# Knowing the Hidden Connection of Students using Tagging Game

By

Aleea Ameera Bt Abdullah

Final dissertation submitted in partial fulfillment of
the requirements for the
Bachelor of Technology (Hons)
(Business Information System)

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**CERTIFICATION OF APPROVAL**

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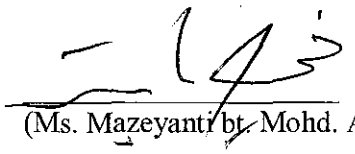
Approved by,

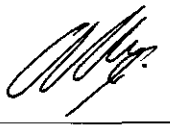


(Ms. Mazeyanti bt. Mohd. Ariffin)

UNIVERSITI TEKNOLOGI PETRONAS
TRONOH, PERAK
May 2011

## CERTIFICATION OF ORIGINALITY

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



ALEEA AMEERA BT ABDULLAH

**ABSTRACT**

Nowadays, it is very important in capturing the knowledge assets in the community either in the organization or in the student community. Previously, people are usually relied on the old method which is the human's manual work in order for them to capture the knowledge. Therefore, this project will be focusing on capturing the knowledge assets or expertise using an interactive way which is the expertise tagging game. The objective of this project is mainly to design a prototype of the game which it will be used to identify the expertise of the student and lastly to identify the relationship between the students. Thus, the project will be targeting Universiti Teknologi PETRONAS which mainly the Business Information Systems student to gather their knowledge or expertise. As for the research methodology, this project will be using Zhang (2008) method of tagging game in order to identify the knowledge and expertise which then will lead to creating the relationship between the students. Also, the process of tagging game will provide a points to each tagged that matched the tag cloud and this is one of the attribute of the game that can captured the interest of the player to keep on tagging a person as there is a study shows the successful of this process. At the end of this project, the end result will be the relationship created between the students with regards their expertise.

## ACKNOWLEDGEMENT

I would like to express my sincere gratitude to my supervisor, Ms. Mazeyanti Bt Mohd Ariffin for her guidance. She offered me so much advice and always have faith in me. I am truly blessed to have her as my supervisor.

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## TABLE OF CONTENT

**LIST OF TABLES**

**LIST OF FIGURES**

# CHAPTER 1

## 1.0 INTRODUCTION

### 1.1 Background

A lot of computer systems nowadays have been build to support expertise finding in the organizations which has been called as expertise finders or expertise recommenders (Zhang, 2008). The examples of the systems are Autonomy's IDOL, AskME, Tacit Knowledge Systems' ActiveNet, Triviumsoft's SEE-K, MIT;s ExpertFinder, MITRE's XpertNet, Thomson's tool, Hewlett-Packard's CONNEX, Microsoft's SPUD projects and many more.

This project will focused on developing a tagging game to identify the expertise in the student community. The project contains of two phases which are the research part and the development. The research will cover the problem occurs in recognizing the expertise and skills people within the student community. Also, the literature part that support the project which result in using a tagging game such as knowing the details of knowledge, identify the knowledge asset, knowledge management, knowledge audit and finally the tagging game.

The second half of the project will be the development of the system. It will be focusing on the method of capturing the knowledge asset among the student community, store the assets and finally to view the list of the experts. This development phase will be using some programming skills which include JavaScript, HTML, CSS, PHP and MySQL as in a meantime.

## 1.2 Problem Statement

Based on Zhang (2008), the early system is usually relied on human's manual work to create an expertise database, such as asking people in the organization or community to edit their personal profile, conducting surveys and interviews. This is not efficient enough as it is time consuming, a bit costly and also difficult to be maintained over time.

Also, if only based on the job description and qualification declared by the organization, it is still not enough to know their real expertise. For example, a person with Information Technology (IT) background, they are really good in handling the gadget or technical elements but they might also have some skills in sports or art as well. This is why nowadays we can see a lot of company using a social network such as Facebook as a medium in knowing their employees in details.

Based on Richer and Koch (2008), social networking services are the fastest growing type of social software either in Internet or company Intranet. Taking Facebook as an example, within the online communities, the users shares their status, journal entries and other interpersonal communication with their online friends (Nauert, 2009). This is something that the company lacks of in identifying the expertise within the employees. Thus, they will need a system that will able to capture those expertises.

Also, apart from focusing on the expertise of a corporation, there is also an important need to capture the expertise of the student community. It will help a lot in achieving the objective of their study. This is because, the student are not aware of their friends expertise and skills that will help them in their study. And it is also important to share one's own expertise with other as well in completing their assignments or

projects. The process of learning will then be circulating among them and they will know each other even better.

### 1.3 Objective

This project will addressed these questions:

- Where to find the experts or skilled person to ask questions or to have collaboration with?
- What type of expertise, knowledge or skills do we have among the students?
- Do we know each other expertise and what do other people think I am good at?

Thus, the objectives of this project are:

1. To design and build a prototype of expertise-finding tagging game.
2. To identify the expertise, knowledge and skills of the students.
3. To identify the relationship between the students.

### 1.4 Scope of Study

The scope of the study will be focusing on the students of Universiti Teknologi PETRONAS mainly on Business Information Systems (BIS) students. This is to gather up all the expertise that builds inside each and every student. It also will be focusing on how to identify their expertise and to connect or create a network between these expertises as other can benefit from that too.

# CHAPTER 2

## 2.0 LITERATURE REVIEW

### 2.1 Knowledge

Based on Drucker (2004), he defines knowledge as information that will change something into somebody whether by becoming the ground for action or into more affective action. There are two types of knowledge which are explicit and tacit knowledge.

Based on Nonaka (1995), there are two types of knowledge which are tacit and explicit knowledge. Tacit knowledge is a subjective and based on experience knowledge which cannot be expressed in words or sentences. Examples of tacit knowledge include cognitive skills, technical skills and know-how. While explicit knowledge is objective and can be expressed through words and sentences. It includes databases, theoretical approaches and manual.

Table 1: Nonaka & Takeuchi's SECI model (1995)

| | **To tacit knowledge** | **To explicit knowledge** |
|---|---|---|
| **From tacit knowledge** | Socialization | Externalization |
| **From explicit knowledge** | Internalization | Combination |

The interactions between the explicit and tacit knowledge lead to the creation of new knowledge. The combination of the two categories will makes it possible to conceptualize four conversion patterns which are Socialization, Externalization, Combination and Internalization.

Based on Table 1, the socialization is basically sharing tacit knowledge through face-to-face communication or shared experience. For the externalization, it is more to developing concepts, which embed the combined tacit knowledge which enable its communication. The combination part shows the combination of various elements of explicit knowledge such as by building a prototype. And lastly, the internalization is closely linked to learning by doing where the explicit knowledge becomes part of the individual's knowledge base and becomes an asset for the organization (Nonaka & Takeuchi, 1995).

This project is basically falls under the section of Socialization which is from tacit to tacit knowledge. This can be happened through the interaction between individuals. The tacit knowledge can be done through some join activities such as being together, living in the same environment rather than through written or verbal instructions.

**2.2 Knowledge Asset**

Knowledge assets have come to play an increasingly important role in global, regional and national markets. According to Boisot (1998), knowledge assets defines as stocks of knowledge from which services are expected to flow for a period of time that may be hard to specify in advance. As to be compared to physical assets which may have limited life because of wear and tear, knowledge assets may in theory that last forever (Malhotra, 2002).

Apart from that, based on Malhotra (2002), knowledge assets represent the fount of a nation's competences and capabilities that are deemed essential for economic growth, competitive advantage, human development, and quality of life. It can be characterized by some attributes such as codified human expertise, creates value, owned by company, exist independently of human memory and commonly deployed through intranets (Wilson, 1999).

Also, based on the research from Universiti of New England (2007), knowledge asset is a broad descriptive term meant to encompass any result of intellectual effort which is considered by the University to have value for ongoing teaching and research endeavors. The value need not be economic which it may be knowledge of cultural significance or social interest.

Thus, in this project the knowledge asset from BIS students will support each and every one of them in their assignment, project or daily life operation which at the same time will create some value of it. This is supported by Zhang (2008) as he stated that the ability to find worker's expertise will enables them to connect with the experts, management of resources, talent development and will increase innovation and productivity.

