in Scotland (IS)</b>
Type of country practicing	Malaysia	United Kingdom	India	<b>Australia</b>	Scotland
Guidelines For the site	No	Yes	Yes	No	Yes
Forum for members	Yes	Yes	Yes	Yes	Yes
Type of Language provided	2	1	1	1	1
Easily register to the portal	Yes	Yes	Yes	No	Yes
The level of privacy of members	High	High	High	Low	High

Table 2.1: Table of Comparison for System Existing

## 2.4 Methodologies

Methodology as define in Wikipedia is to refer that there is a framework or platform that is used to plan, structure and control the process of developing an information system. There are a wide variety of such frameworks have being evolved over the past few years.

The process model chosen for this project is the Iterative and Incremental Development model. This model starts with and initial planning stage. It is followed by an iterative cycle of new requirements determining, analysis and design, implementation (coding), testing and evaluation. The cycle ends when the prototype is fully accepted and can be deployed <sup>[1]</sup>.



**Figure 2.6** Iterative and Incremental Process Model

Phase	Description
Initial Planning	<ul style="list-style-type: none"> <li>➤ The initial phase of this model allows some basic planning to be done so that the earliest prototype can be created for the iterative cycle.</li> <li>➤ SDP is created at the end of this phase which shall be used as a guideline for the next phases.</li> </ul>
New Requirements	<ul style="list-style-type: none"> <li>➤ For the first iteration, the basic requirements are quickly determined.</li> <li>➤ For repeating iterations, new requirements are identified. A SRS document is created in this phase and shall be modified.</li> </ul>

Analysis and Design	<ul style="list-style-type: none"> <li>➤ The requirements are analyzed and the design is represented in models and diagrams to allow further understanding of the design.</li> <li>➤ A SDD document is created in this phase and shall be modified.</li> </ul>
Implementation	<ul style="list-style-type: none"> <li>➤ The design is implemented in the forming of actual coding.</li> <li>➤ The key to iterative model is to create a prototype as soon as possible to gain feedback from client for further modification.</li> </ul>
Testing and Evaluation	<ul style="list-style-type: none"> <li>➤ The coding is tested and prototype is presented to client.</li> <li>➤ Feedback of client shall be evaluated to determine the new requirements or change requests.</li> </ul>
Deployment	<ul style="list-style-type: none"> <li>➤ When the system is considered acceptable by both project team and client, the model ends with deployment stage where the complete system is deployed on targeted environment or machine.</li> </ul>

Table 2.2: Table for the Description about Iterative and Incremental Model

Reasons for choosing this process model <sup>[1]</sup>:

- i. Iterative process model is the base for Rapid Application Development (RAD) methodology which shall be applied by the CoP project.
- ii. Iterative process allows early which can save time and resources on the planning stage <sup>[15]</sup>.

- iii. Rapid prototyping applied in RAD allows requirements to be identified and implemented repeatedly and quickly so that client can make changes directly to the design in early stages. This shall prevent client from rejecting or requesting change to the final system in final stage <sup>[12]</sup>.
- iv. Rapid involvement of client in this process model allows development of system that follows the client's request accurately. This will save prevent wasted effort in developing inaccurate system.

## **2.5 Tools**

### **2.5.1 PHP (PHP: Hypertext Preprocessor)**

PHP is a powerful and popular tool for making dynamic and interactive Web pages. This is because PHP is a free, widely-used and efficient alternative ways compared to competitors such as Microsoft's ASP.

PHP files can contain text like HTML and the scripts that are in conclude to returned as in the window browser as plain HTML. Ones can get access to a web server with PHP support must firstly install Apache on one's own server or localhost. Then install the PHP and MySQL free software. Another ways is to find a web hosting plan with the PHP and MySQL support <sup>[17]</sup>.

It is also helpful that PHP can do many project codes for ones. PHP will allow ones to reduce the time limit to create large portals. Create a customized website with the consideration of user experience for visitors or a member is based on the data information that ones have gathered from them. There are some online tools or open source that are usually with PHP languages. Example like the HotScripts is having great things that are

possible with PHP. It also allows creation of shopping carts for e-commerce portals for additional information.

### **2.5.2 MYSQL**

MySQL is database servers which have apply the ideal for either both small and large applications. It will support standard SQL and shall debug on a number of platforms. MySQL is free also to download and use for developers. So, it is one of the world's most popular open source databases.

A database is a typical structure that may comes in two flavors, which is in a flat database and a relational database. A relational database is likely is more oriented to the human mind and it is often been preferred over than the flat databases that are just used to stored on hard drives like a text file. MySQL is a relational database <sup>[18]</sup>.

In a relational structured database, there are tables created to store data. The columns refer to which the kind of data information that will be stored in the table. A personal column must be created for each type of data ones wish to store, Example age, height and weight of certain people.

On the other hand, a row will contains the actual values for these specified columns. Each of the rows will have only one value for each and every column. For example a table with columns with name, age and weight could have a row with the values like Bobby, 45 and 155. With a database, ones can group different detail into separate and organized tables to help store information logically and systematically.

### **2.5.3 XAMPP**

XAMPP is an easy to install into Apache which containing MySQL. The programming languages that can be used are as PHP and Perl. XAMPP can be easily install and use. It just needs to download the application, extract and start running the



application [19]. Officially, XAMPP's developers are intended for using only as a development tool that allow portal designers and programmers to run and test their coding on their own computers without any pre-required access to the online Internet.

For certain cases, there also required special security to protect the site by provided a password-protect which most important parts of the package. XAMPP will also provide support for creating and manipulating databases in MySQL among others software. Once XAMPP is installed, ones can treat your localhost like a locally remote host that connecting using an FTP client.

Using a program like FileZilla has many advantages when installing a content management system (CMS) like e107. Ones can connect to website server via FTP with your HTML editor. The default MySQL in personal computer for user is given as "root" while there is no necessary required a default MySQL password.

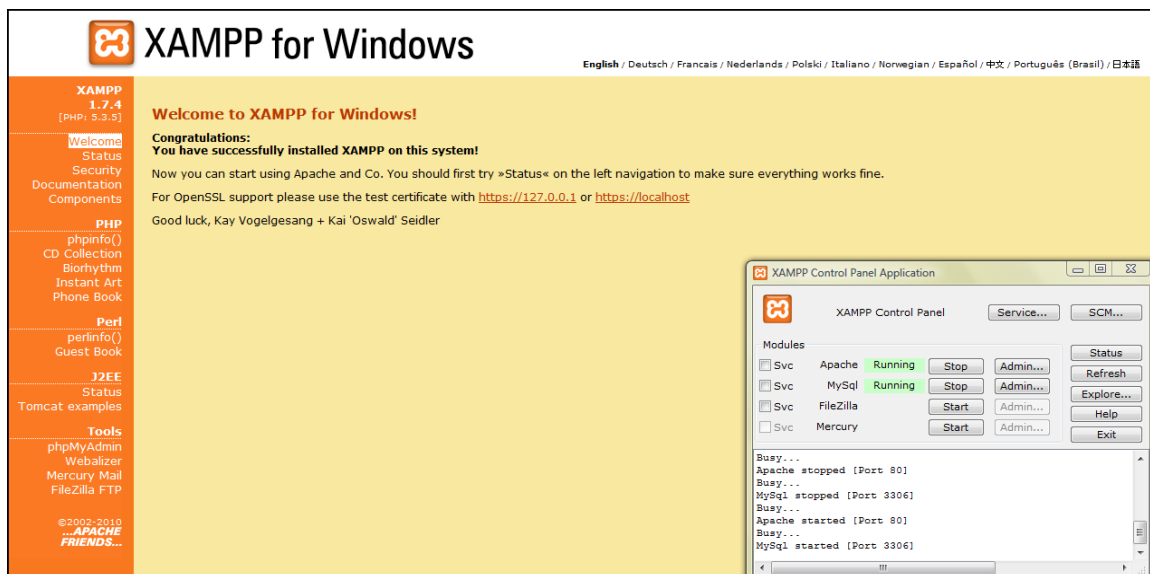


Figure 2.7: XAMPP

## **2.6 Conclusion**

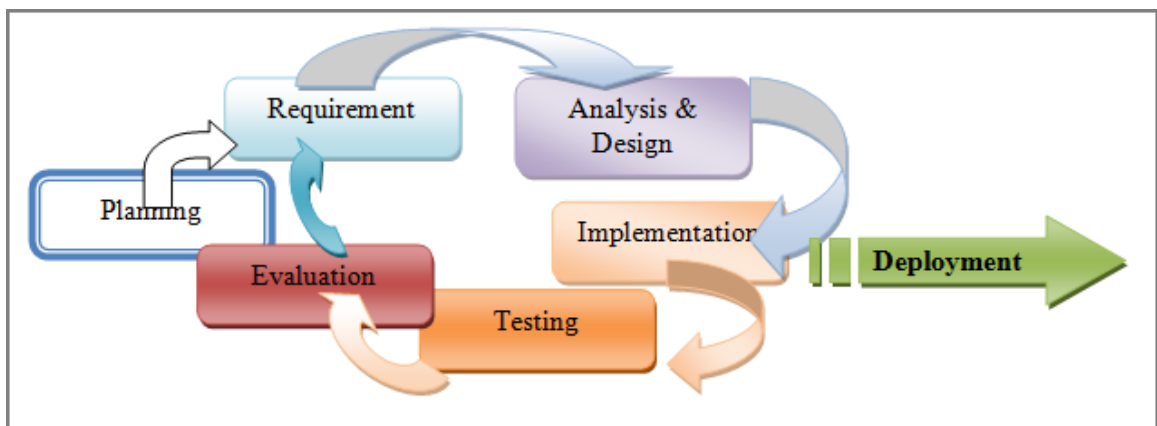
As a conclusion, this chapter has sum up all the literature review of the system that is going to be developing. These reviews will be helping much in the future system and the system will be more usability and function ability. The technique and tools that is being chosen is regarding to the requirement of the functionality of system.

## CHAPTER 3

### METHODOLOGIES

This chapter will be devoted to discuss the method and the framework of the project. A framework is used to structure, plan, and control the process of developing the project. This project will be conducted based on the **Iterative and Incremental Development** methodology. From the beginning, this project will be developed based on the methodology choose.

#### 3.1 Iterative and Incremental Development Methodology



**Figure 3.1** Iterative and Incremental Process Model

## **3.2 The Justification of the methodologies**

Methodology can be properly defined as the theoretical analysis method that appropriate to certain field that studies the principles purposely for a branch of knowledge. In recent years, however, methodology has been increasingly used as a pretentious substitute for method in scientific and technical contexts. An important conceptual distinction between the tools of scientific investigation that using properly methods and the principles to determine how such tools is deployed and interpreted. Thus, a correct define methodology is important for building a system.

The methodology used for research about the structure during the process of developing CoP is Iterative and Incremental development. It is considered as heart of a cyclic software development process that developed in reflects to the weaknesses of the waterfall model. It shall start with an initial planning and would end the deployment with the cyclic interactions in between.

It then follows a much similar process with a plan-do-check-act cycle of system process improvement. Besides, this method also allowing the software developers to take benefit of what was studies during development on earlier stage or versions in the system. Therefore, the application of CoP will be improving from time to time.

## **3.3 Iterative and Incremental Development Method**

This method have been divided into several phase which are Planning Phase, Requirement Phase, Analysis and Design Phase, Implementation Phase, Testing Phase, Evaluation Phase and Deployment Phase which is going to discuss later in this chapter.

### **3.3.1 Planning Stage**

In this phase, the project scope, risks, and requirements (functional and nonfunctional) at a high level but in enough detail that work should be estimated. The tools and instrument that needed in the project should be research and organized. Next, there should be a concern on the objective of the project so that the project can be archive the requirement on the last stage.

Continuously, the Gantt-chart of the project also required to make sure there are time-line of the project is schedule and not exceed the deadline. This phase is important due to ensure the project is well research and organized before beginning the development of the project. The Gantt chart will be shown in Appendix B (SRS-Software Requirement Specification).

### **3.3.2 System Requirement**

In the project, the requirements of user are very important .So, there are some computer software and hardware detail needed to make sure the system can successfully developed and implemented. The hardware and software requirements are well shown in the below table. The system shall be using the following requirement for building the system.