## 2.3 Knowledge Management

Knowledge Management (KM) refers to a multi-disciplined approach to achieving organizational objectives by making the best use of knowledge. KM focuses on processes such as acquiring, creating and sharing knowledge and the cultural and technical foundations that support them (Khalid et. al, 2007).

Table 2: Introduction to Knowledge Management (Unc.edu, n.d.)

| VIEW | COMPONENT | DESCRIPTION |
|---|---|---|
| Horibe (n.d.) | People | A question to be asked on how to increase the ability of an individual in the organization to influence others with their knowledge. |
| | Processes | Its approach varies from organization to organization. There is no limit on the number of processes. |
| | Technology | It needs to be chosen only after all the requirements of a knowledge management initiative have been established. |
| Hoon Hoon et al (2004) | Culture | The biggest enabler of successful knowledge-driven organizations is the establishment of a knowledge-focused culture. |
| | Structure | The business processes and organizational structures that facilitate knowledge sharing. |
| | Technology | A crucial enabler rather than the solution. |

This shows that either way the KM be viewed; it needs the technology along the way as the medium of implementing it. Based on IDC report, KM is in a state of high growth, especially among the business and legal services industries. As the performance metrics of early adopters are documenting the substantial benefits of knowledge management, more organizations are recognizing the value of leveraging organizational knowledge.

As a result, knowledge management consulting services and technologies are in high demand, and knowledge management software is rapidly evolving (Unc.edu, n.d.).

Based on Table 2, this project would be best to describe as the first view which involves people, processes and technology. By gaining the information from the targeted people of university students on their skills and expertise, it will then be processed by using the technology system.

## 2.4 Knowledge Audit

There is a saying said that knowledge is power, but only if people can access it exactly when they need it. One of the critical first steps in the knowledge management area is to conduct a knowledge audit. Based on Paramasivan (2003), knowledge audit is the all important first major phase or step of a knowledge management initiative, and is used to provide a sound investigation into the company or organization's knowledge 'health'. It serves to help the audited unit to determine if it 'knows what it knows' and 'knows what it doesn't know' about its existing knowledge state.

Based on Chowdhury (2006), a knowledge audit can have the following components which are not necessarily need to be in order. There are Knowledge need analysis, Knowledge inventory analysis, Knowledge Flow analysis and Knowledge mapping. K-need analysis is basically helping the organization to develop its future strategy and also to measure the staff skills and competency enhancement needs and opportunities. The second component which is K-inventory analysis is to capture the knowledge within the organization. While K-flow analysis, it is to determine how people in an organization can find the knowledge the need and how to share their knowledge with others. It involves three elements which are people, process and systems. While for K-mapping, it shows how knowledge moves around the organization from where it is to where it is needed.


Figure 1: K-Audit Components

As in this project, the focus will be on the Knowledge inventory analysis. Furthermore Chowdhury (2006) did mention that it is a knowledge stock taking to identify and locate knowledge assets and resources throughout the entire organization. This process involves counting, indexing, and categorizing of corporate tacit and explicit knowledge. Knowledge inventory analysis comprises of 2 entities: Physical (Explicit) Knowledge inventory and Corporate Experts (sources of tacit knowledge) inventory.

Table 3: Entities for Knowledge Inventory Analysis (Chowdhury, 2006)

| TYPE | DESCRIPTION |
|---|---|
| Physical (Explicit) Knowledge inventory | • Numbers, types and categories of documents, databases, libraries, intranet websites, links and subscriptions to external resources<br>• Knowledge locations in the organization, and in its various systems<br>• The organization and access of the knowledge (how knowledge resources are organized and how easy is it for people to find and access them)<br>• Purpose, relevance and quality of knowledge (it must be up to date, reliable, evidence based, making sense, relevance to the organization)<br>• Usage of the knowledge (are they actually being used by whom, when, what for and how often) |
| Corporate Experts (sources of tacit knowledge) inventory | • Staff directory and their academic and professional qualifications, skill & core competency levels and experience<br>• Training and learning opportunities<br>• Future potentials-leadership potential |

The K-inventory analysis may involve a series of surveys and interviews as a method in order to get relevant answers to the above questions on both tacit and explicit knowledge that an organization may hold and have (Chowdhury, 2006).

It is likely shows that the project will be based on the type of Corporate Knowledge inventory as the students will key in the input of other expertise and this will somehow enhance the potential of future potential-leadership within the students.

### 2.5 Tagging Game

Zhang et al, (2008) stated that the common job for people to get their job done is by identifying the expertise for related field. Based on Qu and Zhang (2008), there are three new ways to identify and find expertise in an organization or a local community which is by tagging people, 'Game with a purpose', and expertise network visualization and analysis. The project will be focusing on the tagging game where the goal is to reveal all masked tag in the tag cloud.

Expertise-tagging game is basically a variation of Output-agreement game discuss in 'Game with a Purpose' by Ahn (2006). The Output-agreement games are a generalization of the ESP Game. The game instructions indicate that the players should try to produce the same output as the other player. Players cannot see each other outputs or communicate with one another. And since the two players cannot communicate each other, it will be the easiest way for both to produce the same output is by entering something related to the common input. Therefore, based on this method, the Expertise-tagging game is introduced (Ahn & Dabbis, 2008).

According to Zhang (2008), the player of tagging game will earns some points if the tag they keyed in match with the tag input or match from the other user who have played the game before and this matched game will then be revealed on how many people has guess the same expertise.

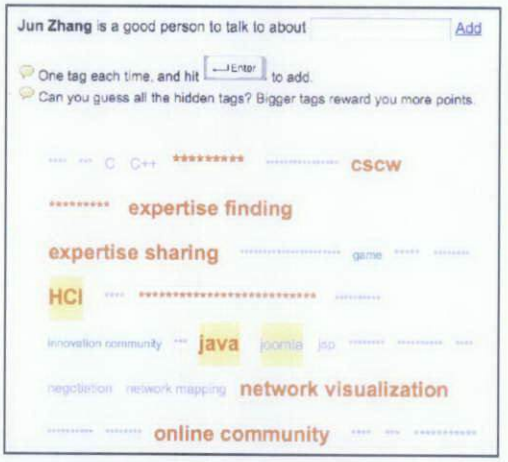



Figure 2: Tagging Game Interface (Zhang, 2008)

Furthermore, according to Zhang (2008) where they also develop a network visual-exploration interface as it would helps people to identify the expertise network around them. In this project, the tagging game will be used in order to identify the expertise or knowledge skills among BIS students. Also, the benefit of these relationships is to obtain the information and leads to further improvement in their studies.

Figure 3: Relationship Networking (Housley, 2004)

# CHAPTER 3

## 3.0 METHODOLOGY

### 3.1 Research Methodology

Throughout the development of the project, a research needs to be done by taking a course from Business Information System (BIS) programme as a scope of study. For this project, System Development Life Cycle (SDLC) is being used as the methodology. The SDLC process applies to information system development projects ensuring that all functional and user requirements and agency strategic goals and objectives are met.

This project will be using an Iterative model which it does not attempt to start with a full specification of requirements. Instead, development begins by specifying and implementing just part of the software, which can then be reviewed in order to identify further requirements (Cockburn & Williams, 2003).

This process is then repeated, producing a new version of the software for each cycle of the model. Consider an iterative lifecycle model which consists of repeating the following four phases in sequence.

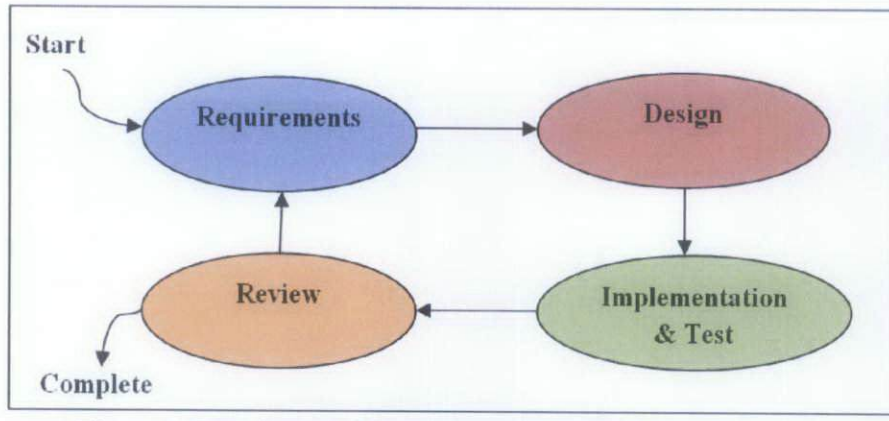


Figure 4: Iterative Model (source: onestoptesting.com)

### 3.1.1 Requirements

Requirements phase, the survey or questionnaires will be conducted to specific target people which are the final year student of Business Information Systems. The target number of the student will be approximately 70 students. There will be a sample of expected possible question to be carried out during the questionnaire session later on.

### 3.1.2 Design

The Design phase in which a software solution to meet the requirements is designed. This may be a new design, or an extension of an earlier design. The story board has been designed in order to have the clearer picture on how the tagging game would be. Below are the flowchart and story board of the game:

Flowchart Diagram

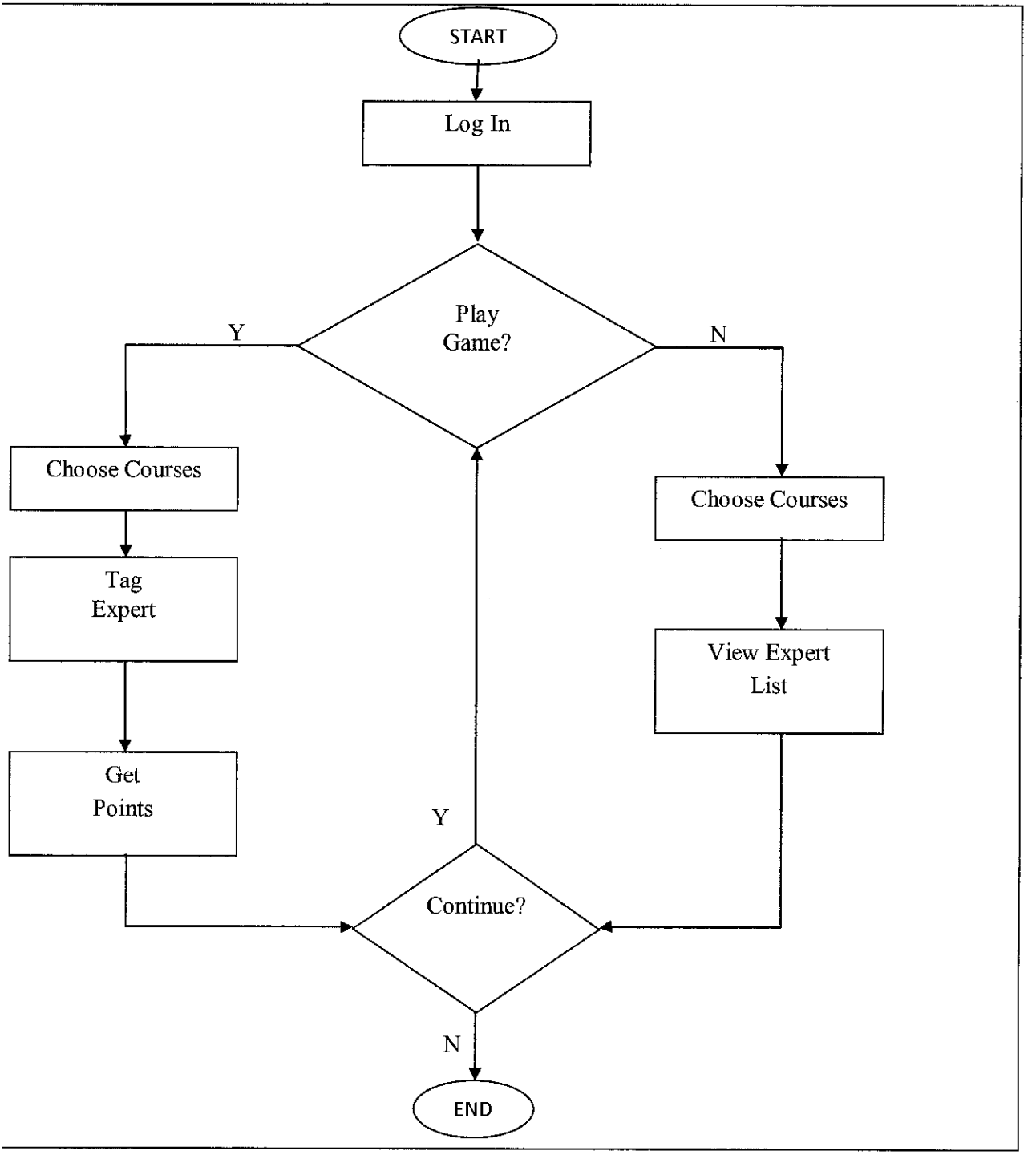



Figure 5: Flowchart Diagram

Activity Diagram

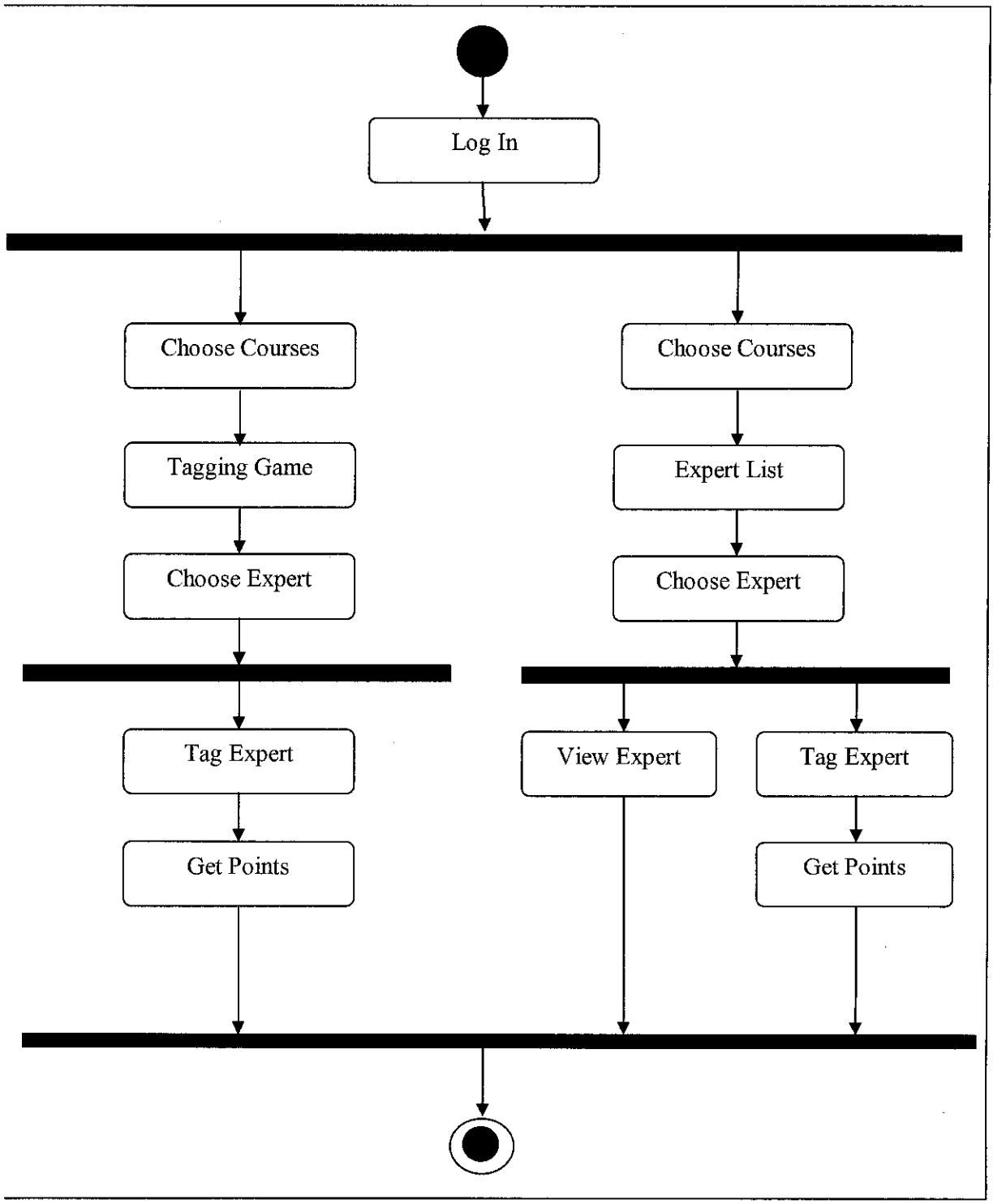



Figure 6: Activity Diagram

Sequence Diagram

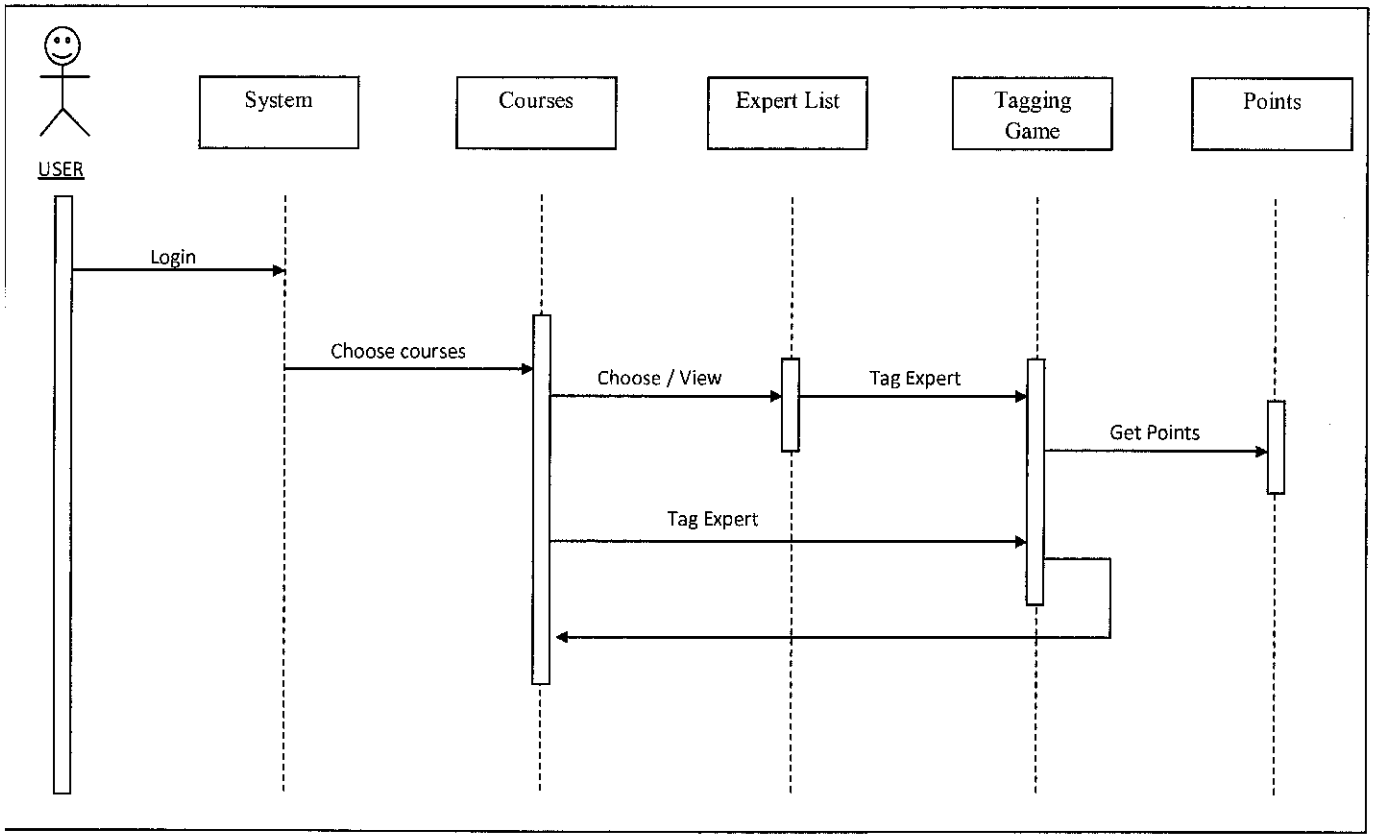



Figure 7: Sequence Diagram

Story Board

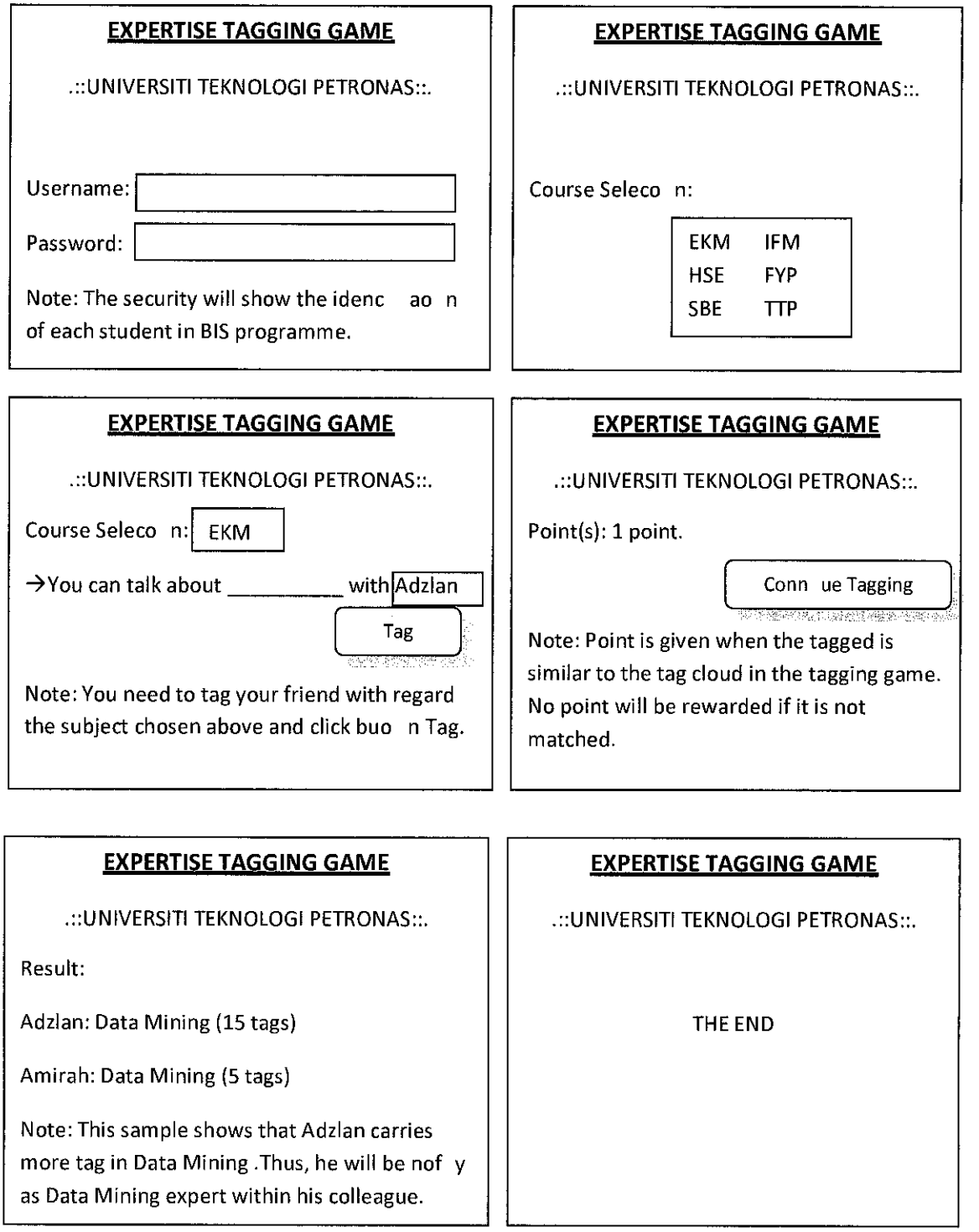



Figure 8: Story Board

System Architecture

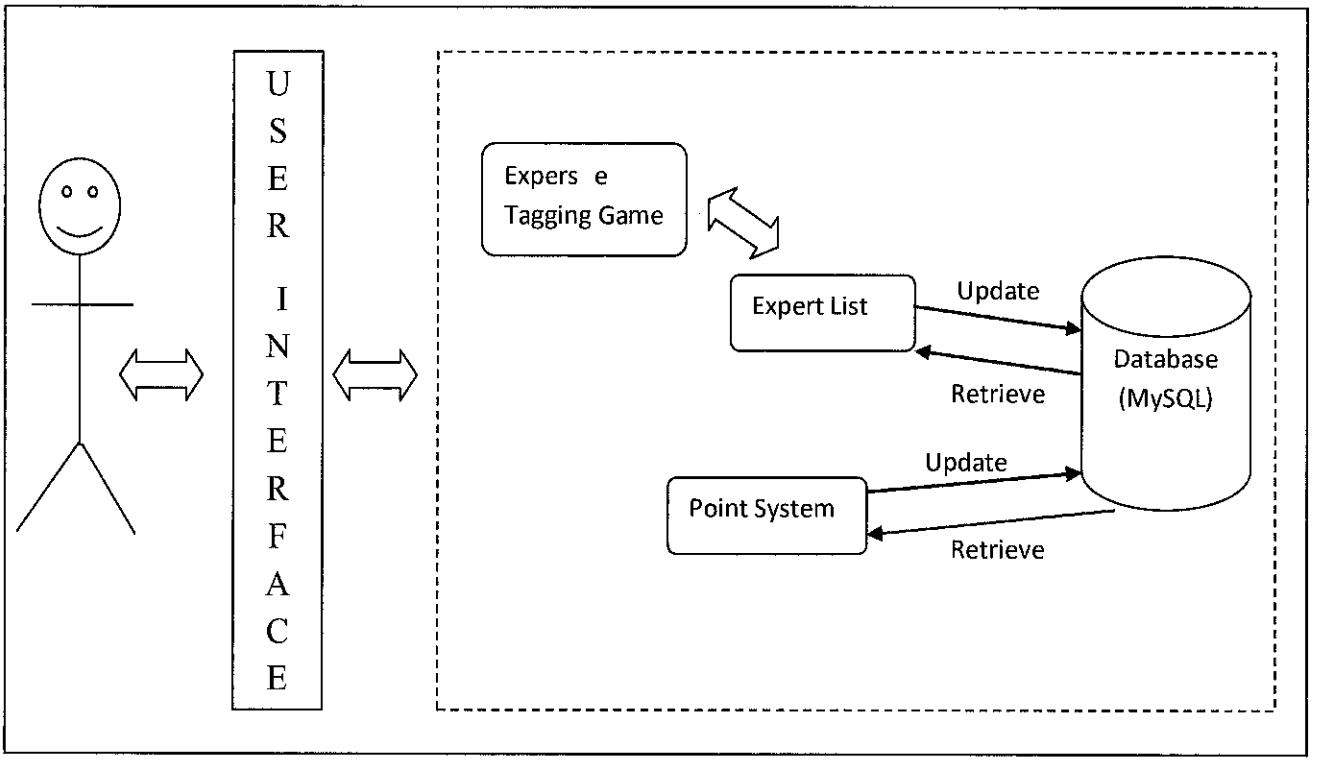



Figure 9: System Architecture

### 3.1.3 Implementation and Testing

After the Design phase has completed and been approved to carry on, it will be followed by the Implementation and Test phase where this is when the tagging game is being coded, integrated and tested. For each phase in the implementation system will be tested to the target market as this will ensure the system is meet their expectation and is has a user-friendly interface. The survey will be conducted during the testing phase. This will ensure either the Tagging Game achieved its objectives or not.

### 3.1.4 Review

Once the Implementation and Test phase is completed, the Review phase, in which the software is evaluated and the current requirements are also been reviewed, and changes and additions to requirements proposed. The purpose of this phase is to make sure all the requirements needed need to be in place and if it is not complete, there is a need to reconstruct or re-arrange the system.

## 3.2 Project Activities

Table 4: Project Activities

| No | Tasks | Duration (day) | Status |
|---|---|---|---|
| 1 | Develop Project Proposal and Preliminary Report | 35 | Done |
| 2 | Develop Work plan | 20 | Done |
| 3 | Conduct the Literature Review | 50 | Done |
| 4 | Submission of Extended Proposal | 1 | Done |
| 5 | Proposal Defense (Viva) | 1 | Done |
| 6 | Preparation of Interim Report | 7 | Done |