### 3.3.2.1 Hardware Requirements

Hardware	Specification(s)	Purpose(s)	Number of unit(s)
Personal Laptop	<ul style="list-style-type: none"> <li>Compaq Presario CQ40 Intel(R)Core(TM)2 Duo CPU T6500 @2.10GHz 2.10GHz</li> </ul>	<ul style="list-style-type: none"> <li>Information gathering</li> <li>Documentation of SDP, SRS, SDD.</li> <li>Development (coding and testing) of each system module</li> </ul>	1
Thumb Drive	<ul style="list-style-type: none"> <li>Kingston DT 101 II (8 gigabyte)</li> </ul>	<ul style="list-style-type: none"> <li>Data transfer among members</li> <li>Backup of documents, software units and/or system</li> </ul>	1
External Hard Disk	<ul style="list-style-type: none"> <li>Buffalo USB External Hard Disk (500 gigabytes)</li> </ul>	<ul style="list-style-type: none"> <li>Backup of all documents, software units and system</li> </ul>	1
Printer	<ul style="list-style-type: none"> <li>Canon ip2700 series</li> </ul>	<ul style="list-style-type: none"> <li>Printing of documentations</li> </ul>	1
CD	<ul style="list-style-type: none"> <li>Memory :600MB</li> </ul>	<ul style="list-style-type: none"> <li>Store documentation.</li> </ul>	2

**Table 3.1** Hardware Requirements Information

### 3.3.2.2 Software Requirement

Software	Purpose(s)
Microsoft Window Vista Ultimate Operating System	<ul style="list-style-type: none"> <li>Provides the environment for all documentations and development of the CoP project</li> </ul>
Microsoft Office 2007 <ul style="list-style-type: none"> <li>Microsoft Word</li> <li>Microsoft Project</li> <li>Microsoft Visio</li> </ul>	<ul style="list-style-type: none"> <li>Tools for documentations of project</li> <li>Tools for creation of Gantt chart</li> <li>Draw ER-Diagram(Entity-Relationship Diagram) and etc</li> </ul>
Avast AntiVir Personal	<ul style="list-style-type: none"> <li>Main protection against virus attack</li> </ul>
Rational Rose Enterprise Edition	<ul style="list-style-type: none"> <li>Tools to create diagrams and modeling</li> </ul>
Nero Start Smart	<ul style="list-style-type: none"> <li>To burn project documentation</li> </ul>
Web Browser Software: <ul style="list-style-type: none"> <li>Mozilla Firefox</li> <li>Internet Explorer 8</li> </ul>	<ul style="list-style-type: none"> <li>Information gathering using search engine</li> <li>Online transfer of data between members using email</li> </ul>
Xampp	<ul style="list-style-type: none"> <li>Web server and database of the system</li> </ul>

Table 3.2: Software Information

For more detail, ones can also refer to SRS (Software Requirement Specification) in the appendix B.

### 3.3.3 Analysis

In the analysis phase, the requirements, tools and instrument are required to do a detail analysis based on it characteristics and benefit to the project. The detail of the development tools will be further discussed in this chapter. This phase should be analyzed frequently to determine how well it measures up to project goals.

### **3.3.4 Design**

There are some drawing diagrams like Logical Design, Physical Design, ER-diagram (Entity Relational Diagram Design) and Flow Chart to show the project clearly and specify.

#### **3.3.4.1 Logical Design**

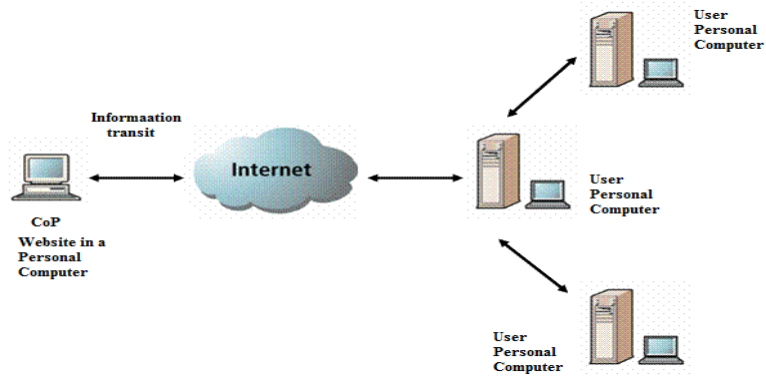
The logical design of the CoP Portal will pertains to an abstract representation of the inputs, data flows and output in the system. This usually often been conducted through modeling and using an over-abstract or graphical model for the actual system.

#### **3.3.4.2 Physical Design**

The physical design is relates to the actual input and output processes of the system. This design will draw out in terms of how a data will be input into a system then how it is define, verified or authenticated. Continuously, it will show how the data is processed and displayed as output.

Physical design does not refer to the tangible physical design of an information system. Thus, to use an analogy design, a personal computer's in physical design shall involves with the input data through a keyboard, processing data inside the CPU and get the output data via a computer hardware devices such as monitor, printer and others. Generally, it involves detail design of user with product database structure processing and control processor.

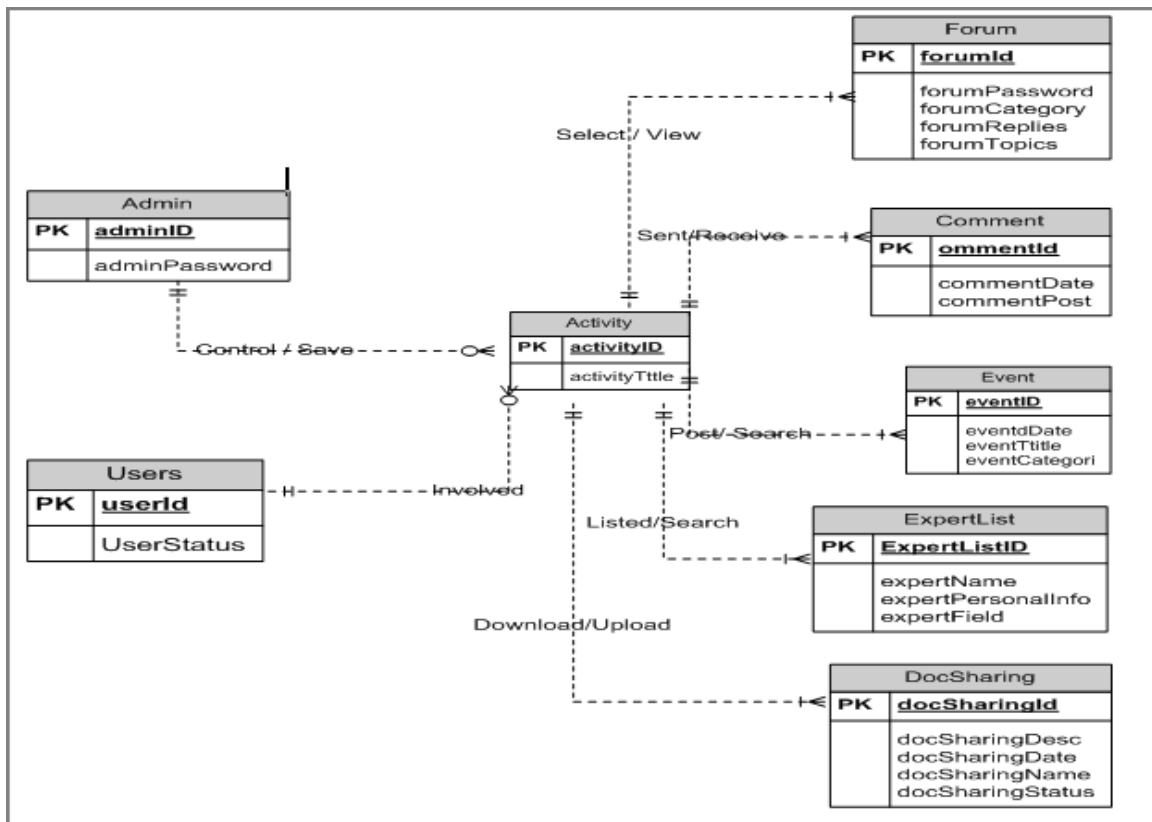




**Figure 3.2** Physical Design of the CoP System

### 3.3.4.3 Entity Relational Diagram Design

An Entity-Relationship (ER) Diagram can be described as a specialized graphic that illustrates the relationships between entities in a database. An Entity is a business object that represents a group or category of data while an Attribute is a sub-group of the collected information within an entity. Thus, the relationship captures would display the connection between two or more entities that are related to one another.



**Figure 3.3** Entity Relationship Diagram of CoP System

### 3.3.4.4 Flow Chart

Flow chart is an easy-to-understand diagram which show the process on how to steps in a system together. Furthermore, the mapping process in the flow chart format could helps ones clarify ones understanding of the process then helps ones think about now to improve the process in the system.