| 7 | Submission of Interim Report | 1 | Done |
| 8 | Submission of Prgress Report (FYP II) | 1 | Done |
| 9 | Development Phase | 40 | Done |
| 10 | Testing Phase | 7 | Done |
| 11 | Viva | 1 | Done |
| 12 | Implementation / Installation | 1 | Done |
| 13 | Final Dissertation | 1 | Done |

### 3.3 Key Milestone

Table 5: Key Milestone

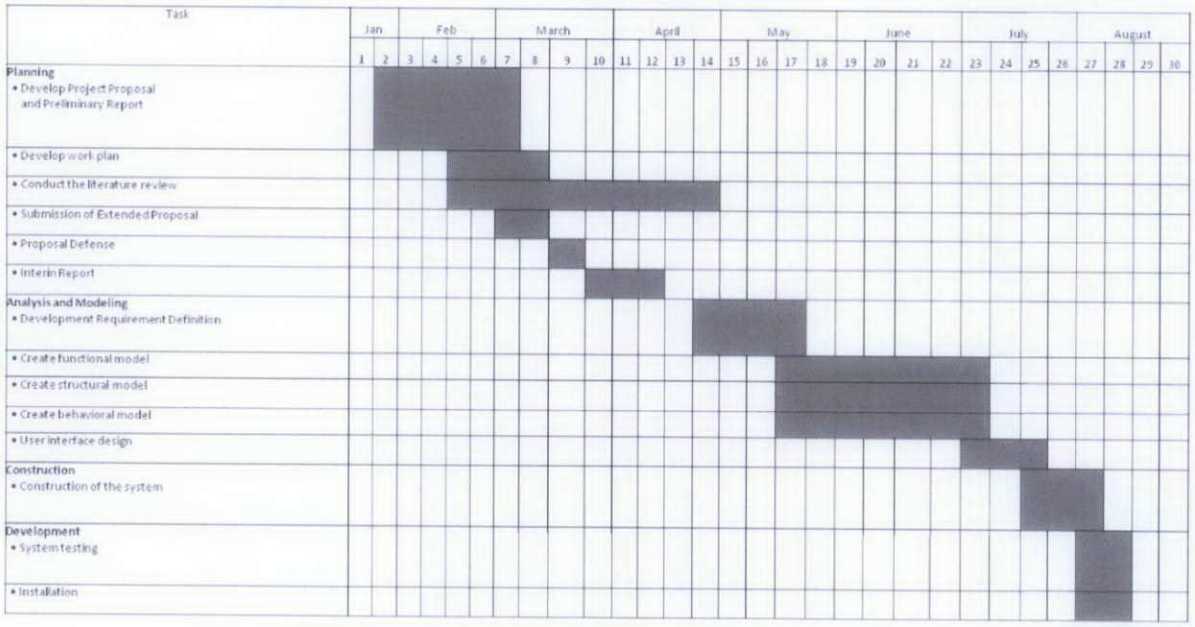
| NO | Detail / Week (FYP I) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Develop Project Proposal and Preliminary Report | | | | | | | | | | | | | | |
| 2 | Develop Work plan | | | | | | | | | | | | | | |
| 3 | Conduct the Literature Review | | | | | | | | | | | | | | |
| 4 | Submission of Extended Proposal | | | | | | | | | | | | | | |
| 5 | Proposal Defense | | | | | | | | | | | | | | |
| 6 | Interim Report | | | | | | | | | | | | | | |

| NO | Detail / Week (FYP II) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Development Phase<br>– creating Login Page<br>– develop tagging game | | | | | | | | | | | | | | |
| 2 | Progress Report | | | | | | | | | | | | | | |
| 3 | Pre EDX | | | | | | | | | | | | | | |
| 4 | Dissertation | | | | | | | | | | | | | | |
| 5 | VIVA | | | | | | | | | | | | | | |
| 6 | Final Dissertation | | | | | | | | | | | | | | |

* represent the submission date

## 3.4 Gantt Chart

Table 6: Gantt chart




## 3.5 Tools

The development of this project is that basically it used HTML language together with PHP as the language is familiarized by the author. The reason of using HTML in this project is because it is supported and can be used in the normal browsers which are Internet Explorer and Firefox. Also it will involve the database tool which is MySQL. Table below will shows the description of HTML, PHP, and MySQL that will be used in creating the Tagging Game.