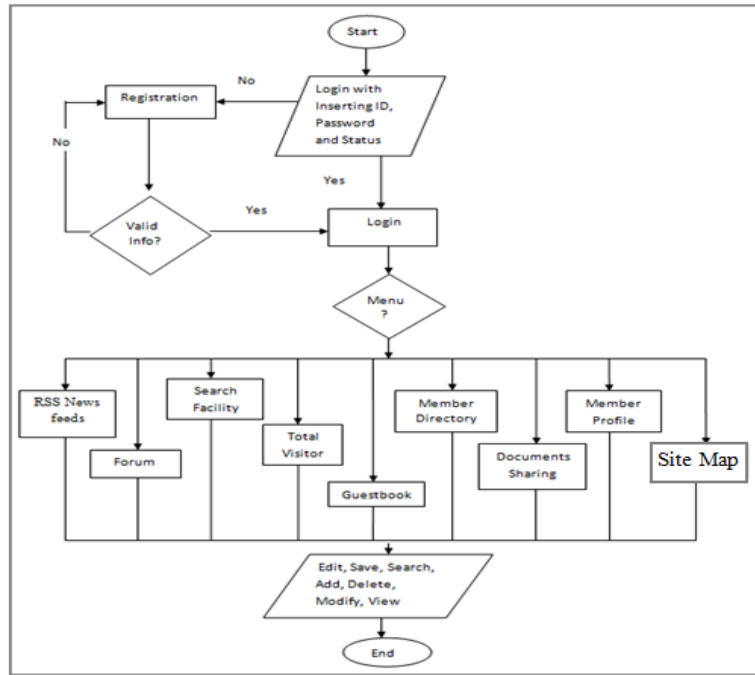


Figure 3.4: Flow Chart of CoP for Users

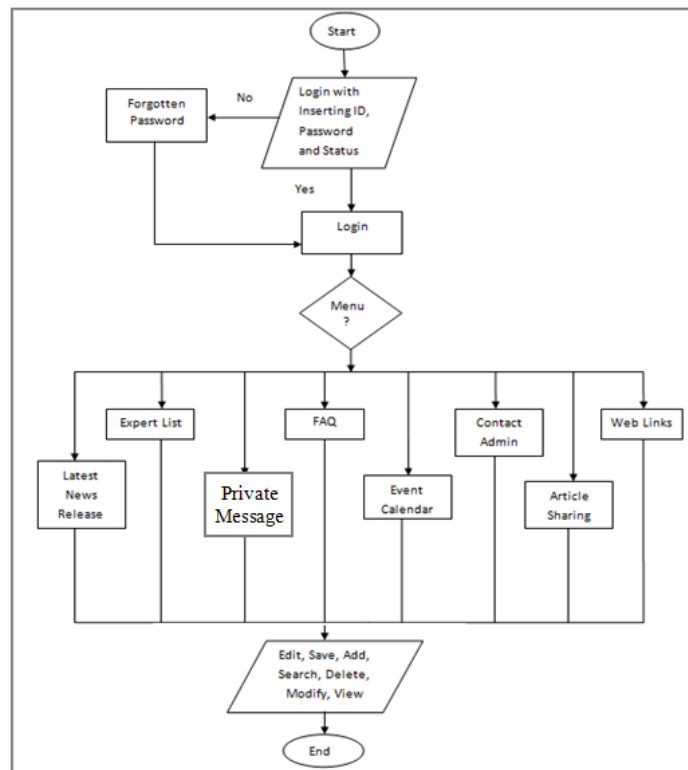
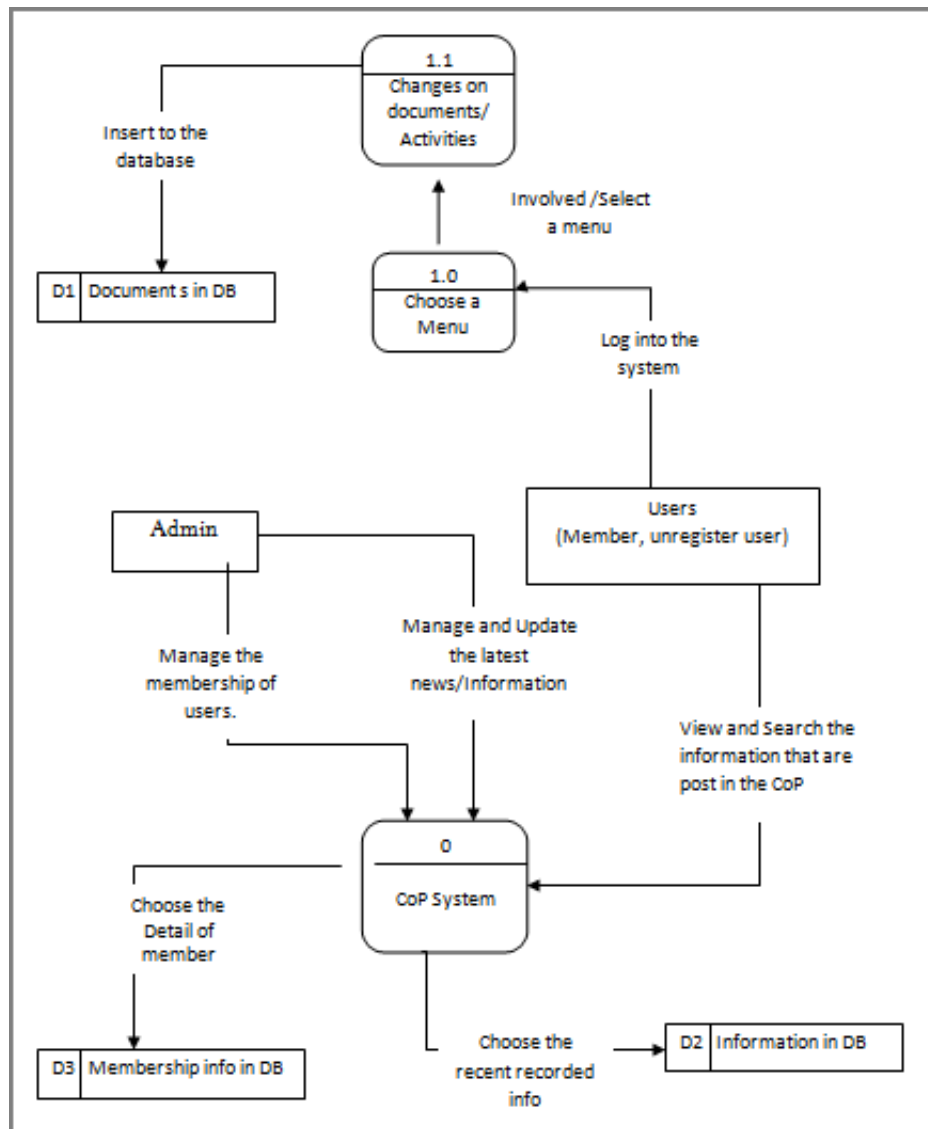


Figure 3.5: Flow Chart of CoP for Administrator

### 3.3.4.5 Data Flow Diagram (DFD) diagram

It is a diagram of picture that shown the flow chart among the users and system. The flow chart will start from beginning until the ends for a user participate inside the system. In conclude, the flow chart must design follow with certain condition and correct symbols for representing the system.



**Figure 3.6** Data Flow Diagram (DFD) diagram

### 3.3.4.6 Data Dictionary

This section contains the data dictionaries used in the CoP system, organized according to functionalities. The data dictionary is a collection of database.

<b>Field Name</b>	<b>Data Type</b>	<b>Description</b>	<b>Constraint</b>
HomeID	Varchar(10)	Home ID	PK
HomeMenu	Varchar(10)	Links of modules	

Table 3.4 Home Table

<b>Field Name</b>	<b>Data Type</b>	<b>Description</b>	<b>Constraint</b>
AdminSite_UsernameID	Varchar(10)	Admin Username ID	PK
AdminSite_Password	Varchar(10)	Registration Password	
AdminSite_Links	Varchar(10)	Links of modules that validate	
AdminSite_Setting	Varchar(10)	The setting of modules	

Table 3.5 Administration Site Table

<b>Field Name</b>	<b>Data Type</b>	<b>Description</b>	<b>Constraint</b>
MBRPro_ID	Varchar(20)	Member ID.	PK
MBRPro_Password	Varchar(10)	Member Password.	
MBRPro_EmailAddress	Varchar(30)	Member email address.	
MBRPro_Name	Varchar(20)	Member original name.	
MBRPro_Field	Varchar(30)	Member work field	

Table 3.6 Member Site Table

<b>Field Name</b>	<b>Data Type</b>	<b>Description</b>	<b>Constraint</b>
REG_UsernameID	Varchar(20)	Username ID.	PK
REG_Password	Varchar(10)	User Password.	
REG_EmailAddress	Varchar(30)	User email address.	
REG_MaritalStatus	Int	User Marital status.	
REG_Name	Varchar(20)	User original name.	
REG_Field	Varchar(30)	User work field	
Login_UsernameID	Varchar(10)	Username ID	FK
Login_Password	Varchar(10)	Registration Password	

Table3.7 Registration and Login Table

<b>Field Name</b>	<b>Data Type</b>	<b>Description</b>	<b>Constraint</b>
Forum_ID	Varchar(10)	Forum ID.	PK
Forum_Topic	Varchar(30)	Forum's topic.	
Forum_Category	Varchar(15)	Forum's Categories.	
Forum_Date	Date	Forum display date.	
Forum_Description	Varchar(50)	Forum information description.	
Forum_Reply	Varchar(10)	Member's Replies.	
Forum_Post	Varchar(30)	Member's Post.	

Table 3.8 Forum Table

<b>Field Name</b>	<b>Data Type</b>	<b>Description</b>	<b>Constraint</b>
DOCSharing_ID	Varchar(10)	Document ID.	PK
DOCSharing_Category	Varchar(15)	Document Categories.	
DOCSharing_Date	Date	Documents display date.	
DOCSharing_Description	Varchar(50)	Document info description.	

Table 3.9 Documents Sharing Table

<b>Field Name</b>	<b>Data Type</b>	<b>Description</b>	<b>Constraint</b>
SiteMap_ID	Varchar(20)	Site Map ID.	PK
SiteMap_menu	Varchar(50)	The modules menu.	
SiteMap_description	Varchar(30)	Description of Menu	

Table 3.10 Site Map Table

<b>Field Name</b>	<b>Data Type</b>	<b>Description</b>	<b>Constraint</b>
Event_ID	Varchar(10)	Event ID.	PK
Event_Date	Date	Event date.	
Event_Type	Int	Event type.	
Event_Description	Varchar(50)	Event description.	

Table 3.11 Event Calendar Table

<b>Field Name</b>	<b>Data Type</b>	<b>Description</b>	<b>Constraint</b>
ATCSharing_ID	Varchar(10)	Article Sharing ID.	PK
ATCSharing_Category	Varchar(15)	Article Sharing Categories.	
ATCSharing_Date	Date	Article Sharing date.	
ATCSharing_Description	Varchar(50)	Article Sharing description.	
ATCSharing_Hits	Int	Number of Article hits.	

Table 3.12 Article Sharing Table



<b>Field Name</b>	<b>Data Type</b>	<b>Description</b>	<b>Constraint</b>
WebLinks_ID	Varchar(10)	Web Links ID.	PK
WebLinks _Category	Varchar(15)	Web Links Categories.	
WebLinks _Description	Varchar(50)	Description of Web Links.	

Table 3.13 Web Link Sharing Table

<b>Field Name</b>	<b>Data Type</b>	<b>Description</b>	<b>Constraint</b>
PrivateMessage_ID	Varchar(10)	Message ID.	PK
PrivateMessage _To	Varchar(15)	Message Receiver	
PrivateMessage _Date	Date	Message date.	
PrivateMessage _Message	Text	Message description.	
PrivateMessage _Subject	Text	Message Title	

Table 3.14 Private Message Table

<b>Field Name</b>	<b>Data Type</b>	<b>Description</b>	<b>Constraint</b>
Guestbook _ID	Varchar(20)	Guestbook ID.	PK
Guestbook _Comment	Varchar(50)	Guestbook Comment.	
Guestbook _UserDetail	Varchar(30)	User info detail.	

Table 3.15 Guestbook Table

<b>Field Name</b>	<b>Data Type</b>	<b>Description</b>	<b>Constraint</b>
FAQ_ID	Varchar(10)	FAQ ID.	PK
FAQ_Category	Varchar(15)	FAQ Categories.	
FAQ_Description	Varchar(50)	FAQ information description.	

Table 3.16 Frequently Asked Questions (FAQ) Table

<b>Field Name</b>	<b>Data Type</b>	<b>Description</b>	<b>Constraint</b>
Chat_ID	Varchar(10)	Chat ID.	PK
Chat_Category	Varchar(15)	Chat Categories.	
Chat_Date	Date	Chat display date.	
Chat_Content	Varchar(50)	Chat content detail.	

Table 3.17 Shouts Box Table

<b>Field Name</b>	<b>Data Type</b>	<b>Description</b>	<b>Constraint</b>
EPTLIST_ID	Varchar(20)	Expert ID.	PK
EPTLIST_Status	Int	Display or not the info of Expert.	
EPTLIST_Category	Varchar(10)	Category of Expert.	
EPTLIST_Description	Text	Expert Info.	

Table 3.18 Expert List Table

<b>Field Name</b>	<b>Data Type</b>	<b>Description</b>	<b>Constraint</b>
Search_ID	Varchar(10)	Search Facility ID.	PK
Search_Keywords	Varchar(30)	Keyword that being search.	
Search_Category	Varchar(15)	Keyword Categories.	

Table 3.19 Search Facility Table

<b>Field Name</b>	<b>Data Type</b>	<b>Description</b>	<b>Constraint</b>
MBRDIC_ID	Varchar(20)	Member ID.	PK
MBRDIC_Status	Int	Display or not the info of members.	
MBRDIC _ Password	Varchar(10)	Member Password.	
MBRDIC _ EmailAddress	Varchar(30)	Member email address.	
MBRDIC _ MaritalStatus	Int	Member Marital status.	
MBRDIC _ Name	Varchar(20)	Member original name.	
MBRDIC _Field	Varchar(30)	Member work field	

Table 3.20 Member Directory Table

<b>Field Name</b>	<b>Data Type</b>	<b>Description</b>	<b>Constraint</b>
Visitor _ID	Varchar(10)	Total Visitor ID.	PK
Visitor _Number	Int	Visitor number	

Table 3.21 Total Visitor Table

<b>Field Name</b>	<b>Data Type</b>	<b>Description</b>	<b>Constraint</b>
RSSNews_ID	Varchar(10)	RSS News Feeds ID.	PK
RSSNews _Category	Varchar(15)	RSS News Feeds Categories.	
RSSNews _Bookmarks	Varchar(50)	Sites that being Bookmarks.	

Table 3.22 RSS News Feeds Table

<b>Field Name</b>	<b>Data Type</b>	<b>Description</b>	<b>Constraint</b>
Contact _ID	Varchar(20)	Admin ID.	PK
Contact _ Name	Varchar(10)	Admin Name.	
Contact _ Position	Varchar(30)	Admin Position.	
Contact _ PhoneNo	Int	Admin Phone Number.	
Contact_ Country	Varchar(20)	Admin living Country.	
Contact _EmailAddress	Varchar(30)	Admin Email Address	

Table 3.23 Contact Table

### 3.3.5 Implementation

Implementation is the part of the methodology when the actual coding is being implementing into the project. It will help all those method used to hidden the important issues early before problems or faulty assumptions that can lead to disaster.

The relationship between users and system has traditionally been a problem area when to show how the system's information being implementation. As known, users and developer are tend to have different backgrounds, interests, and priorities but the delivered system must be parallel with users' requirements.

Additional with that, this situation is referred as the user-designer communications gap. These differences will lead to divergent organizational loyalties and problem solving. Examples of these differences or concerns may show as below:

User Concerns	Designer Concerns
<ul style="list-style-type: none"> <li>Does the system have the content that I needs?</li> </ul>	<ul style="list-style-type: none"> <li>The capacity that a disk storage space can use to storage for my master file?</li> </ul>
<ul style="list-style-type: none"> <li>How long can I get the information?</li> </ul>	<ul style="list-style-type: none"> <li>How many lines of program code is enabling to do certain system function?</li> </ul>
<ul style="list-style-type: none"> <li>Is it easy to get the data information?</li> </ul>	<ul style="list-style-type: none"> <li>Is the CPU time can be cutter down when we run the system?</li> </ul>
<ul style="list-style-type: none"> <li>What data should I key into the system?</li> </ul>	<ul style="list-style-type: none"> <li>What are the most efficient ways of storing this data?</li> </ul>
<ul style="list-style-type: none"> <li>Is it easy for the system to fill in and keeps my daily business schedule on time?</li> </ul>	<ul style="list-style-type: none"> <li>What database management system that we required?</li> </ul>

Table 3.3: User-Designer Communication Gap.