Table 7: Description of HTML, PHP, and MySQL

| No. | Items | Description |
|---|---|---|
| 1 | HTML | - HTML stands for HyperText Markup Language an adds markup to standard English text<br>- *"If you want to impress your friends and relatives, refer to it as markup rather than code."* — Ian Lloyd<br>- Hyperlinks connect Web pages to one another<br>- Understood my most of the web browsers such as Internet Explorer, Firefox, Chrome, Opera, and Safari.<br>- Advantages:<br>• Ease to use<br>• Highly flexible and interactive with CSS and Javascript<br>• Loose syntax<br>• Widely used<br>• Very similar to XML syntax, which used for data storage<br>• The software is free.<br>• Easy to learn and code |
| 2 | PHP – MySQL | - PHP is one of the fastest growing scripting language today<br>- It is compatible with all operating system<br>- It provides high performance<br>- The features support for most popular databases<br>- It creates dynamic web pages<br>- It supports multi-language |

# CHAPTER 4

## 4.0 RESULT AND DISCUSSIONS

### 4.1 Data Gathering

A survey has been conducted to the BIS student with regard the Expertise Tagging Game. Out of it, 15 respondents have responded to the survey given. A list of question had been asked and only 3 main questions will be discussed.

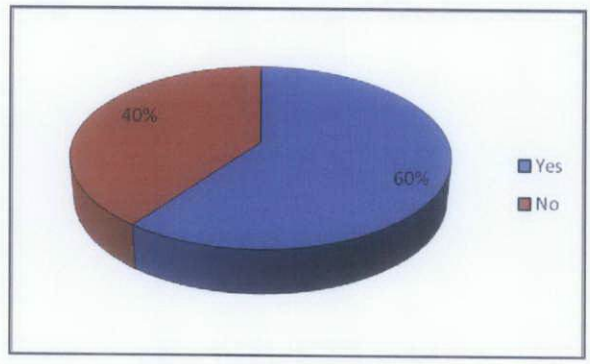



Figure 10: Survey Result1

The first question asked the student whether they ever asked help from their colleague when they are given assignments or any tasks. As shown in Figure 8, more than half which is 60% say 'Yes', they did asked their friend's help in completing their assignments or tasks. It shows that the need of friends is really important for them.

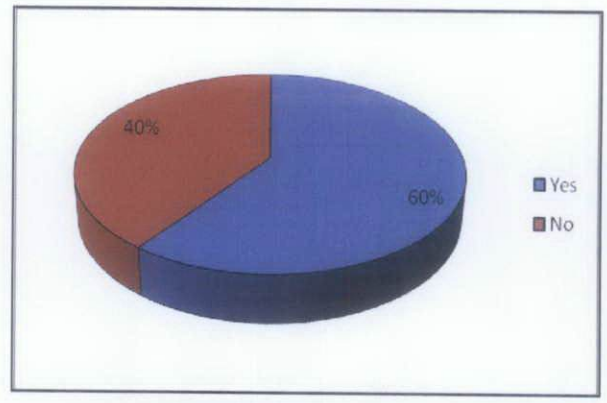



Figure 11: Survey Result2

Also, a question on recognizing expertise had been asked. The question is asking whether the students find it hard to recognize their colleague's expertise. And based on the Figure 9, it shows that 60% of them find it difficult in recognizing the expertise. It shows, there is no medium or interaction among them and it leads to this problem.

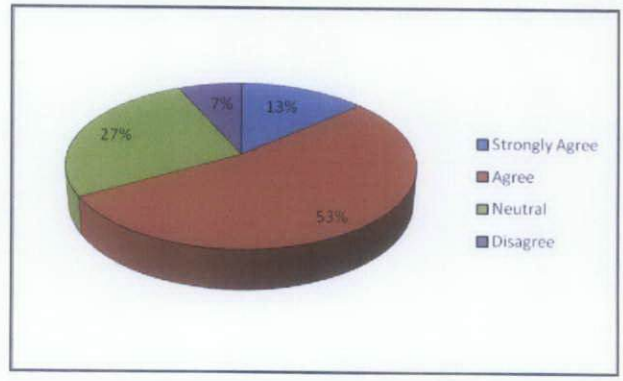



Figure 12: Survey Result3

Lastly, the question is focusing on the medium will be used which is Expertise Tagging Game. The functions of the system is stated together with the question as it helps the students in recognizing their colleague's expertise and this will enhance their performance in their academic in future. Thus, the question is asking whether

they will be using the system frequently or not. Based on the result shown in Figure 10 states that 53% of the respondents are agree in using this system frequently. This indicates that the system will not be ignored and it will benefit others that used it.

### 4.2 Expertise Tagging Game Description

In this section, will be explained in detail the functions and how the system will work. It will give an insight view to the user on the user interface and it relates to the objectives of the system.

#### 4.2.1 Login Page

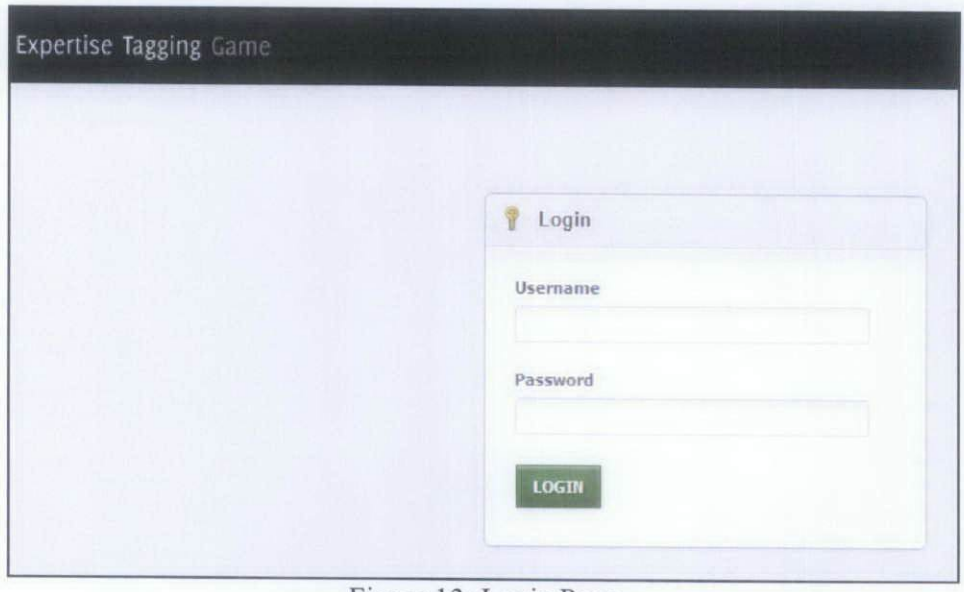



Figure 13: Login Page

In this system, a Login page has been created from a set of BIS student's database. It represents each of the students as they will have a unique username and password. The Username and Password has been set up as their Matric Id. Wrongly keyed in the data will result in unable to proceed to the next page.

### 4.2.2 Tag Expert Page

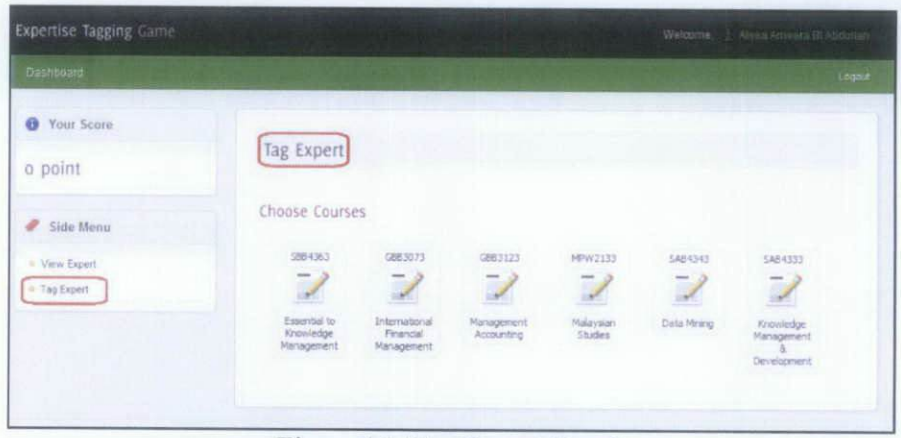



Figure 14: Tag Expert Page1

Once the user has successfully login to the system, it will be directed to the dashboard page which by default will be a Tag Expert Page. The page will show a list of courses, user's current points and Side Menu that consist of View Expert and Tag Expert. In this section, the tagging part will begin once the user has select any of offered courses.

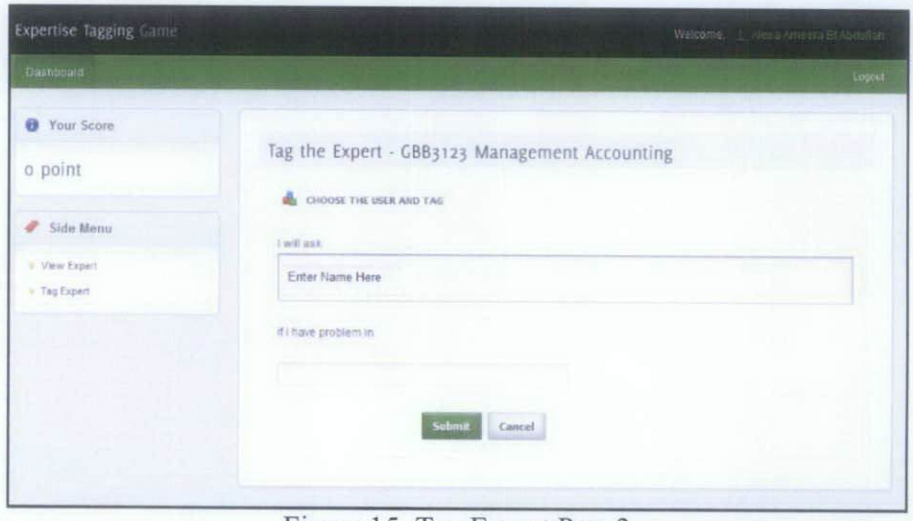



Figure 15: Tag Expert Page2

This will be the interface once the user chooses the course. The screenshot above show that Management Accounting has been selected. This will be a main section for the tagging game as a question will be asked to the user and they need to respond with the

expert name and their expertise which related to the course selection. Then, the submit button need to be click in order to store the expert and their expertise in the system.

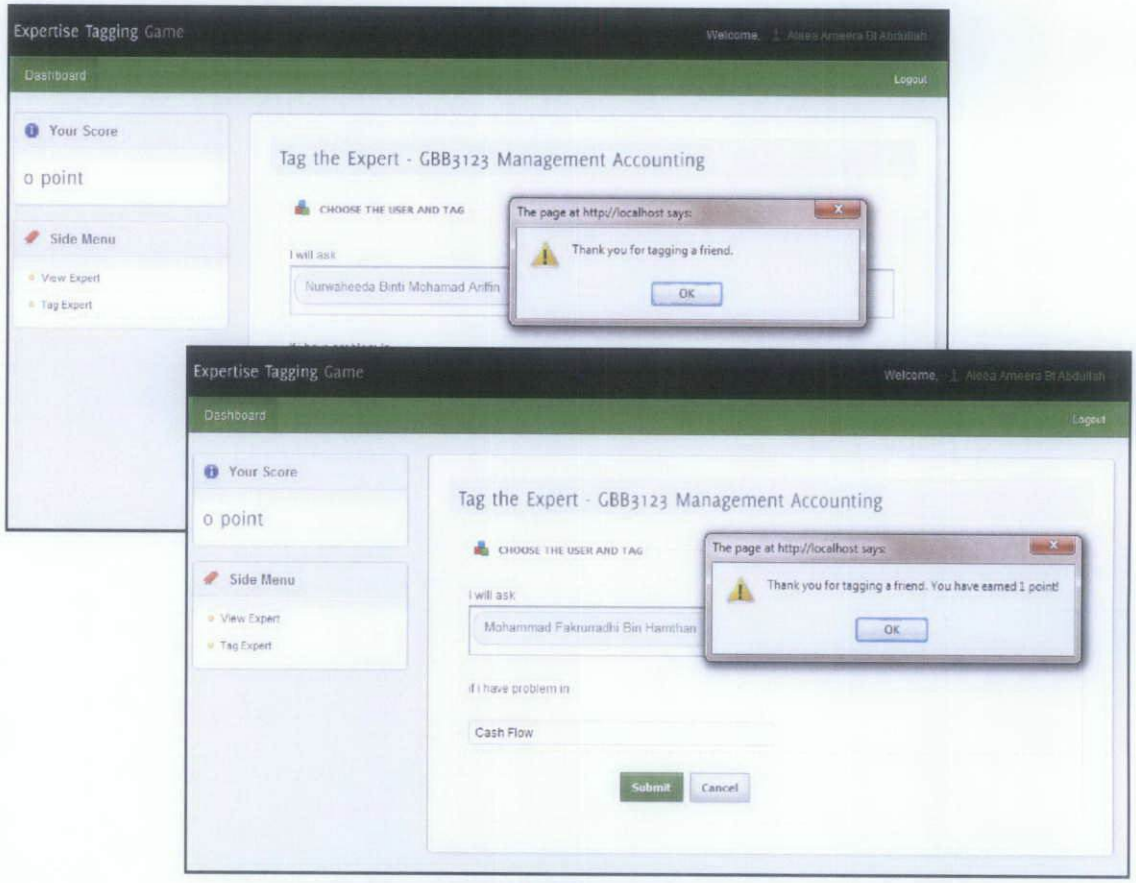



Figure 16: Tag Expert Page3

There will be two situations after clicking the submit button. The first one is when the user tag similar to the expertise that has already been stored in the system; they will earn 1 point for each tag. This symbolize the user has acknowledge the expertise of the chosen expert. And by having a point system, it will encourage the user to tag appropriately and correctly of an expert. The second situation will be when the user is creating a new expertise where they will not earn any point but the contribution is they are providing with a various expertise of the expert.

### 4.2.3 View Expert Page

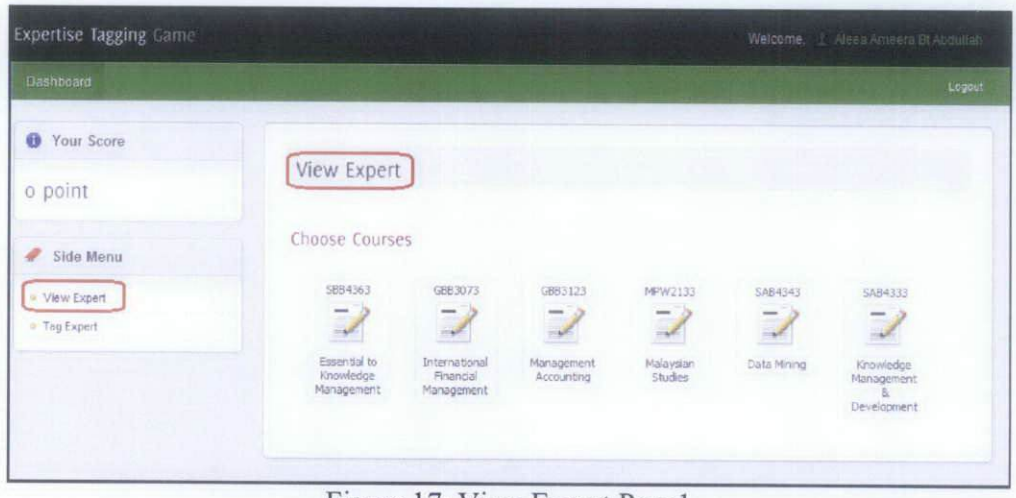



Figure 17: View Expert Page1

This will be the interface for the View Expert which is similar to Tag Expert interface. A list of courses is shown where all the list of expert and expertise is stored.