For more detail, ones can also refer to SDD (Software Design Descriptions) in the appendix C.

### 3.3.6 Development tools

The development tools that are used to help the development of the project are like Xampp , which is a web server or can be considered as database for storing information of the system. Next, a free instrument or open source named e107 is used to easily create and builds the modules in the portals that in web-enabled applications.

E107 is a free content management system (CMS), which enables the developer to build websites with powerful online applications. Many aspects, including its ease-of-use and extensibility, have made e107 been a popular Web site software available. It's completely free, can be customizable and in constant development have make this instrument being choose for developing the portal.

### **3.3.7 Testing**

Once the codes had been written down and fully implements in the Ump Server. The system will be testing before delivered to customers. The testing process shall focuses on each phase to determine the best technique or algorithm. The result will be discussed in Chapter 4.

There is a test plan that will be provided for developer and different users to generate the testing of the system that have created. A test plan can be defined as a document describing the scope, approach, resources and schedule of intended testing activities. It will identify test modules, the features to be tested and the testing tasks, which will do each task plus any risks that, should be requiring contingency planning.

A testing plan is a methodological and systematic approach to test a system. It is a process of defining a test project so that it can be properly measured and controlled. Overall, in this phase, there will be results that shown the finding of software bugs , errors or other defects in the system.

### **3.3.8 Evaluation**

In this phase, the developer and different users will evaluate the system. For this stage, it is necessary due to increase the confidence level of developer with the correct decision and the further enhancements. Thus, further rounds of evaluation and repetition may be necessary. So, the outcome of this evaluation phase will keep the system continuously stable and more reliability until the system become a well-organized and shall fulfill the user's requirements.

### **3.3.9 Deployment**

Software deployment is combination of all the successful activities consists in a system and then makes as a software system for users to use. The activities are like distributing, installing, updating the software applications are the mostly common tasks for a software system. Therefore, "deployment" should be interpreted as a general process that has to be customized according to specific requirements or characteristics.

## **CHAPTER 4**

### **IMPLEMENTATION**

This chapter briefly discusses the expected results of the proposed project and following by discussion.

#### **4.1. Introduction**

In the iterative and incremental methodology, the implementation phase is conducted as the software is coded, integrated and tested. Therefore, the CoP system is basically being implemented with function and the expected result will be shown in the following section in this chapter.

##### **4.1.1 Database Design**

First of all, according to the previous chapter, the design database tables are very important to create and code a successful database of a CoP system. There are many tables that have been created for admin and member for the system. The term database



design can be used to describe many different parts of the design of an overall database system.

This database design is necessary to provides ones with access to up-to-date and accurate information. Because a correct design is essential to achieving the system's goals in working with a database, investing the time required to learn the principles of good design makes sense.

So, the database design in the system concluded divides information into subject-based tables to reduce redundant data, helps support and ensure the accuracy and integrity of your information. Figure 1 has shown an example of the database designed.

Table	Action	Rows	Type	Collation	Size	Overhead
cop_banlist	Browse Structure Search Insert Empty Drop	0	MyISAM	utf8_general_ci	2.0 K1B	-
cop_banner	Browse Structure Search Insert Empty Drop	0	MyISAM	utf8_general_ci	1.0 K1B	-
cop_comments	Browse Structure Search Insert Empty Drop	0	MyISAM	utf8_general_ci	1.0 K1B	-
cop_core	Browse Structure Search Insert Empty Drop	9	MyISAM	utf8_general_ci	30.0 K1B	-
cop_dblog	Browse Structure Search Insert Empty Drop	9	MyISAM	utf8_general_ci	4.7 K1B	-
cop_download	Browse Structure Search Insert Empty Drop	0	MyISAM	utf8_general_ci	2.0 K1B	-
cop_download_category	Browse Structure Search Insert Empty Drop	2	MyISAM	utf8_general_ci	2.2 K1B	-
cop_download_mirror	Browse Structure Search Insert Empty Drop	0	MyISAM	utf8_general_ci	1.0 K1B	-
cop_download_requests	Browse Structure Search Insert Empty Drop	0	MyISAM	utf8_general_ci	1.0 K1B	-
cop_event	Browse Structure Search Insert Empty Drop	0	MyISAM	utf8_general_ci	1.0 K1B	-
cop_event_cat	Browse Structure Search Insert Empty Drop	0	MyISAM	utf8_general_ci	1.0 K1B	-
cop_event_subs	Browse Structure Search Insert Empty Drop	0	MyISAM	utf8_general_ci	1.0 K1B	-
cop_faq	Browse Structure Search Insert Empty Drop	1	InnoDB	utf8_general_ci	32.0 K1B	-
cop_faq_info	Browse Structure Search Insert Empty Drop	2	InnoDB	utf8_general_ci	32.0 K1B	-
cop_flood	Browse Structure Search Insert Empty Drop	0	MyISAM	utf8_general_ci	1.0 K1B	-

Figure 4.1: Database Structure

#### 4.1.1.1 Create MYSQL connection code

Before create a well operation system, there must be having some relationship between the database and the interface of the website. Due to this section, this will enable the system to operate and connected with the database. To functional the system, a file named e107\_config.php is created.

```
<?php
$mysqlserver = '172.20.30.36';
$mysqluser = 'cb09095';
$mysqlpassword = '09095';
$mysqldefaultdb = 'cb09095';
$mysqlprefix = 'cop_';
$mysqlcharset = 'utf8'; # $mysqlcharset can only contain 'utf8' or "

$ADMIN_DIRECTORY = 'e107_admin/';
$FILES_DIRECTORY = 'e107_files/';
$IMAGES_DIRECTORY = 'e107_images/';
$THEMES_DIRECTORY = 'e107_themes/';
$PLUGINS_DIRECTORY = 'e107_plugins/';
$HANDLERS_DIRECTORY = 'e107_handlers/';
$LANGUAGES_DIRECTORY = 'e107_languages/';
$HELP_DIRECTORY = 'e107_docs/help/';
$DOWNLOADS_DIRECTORY = 'e107_files/downloads/';
```

**Table 4.1** MYSQL Connection Table

#### 4.1.2 Functionality (Interface and coding)

The functionality are explains more detail on the interface and coding provided in CoP in this section.

### 4.1.2.1 Home Module

This is the homepage of CoP Portal. It is available for all users including Guests, Members and Administrators). It is simple and standard layout. The module for Visitor or Guests is limited in this section. It is advisable to be member to this portal. Many features are building for member purpose only. Thus, Guest can only view the general news and events posted by administrator. For future Enhancement, more standard and good interfaces shall be design in the system.

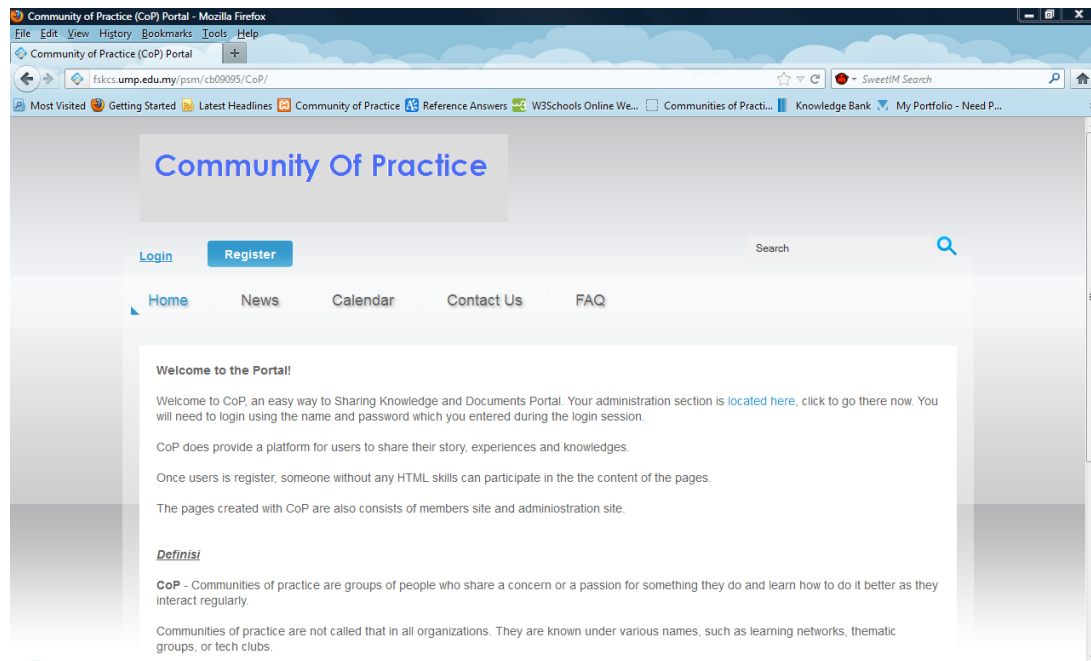
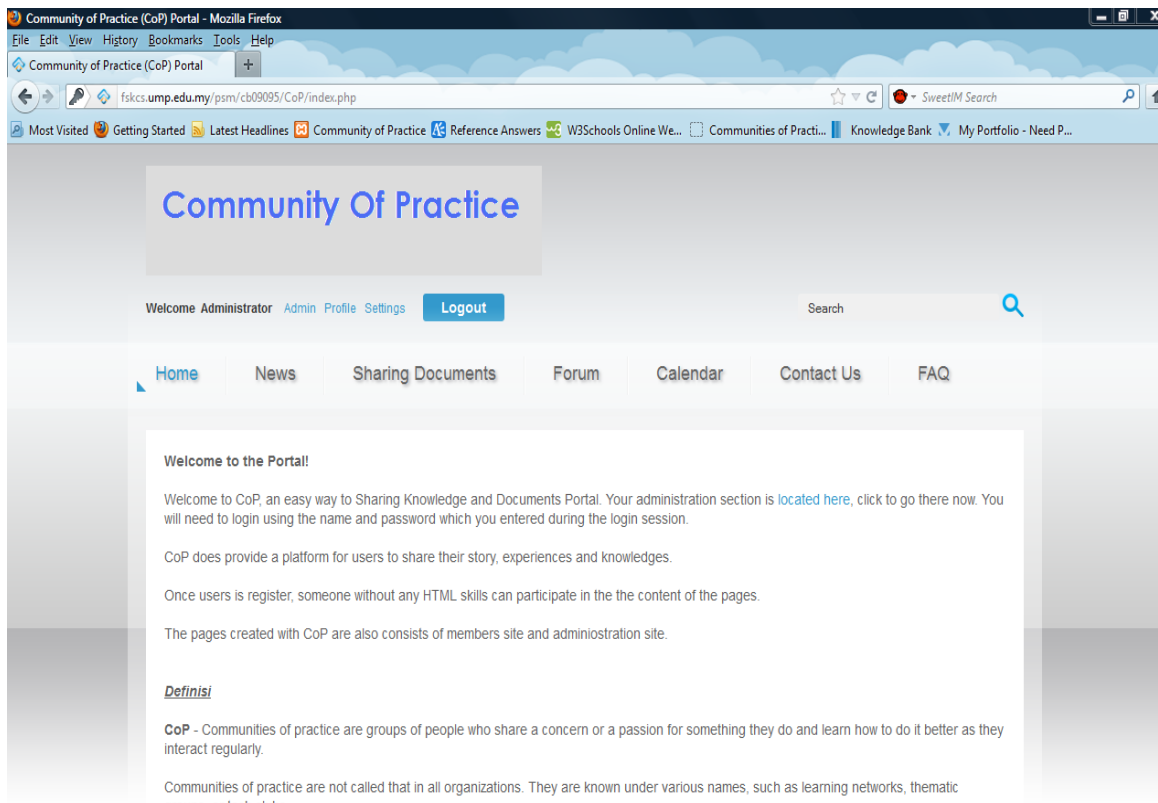


Figure 4.2 Home Figure

## 4.1.2.2 Administration Site Module

Admin can log into the system and to manipulate the module in the system. Admin also can share their knowledge or documents in the system.



**Figure 4.3** Administration Site Figure

### 4.1.2.3 Member Site Module

Members can log into the system to share their knowledge or documents in certain field. Members also can update their own member's profile. It is only available for the member to update, create and participate in this site.

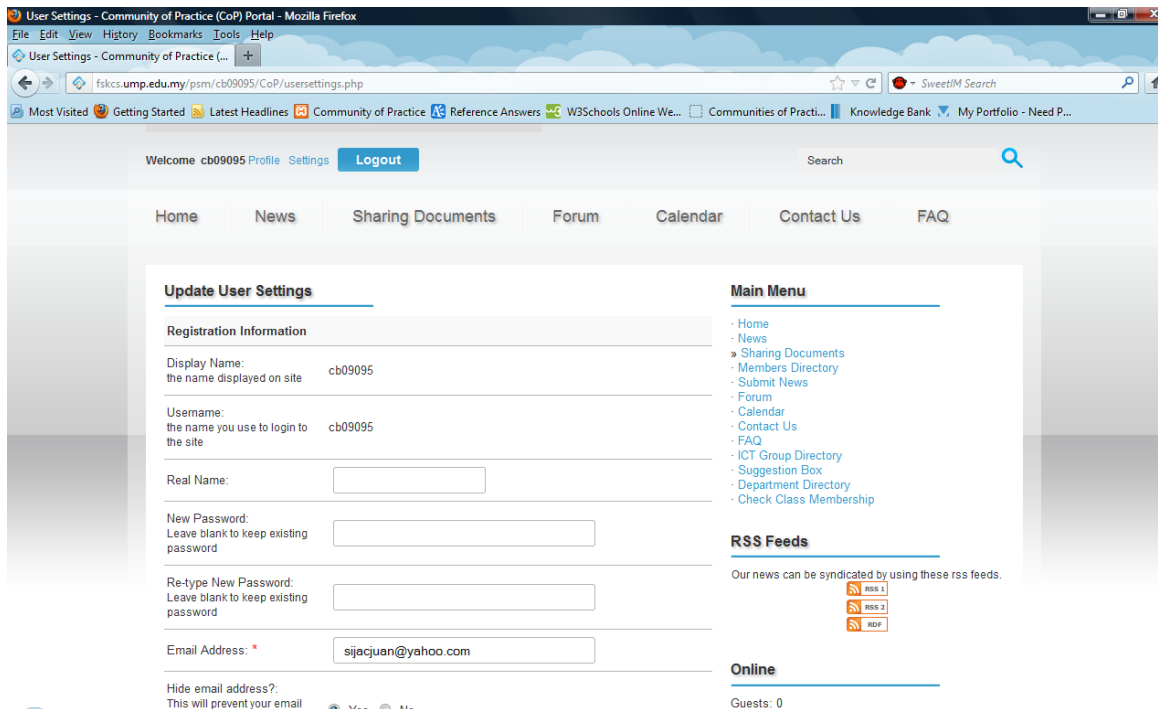
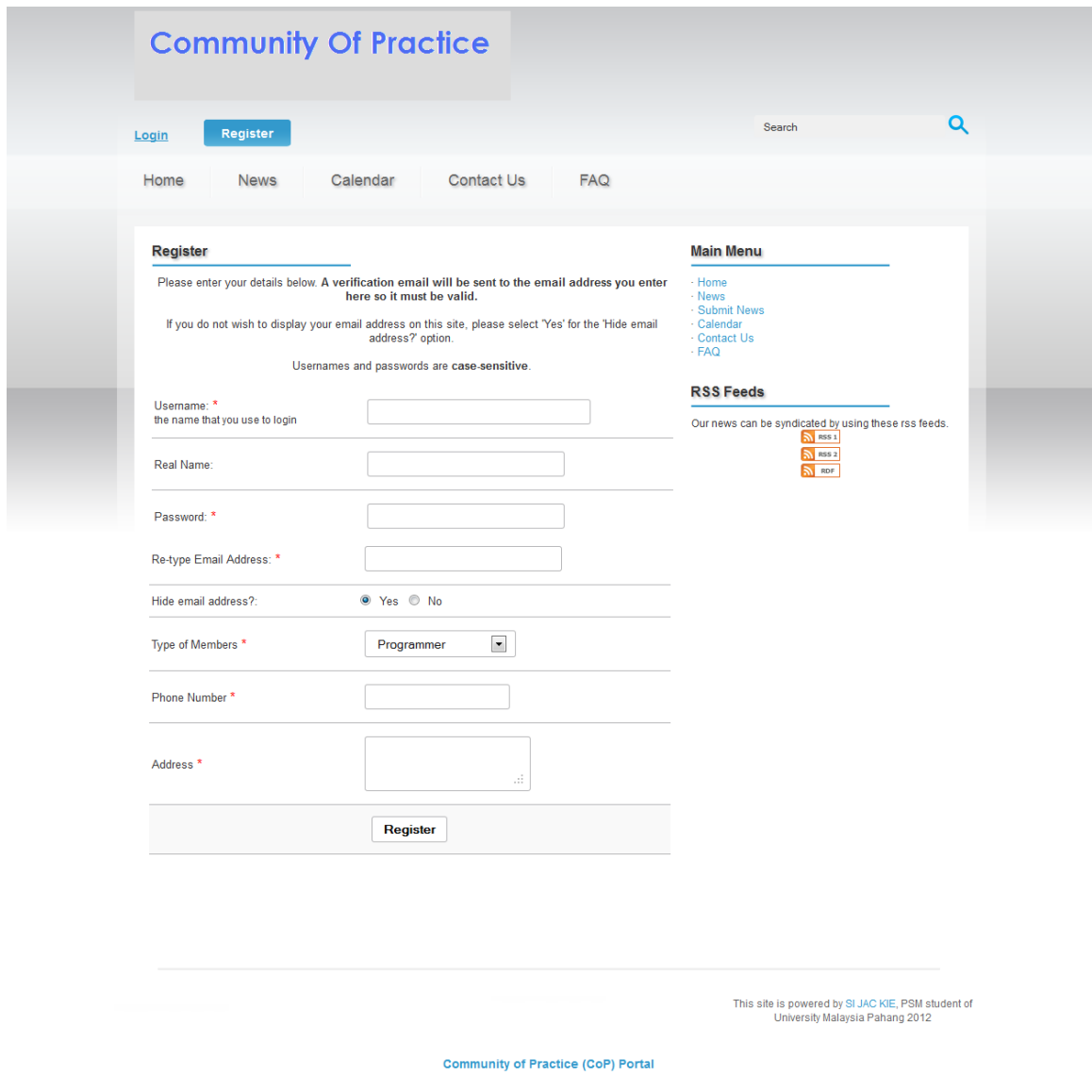


Figure 4.4 Member Site

### 4.1.2.4 Registration and Login Module

Users can log into the CoP Portal after register using this form. The Specification of this module is for serious users that wish to join the portal and the administrator shall delete or assign the member to difference and specify user class after the registration. Then, members that successful register then will involve in the activities for their own users' class.

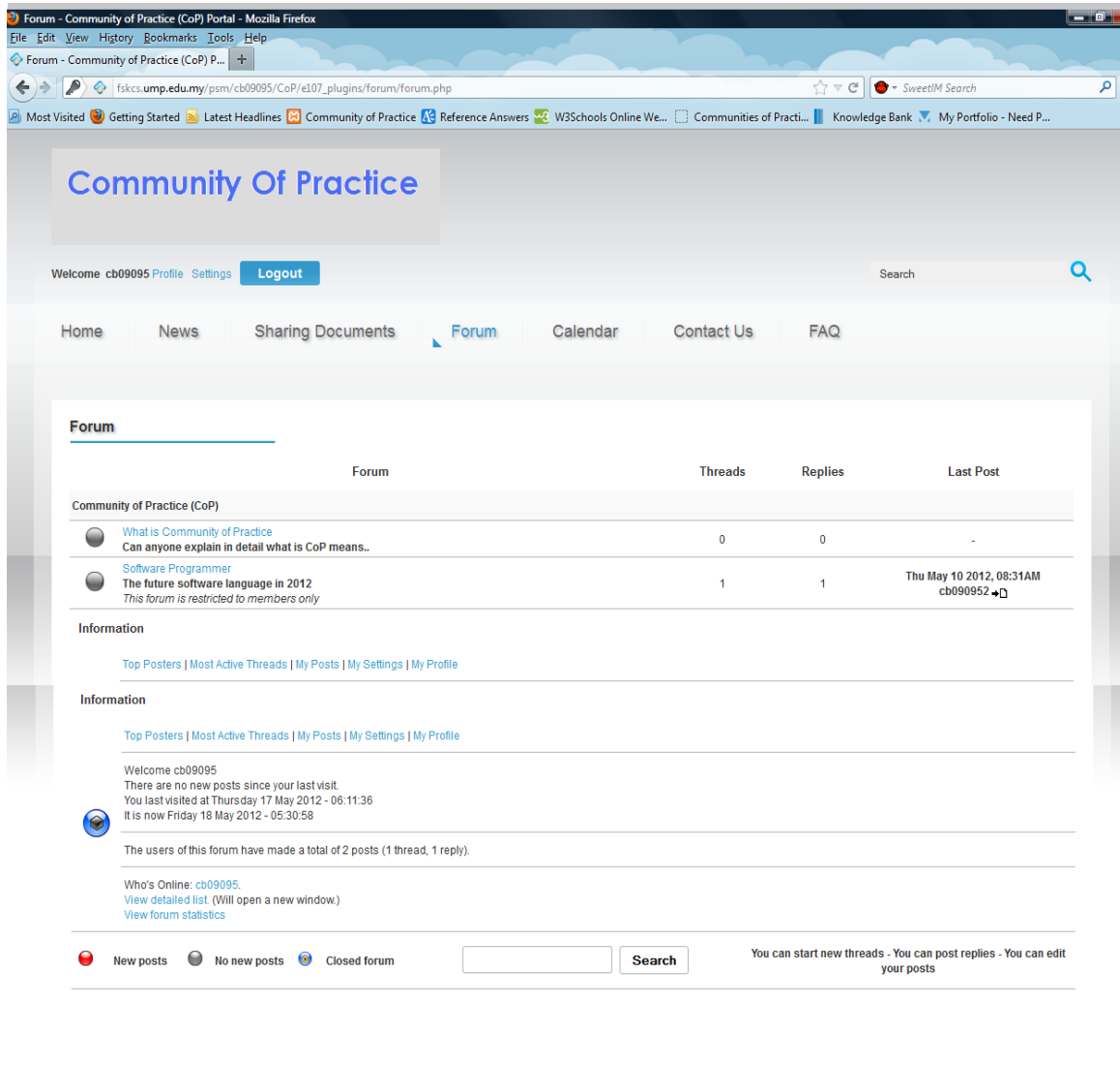


**Figure 4.5** Registrations and Login Figure

#### 4.1.2.5 Forum Module

It is at the Site that has restriction navigation. Administrator and members need to log in to participate in the Forum. In this forum, members can also edit their profile, post and view others post, view total user list or history, post replies and others. This is a simple and organized forum which will simplify the members from using it. Differences

class member can have difference specify topic or post in the forum. Only member and administrator of the site can participate in the forum.



This site is powered by [SI JAC KIE](#), PSM student of University Malaysia Pahang 2012

Community of Practice (CoP) Portal

**Figure 4.6:** Forum Figure

### 4.1.3.6 Documents Sharing Module

It can share documents, article and software application in ZIP, TXT, DOC, RAR and other related form through this form. Members can view all documents, upload, download or search for a specific document or group of documents. Besides, some descriptions of the document will be included if a member want to upload a file or documents. But difference User Class Members shall only download their own class's documents. Administrator also can download the documents. ONLY Members and administrator can upload these documents. The future enhancement of this module is to enable the system to be multi-file uploaded for users.