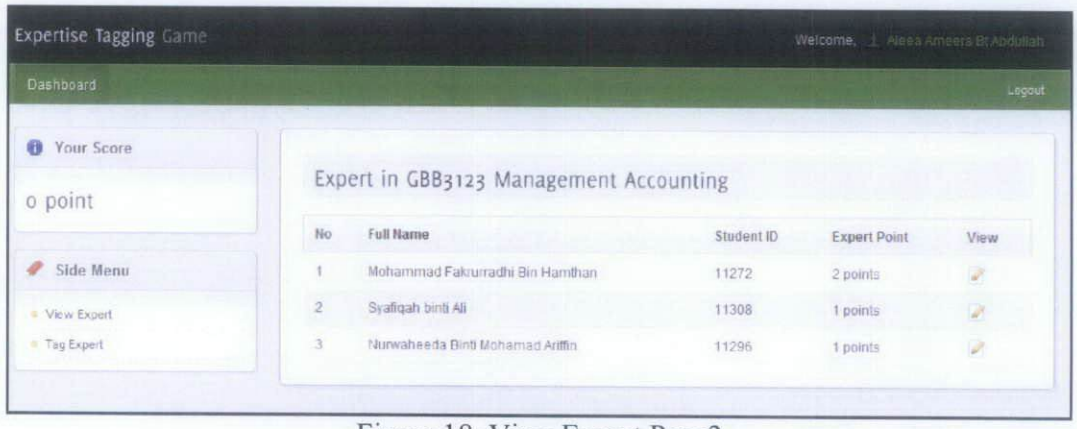



Figure 18: View Expert Page2

Taken the course of Management Accounting as seen in the above screenshot, the page will show the list name of the experts that have been tagged. The details will also include student Id and Expert Point. Expert point is basically the number of tag the experts have. The see the details of the expertise is simply by clicking View menu.

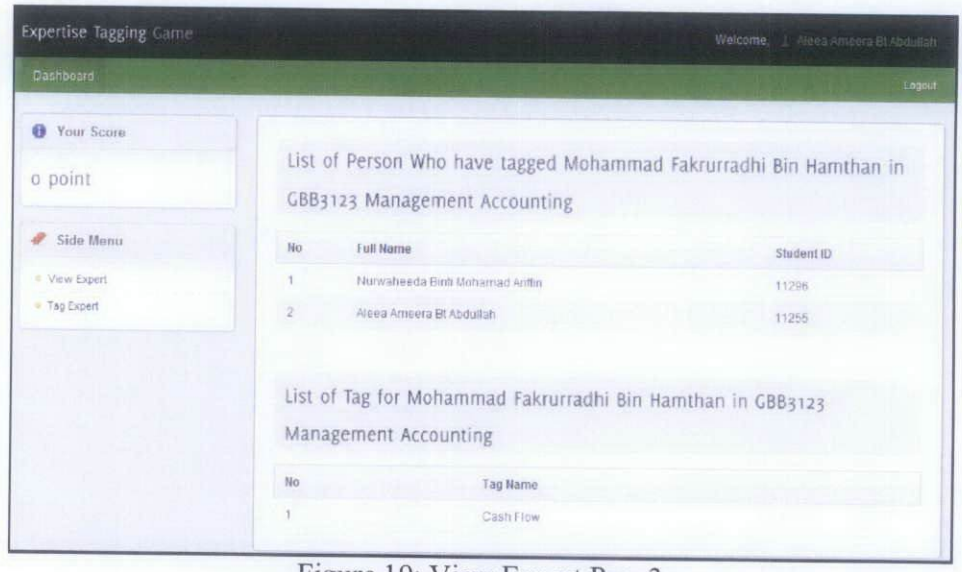



Figure 19: View Expert Page3

This is the interface after clicking the View menu. Taken Mohammad Fakrurradhi Bin Hamthan as an example, the system will show who has tagged him and the expertise corresponded. In this example, it shows that Nurwaheeda Binti Mohamad Ariffin and Aleea Ameera Bt Abdullah have tagged him as an expert in Cash Flow as it appears only one time. Thus, it has been stated that whenever they are facing any problem with regard Cash Flow matters, they will ask Mohammad Fakrurradhi Bin Hamthan for the help.

### 4.2.4 Connection between Students

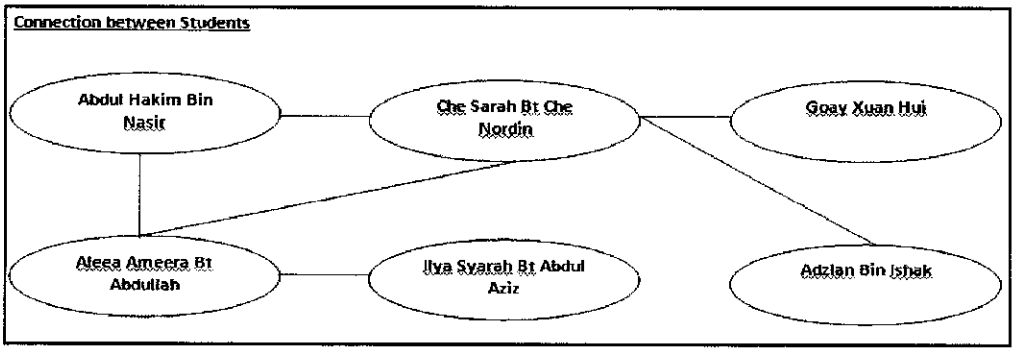



Figure 20: Connection between Students

In order to achieve the objective of this project, once the system has identified the expert and the tagging people, creating a network will be done next. As shown in the above image, it shows that the connection of the student with regard the expertise. It means that, at the end, we know which person is connected to which person. As shown, Abdul Hakim Bin Nasir is connected to Che Sarah Bt Che Nordin and Aleea Ameera Bt Abdullah. Thus, in reality if these people are facing any problem, they will straightly go to the connected people in order to overcome the problem. Creating a group discussion can be one of the future outcomes of this project.

## CONCLUSION

In conclusion, this project is a modest effort to identify the expertise that 'hidden' between the students and the relationship between them which is by using the method of Expertise Tagging Game. This method is an alternative way that provides and interactive medium in recognizing the expertise in student community. It will help the student in their study and in completing their assignments as they will directly seeking the expertise quickly. The game also helps in solving the utilization of time among the student as they need not to ask each and every one of their colleague's expertise. Only by using this, they will directly know where to find the expert people in the course area. Thus, it shows the importance of having the expertise tagging game in the society. Apart from revealing the real expertise among the student, the Expertise Tagging Game also reveals the hidden knowledge or expertise of the students and later reveals the relationship among them.

## RECOMMENDATIONS

For future work expansion and continuation, this project of Expertise Tagging Game will continue to perform the analysis of the expertise and connection that have been identified. This is basically to remove the knowledge gap that occur between the current knowledge and future knowledge that required by the students. By identifying this, it will show how each student is really connected with their colleagues. Also, for future improvement will do some modification on the system by eliminating or reducing the over tagging technique for the same expertise. This will make the system preferable and more consistent. Apart from that, the current system is only specified on the final year courses which related to the final year student. In future, the system can cover another aspect that related in life, so that it will reveal the hidden expertise and the connection as well.

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