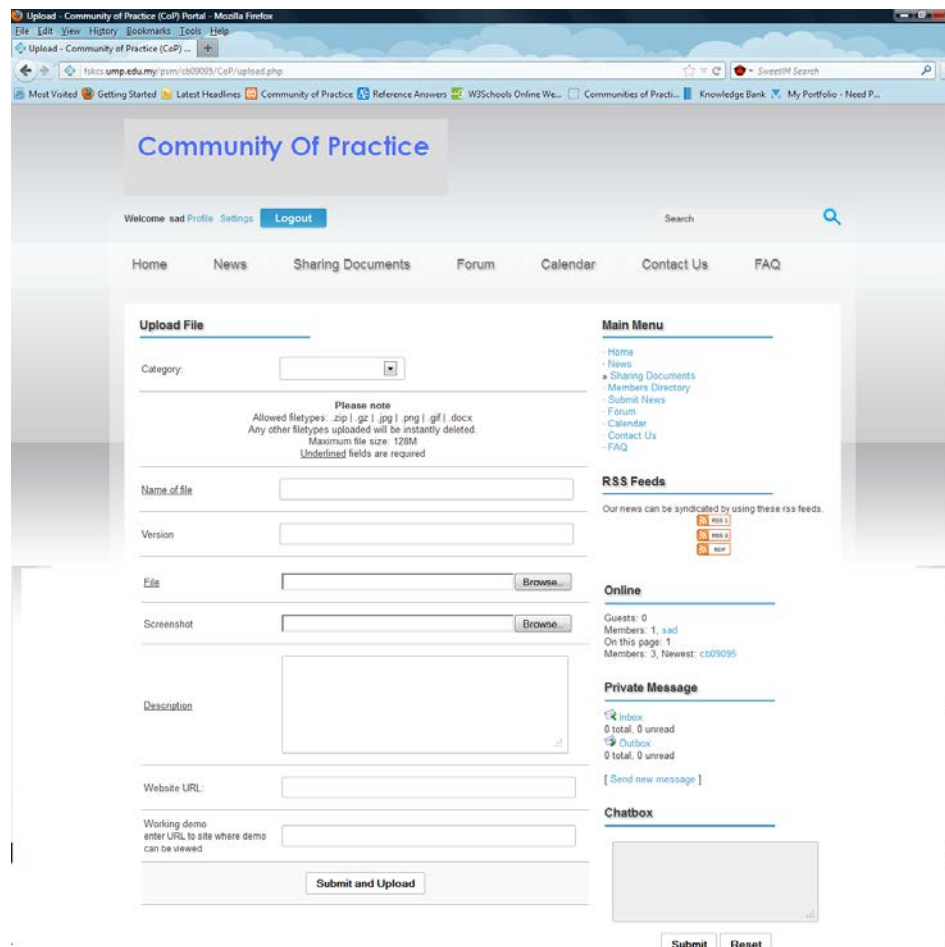
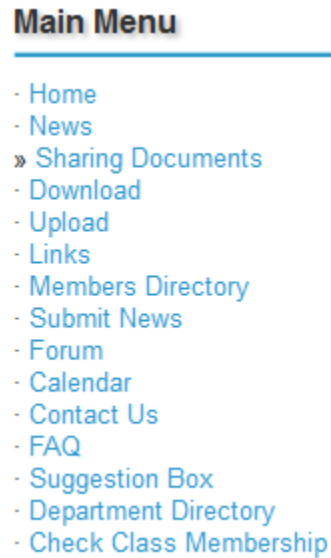


Figure 4.7 Documents Sharing Figure



#### 4.1.3.7 Site Map Module

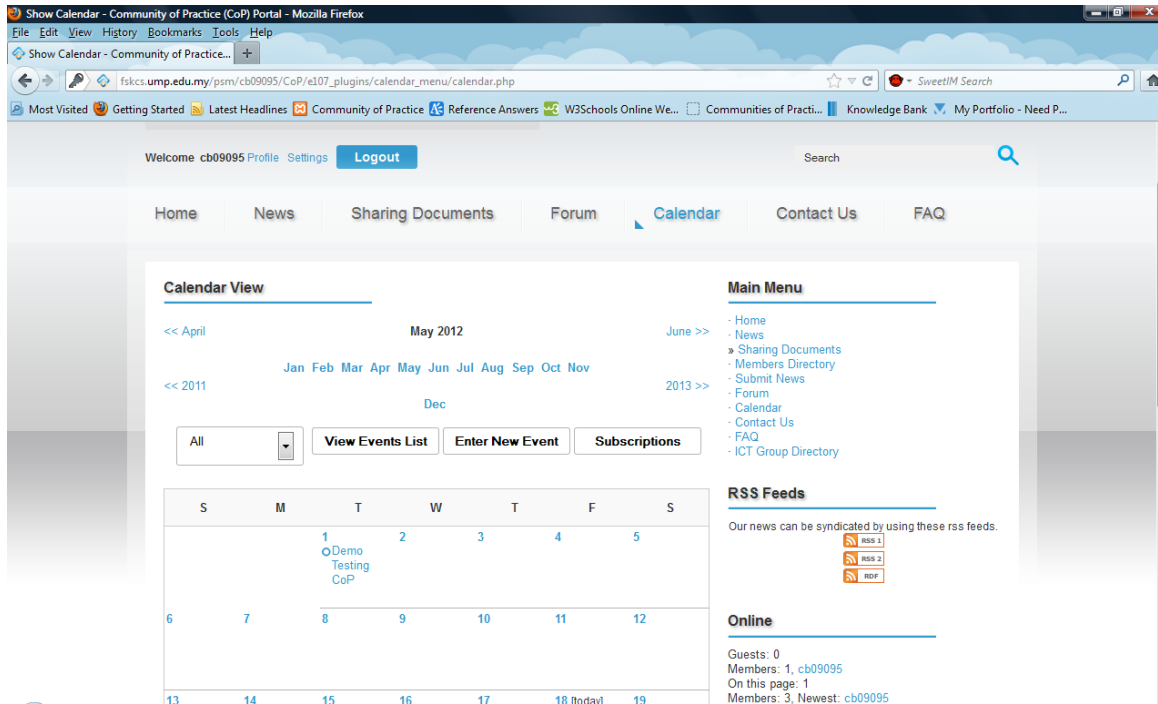
All types of users may view the menu on each category. Different user shall have their own specifies menu of the module available in the portal.



**Figure 4.8** Site Map Figure

#### 4.1.3.8 Event Calendar Module

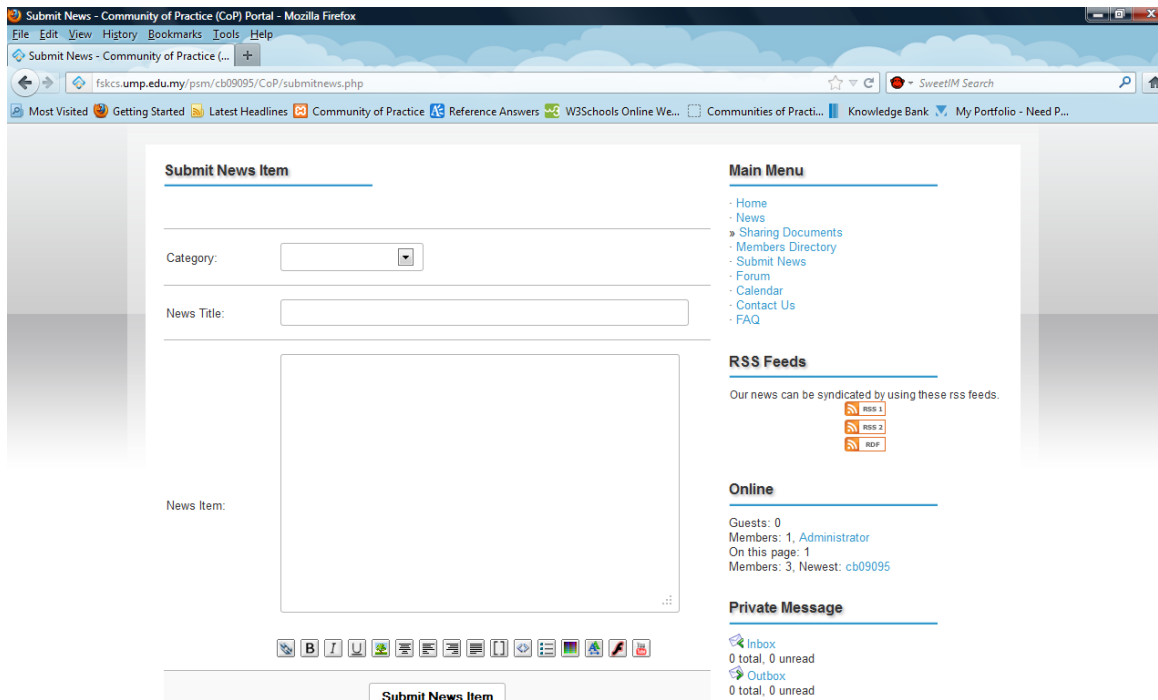
Events can be categorized and calendar views shall be customized to show event according to each class user in the system. Only Administrator and Members can add event .Users can view the event listing in a calendar form.



**Figure 4.9** Event Calendar Figure

#### 4.1.3.9 Article Sharing Module

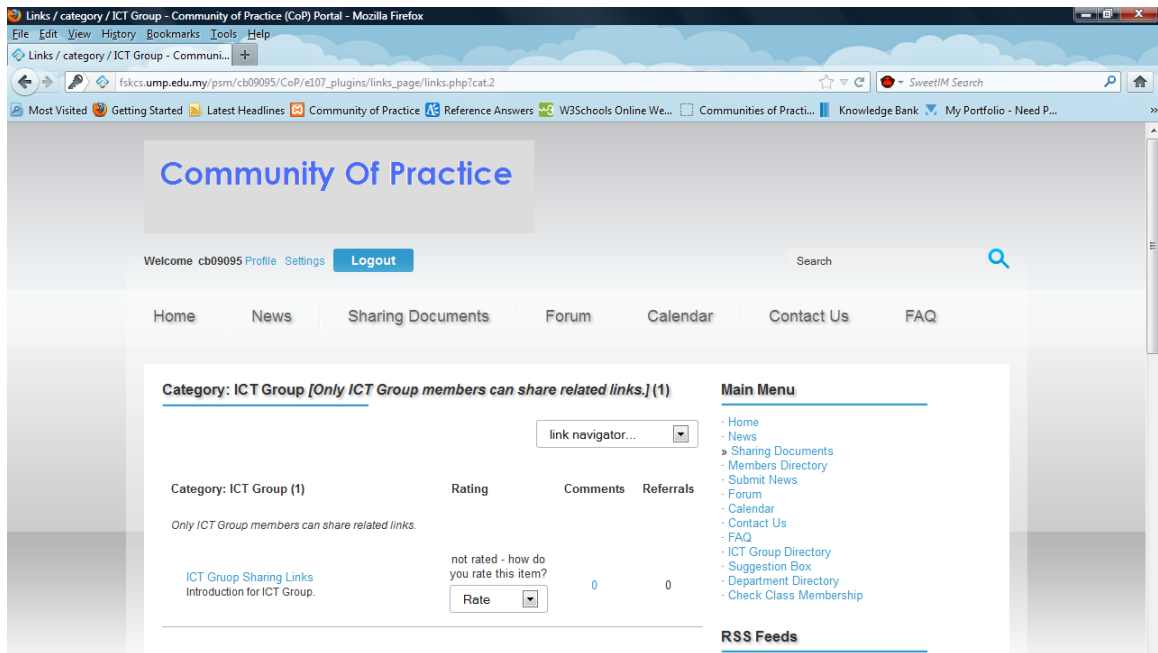
The detail of the article like category publishes date, author and print out in PDF format for further reading. The restriction for this module is the Administrator and members also post by submitting news article in the system. Visitor or guest cannot submit news in the system.



**Figure 4.10** Article Sharing Figure

#### **4.1.3.10 Web Link Sharing Module**

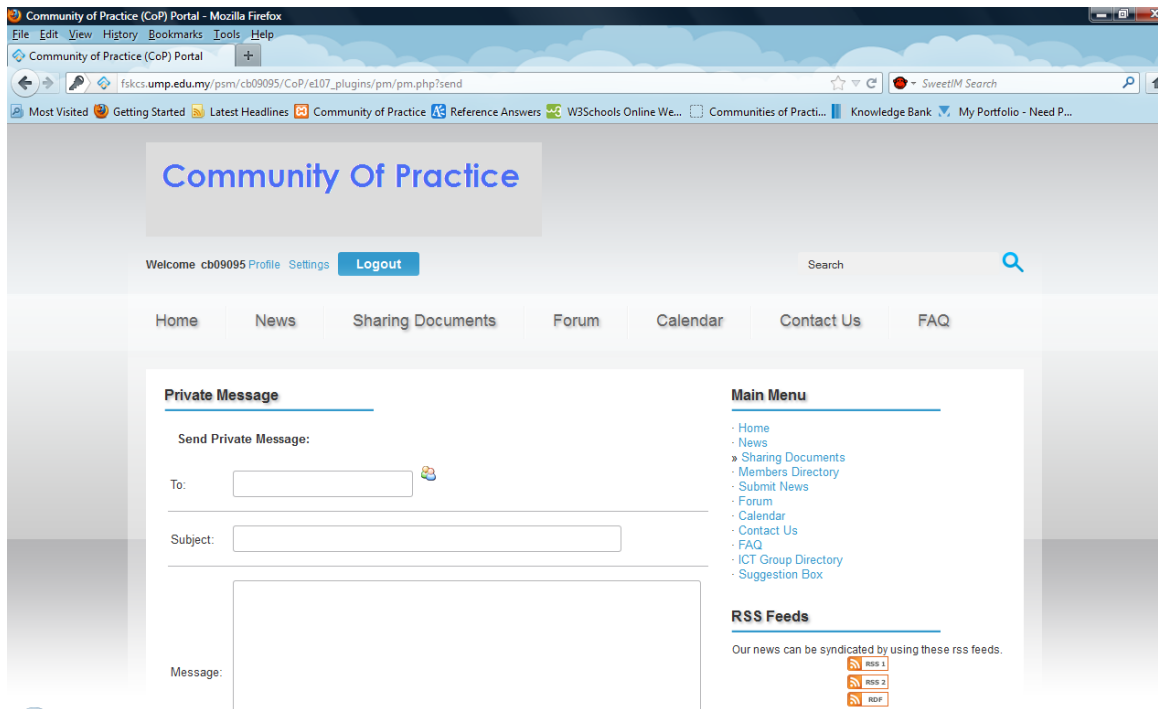
Show links to other websites with all categories in one page .It can also specify to certain user class member to shown. Members shall enable to submit link. Administrator may share some useful web links.



**Figure 4.12** Web Link Sharing Figure

### 4.1.3.11 Private Message Module

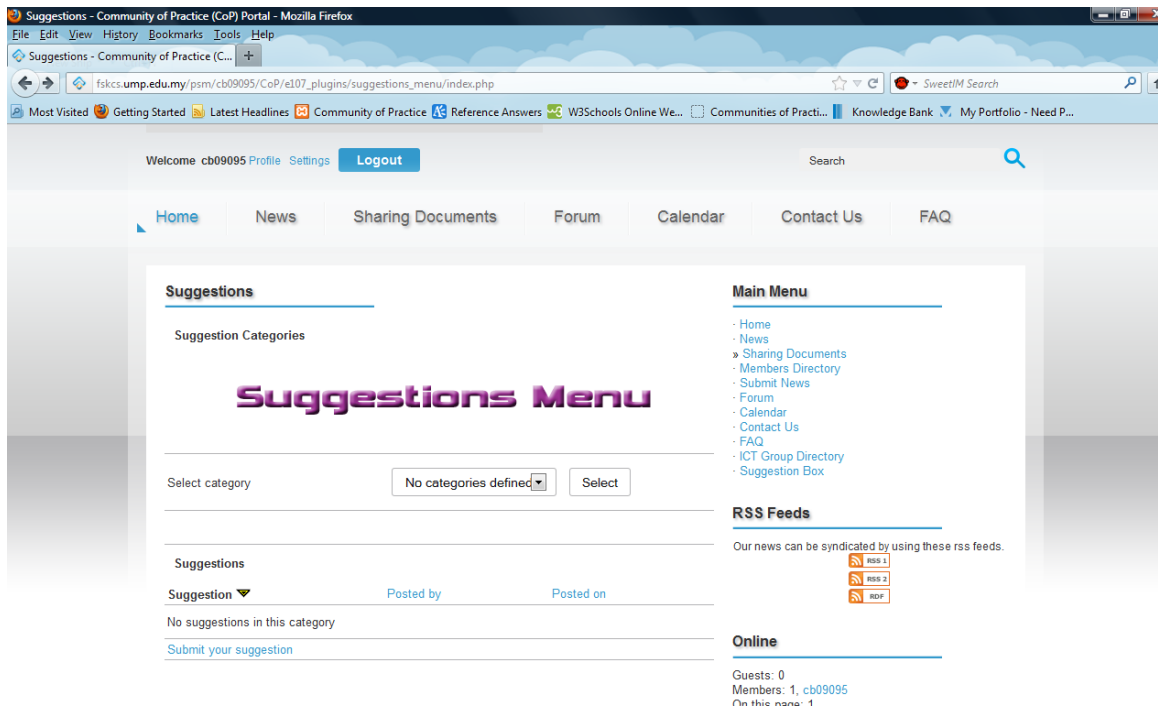
It is type of message that being sent only between member and Admin. This message is confidential and only practicable for certain user only. It considered as an alternative ways that similar to email functionality. Members or Administrator may delete the messages that send to each others. The validation of the module is performing by admin.



**Figure 4.12** Private Message Figure

### **4.1.3.12 Guestbook Module**

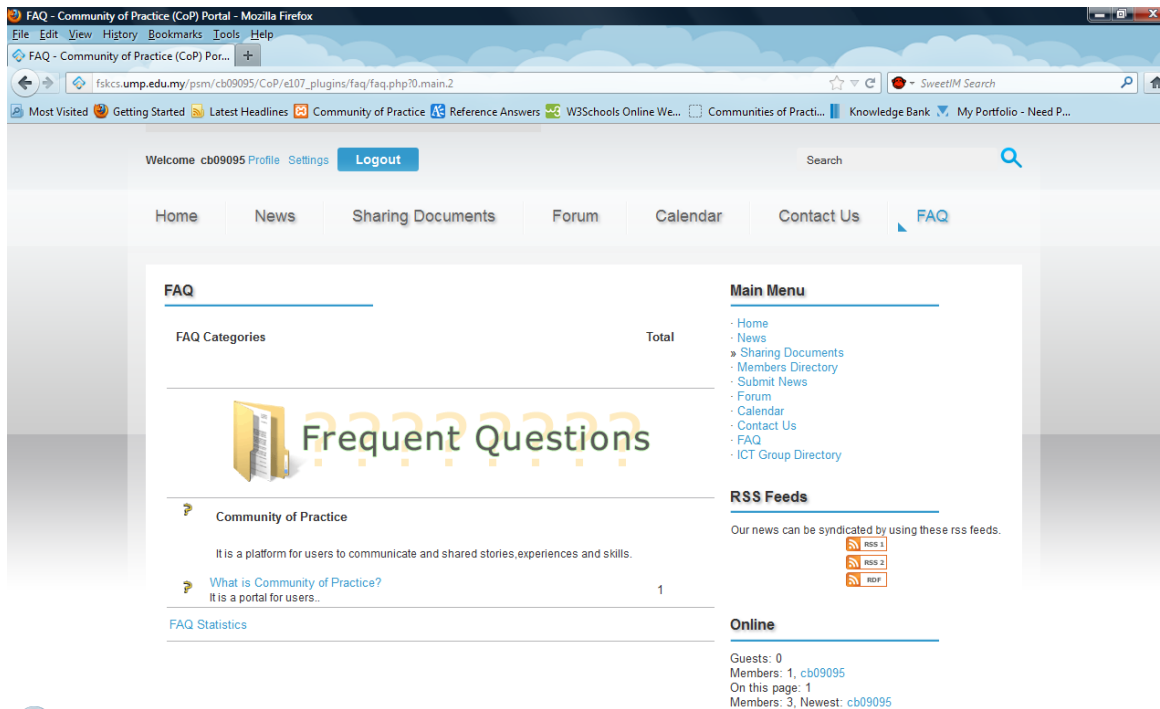
Simple, easy and validate form that allow user to put their questions or suggestion about this Portal. It enable for all users and visitor to the site. Admin will receive all the submission and review them.



**Figure 4.14** Guestbook Figure

### 4.1.3.13 Frequently Asked Questions (FAQ) Module

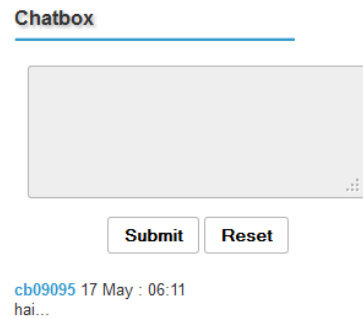
It is used as a guideline for users of the system to learn and join the system. It contains listed questions and answers, all supposed to be commonly asked in same context and answers to a particular topic. For this stage, only Administrator can post the question and answers that recently post/send out by users through comment.



**Figure 4.14** Frequently Asked Questions (FAQ) Figure

#### 4.1.3.14 Shouts Box Module

Users can voice out the comment in this simple Chat module.



**Figure 4.15** Shouts Box Figure

### 4.1.3.15 Expert List Module

The list of detail about expert that been post out by admin .Expert can be list out whether from the members or new expert in certain user class. Members can view and notice their existent. Only Members can view expert that been categories for certain user class. In future, it shall able to display the expert detail to register members.

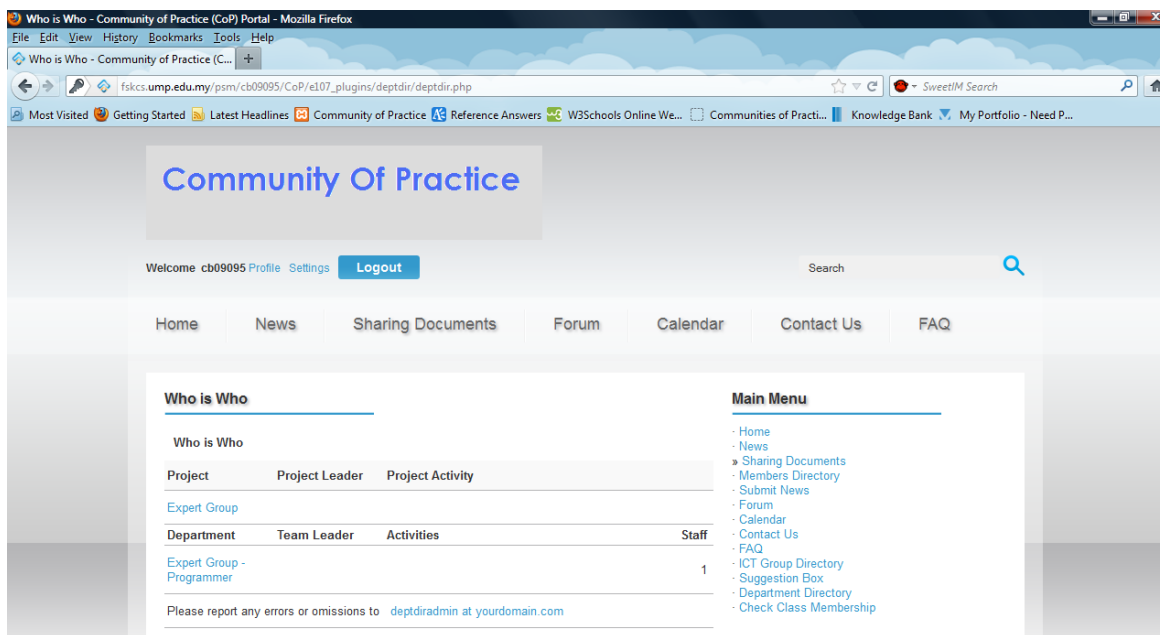


Figure 4.16 Expert List Figure

### 4.1.3.16 Search Facility Module

Can search the content of article and others modules through this smart search.



Figure 4.17 Search Facility



### 4.1.3.17 Member Directory Module

It can list down the detail for members and admin which are in difference user class. But it is only can view by members and admin. In future, there will be certain restrictions that only allow members in certain user class can view their own member list.

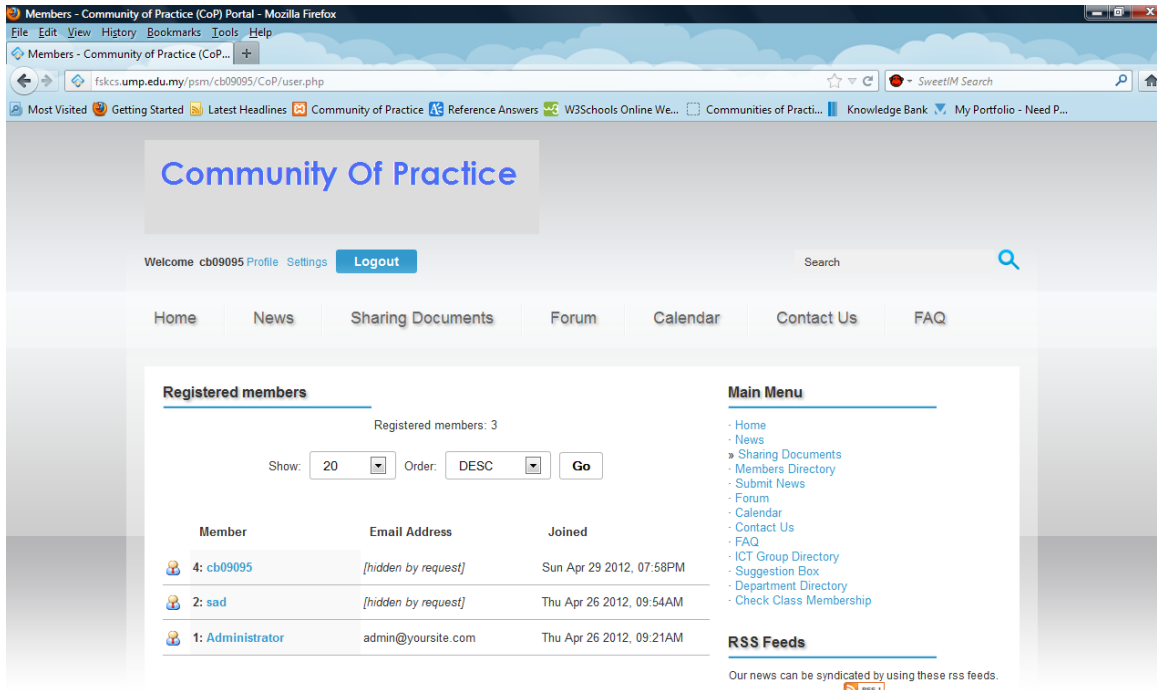


Figure 4.18 Member Directory Figure

### 4.1.3.18 Total Visitor Module

Members can view the total visitor in the system. Only Members can view the presences of others members.

**Online**

Guests: 0  
Members: 1, cb09095  
On this page: 1  
Members: 3, Newest: cb09095

Figure 4.19 Total Visitor Figure

### 4.1.3.19 RSS News Feeds Module

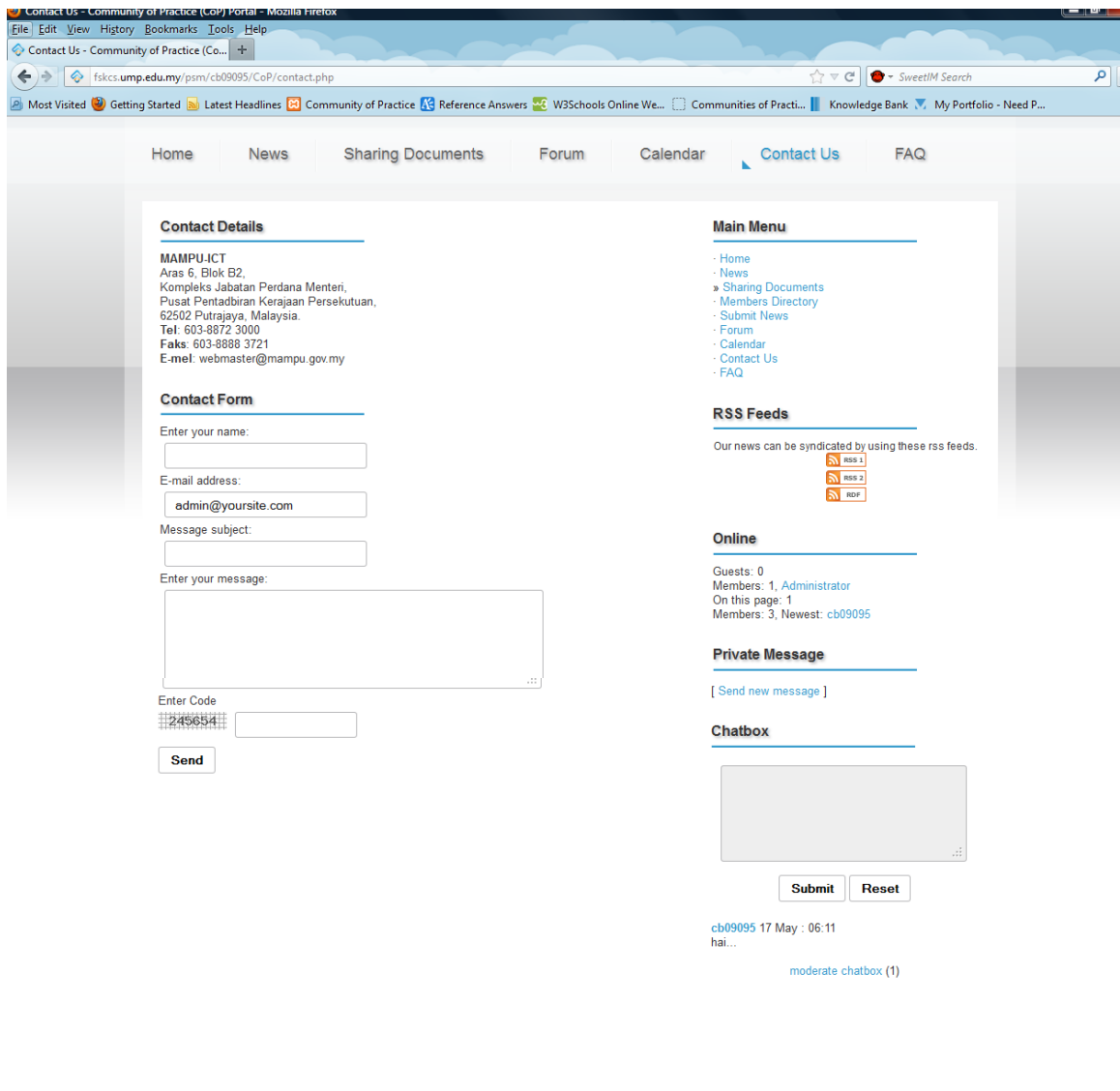
Users can share this portal to others. All users include visitor can use this module in this portal.



**Figure 4.20** RSS News Feeds

### 4.1.3.20 Contact Module

In this module, admin will update his account and post out their formally address. Besides, it also provided a contact written form for user to submit to the email address for admin. A detail of information will be listed. The administrator can post their detail for users' notification.



**Figure 4.21** Contact Figure

## 4.2 Conclusion

As a conclusion, in this chapter, the functionality that included in the system is explain more detail. This conclude that the CoP website into a more detail description of the system to the users.

This chapter has been successively elaborates and refines the understanding of the problem and solution's definition. This is due to implement by learning and adapting to feedback from the previous iterations of the core development lifecycle such as analysis, design, implementation and test.

## **CHAPTER 5**

### **RESULTS, DISCUSSION AND CONCLUSION**

This chapter briefly discusses the expected results of the proposed project and following by discussion.

#### **5.1 Expected Results**

By using the iterative and incremental methodology, the implementation phases have been implemented as portal system that consists of successful coded, integrated and tested source code. Therefore, the CoP system is basically being implemented with function and the expected result will be shown in the following section in this chapter. The expected result is based on the characteristics of the system, time factor, comparison between other website, effectively and comparisons between other communities.

- i. The characteristics of the CoP system

In general, a community of practice is different from a network website due to the focusing on specify and restriction user class. A CoP is different from a work based on the ways of shared learning and interest together from different class members. It is defined by knowledge compared with an individual task and CoP Portal is exists because of the participation of the members.

A CoP is different from other communities since its members are more likely to share a common profession or work situation. It is known that people belong to communities of practice at the same time as they belong to other organizational structures. In the Communities of Practice Portal, ones can develop the knowledge that let ones to do their tasks and will share practice to makes the official organization or company more effective.

#### ii. Time factor

CoP shall have a specified and limited life span with some of the users that maybe not usually been active in the system. The system will go through number of members which have joined together but non-active for a certain period of time. These members will be then canceling their activation account in the system by the administrator of the portal. The key factor in how a CoP develops over time is the quality and durability of its functionality of the system.

#### iii. Comparison between other website or portal

Compare to the others website, Community of Practice based portal are more benefit to expert and certain company staff as it is more specify on sharing knowledge. CoP system will help foster the process of storytelling among users which helps them

strengthen their knowledge and skills on the certain fields of works while others portal lack of.

iv. Effectively

There are data to show how widely spreads out the community members by themselves. In other words, the total amount of one does exactly participate in exactly one community and how many are the members with exactly two communities and more. It provides a way to understand how much one's interests that been ranged across communities. The following table will shows the data across two quarters for the view on the community members' preview. For each value along the X axis, it will shows the total number of people who actually got member of exactly that many communities in each of the two quarters.

Next, by giving the relatively large jump between quarters of members who were a member of exactly one community would be likely to represents a targeted promotion in a new community to gather members among a group who previously had not been activate the account in a community. It is to similar as how if ones would tend to "spread out" the news among communities over time .Users may migrate a bit to the right in this diagram over time.

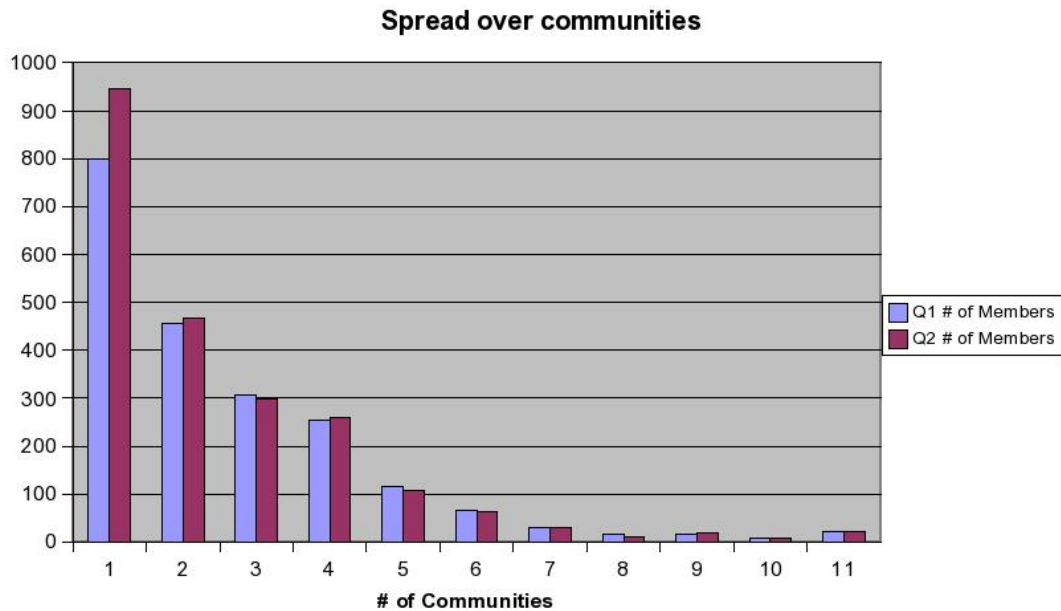


Figure 5.1: The spread over of members over communities

## 5.2 Discussion

The aim of the study was to design a community of practice based portal. The constraint of the system is to develop both register and non-register users in the community. While CoP system is should operate in register spaces where all members share, discuss and explore ideas, they should also offer private exchanges. Different members of the CoP could coordinate and strength the relationships among members and experts in an individualized approach based on specific needs or resources.

Next, design the community to shall then evolve naturally is also a constraint in the system. This is because the nature of a Community of Practice is to works dynamic for ones that in the same interests, target and members are subject to willing to change for the better. Thus, CoP forums should be designed to support shifts in focus. So, the CoP system should be always depends on the purpose and objective of the community.



### **5.3 Conclusion**

This chapter briefly discusses the conclusion of the proposed project. In this system, it is to Design a Community of Practice Portal. In the system, Community of Practice Portal is a web-application which is developed to online engagement and collaboration and the realities of community's readiness and expectations.

CoP based portal will fulfill the objectives of the project, which are: To develop a Portal based on Communities of practice and to develop a portal that has the feature of communities of practice to share documents and knowledge. To assist members of Community of Practice to exchange knowledge for helping them in day to day work is also an objective of the project.

Based on the literature review that has been made, there are some similar systems and methodologies have been research. The features, advantages and disadvantages of the previous system and method have been survey, compared and acknowledge in this project

Besides, the system should be user friendly and suitable for the level of understanding of users. Testing and evaluation will keep on making sure that the system is running with less error. The accuracy of the data input like the personal information of members should be correct and complete in the database of the CoP system.

In the system, the collaboration environment will allow a group of communication in both asynchronously and free time to sharing information in a high secure web-based environment. Users can also post online discussions, share , revise and download documents and files, chat, schedule meetings using shared calendars and organize tasks. The integrated workflow makes collaboration more efficient by the various modules in the system. So, the system should be easily maintainable by admin and easy functional by users.

Overall, the system will be having capabilities for creating and sharing knowledge. Motivation to share knowledge is critical and crucial to success in a Communities of Practice portal. Thus, CoP is considered a best way to gain social experience for especially those members who wish to demonstrate their expertise and experience.

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