Food and Beverages Ordering and Monitoring System

By

Raihan binti Md Rasip

Dissertation submitted in partial fulfillment of
the requirements for the
Bachelor of Technology (Hons)
(Business Information Systems)

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CERTIFICATION OF APPROVAL

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Business Information Systems Programme

Universiti Teknologi PETRONAS

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BACHELOR OF TECHNOLOGY (HONS)

(BUSINESS INFORMATION SYSTEMS)

Approved by,

_____

(Mrs. Amy Foong Oi Mean)

UNIVERSITI TEKNOLOGI PETRONAS

TRONOH, PERAK

MAY 2012

CERTIFICATION OF ORIGINALITY

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

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RAIHAN BINTI MD RASIP

ABSTRACT

This report focuses on the implementation of this web-based application. Currently, the Human Resource (HR) department is having a problem of ordering and monitoring food and beverages of the university events or gatherings by lecturers and staffs. There are loads of papers being used and it makes the handling of work process becomes tedious as well as time consuming. Through this system, there are few parties who will earn the benefits. Firstly, the HR staff who manages the task, the lecturers and staffs as well as the approvers (usually managers) of the order.

This report will cover on the methodology used to develop this system which is incremental methodology. These implementations, using the incremental and iterative development cycle, are further refined though the research and studies as well as feedback from student as well, until they appropriately meet the objective. This system will be using a web-based application and focus on how to develop a system that have an intelligent system that could ease the workflow process of food and beverages ordering and could recommend possible ways of improving the workflow itself.

The result and discussion also provided in the report. Findings from interviews are recorded and the results are included. There will be system architecture, system interface and others discussed as well.

ACKNOWLEDGEMENT

Alhamdulillah, thousands of gratefulness upon the Almighty ALLAH S.W.T for the many opportunities gained in life. However, a number of personnel author would also like to thank for the help and guidance throughout this two semesters.

First and foremost, the author would like to convey the most sincere gratitude towards Mrs. Foong Oi Mean as the supervisor from Computer Information Sciences Department (CIS), for her valuable guidance and wisdom given throughout this two semesters. Interaction and opinion shared has helped the author to be more comprehensive and gain knowledge towards making the learning process more meaningful. Also, a special thanks to the user from the Human Resource (HR) department, Mr. Aminurrasyid for his cooperation and trust to collaborate the project with CIS department.

Last but not least, the author would also like to thank to family members and friends who have contributed towards the accomplishment of this project.

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INTRODUCTION

1.1 Background of Study

Human Resource Management and Administration (HRMA) of Universiti Teknologi PETRONAS (UTP) has been handling the process of food and beverages (FNB) ordering by the lecturers and staffs. The common operation is by manual practice where the requestors need to send their application form to the respective managers for event and budget approval. However, this practice requires a highly structured document management for the ease of reference, error checking and others. Occasionally the applications get hold due to the absence of managers to prove them.

With the implementation of this system, the users can place their order and the application will straight away goes to respective approver through email. The approver still can approve even he or she is on leave or outstation. Lastly, the staff will be notified once the approver has approved the application. In addition, the system is expected to lessen the use of papers in the department and alleviate the time taken to get the approval from upper management.

Hence, the HRM department has collaborated with Computer, Information and Science (CIS) department to come out with the system that can solve the problems stated above. The collaboration is aimed to produce a more efficient work process for the HRM as well as the staff of the university. This first time project is hoped to achieve the objectives and improve the current system in the department.

For that, there will be a website to manage these challenges where the website has few functions. For example, the order forms, online approval, reports, caterer management and others. The website is accessible 24 hours and seven days a week, providing there is an internet connection.

1.2 Problem Statement

There are two major problems discovered from the current system:

1. **Time consuming:**
    a. The long process flow (almost a week) to be completed, especially at the approval request stage. Currently, it takes about six to seven days for the approval to settle and if the managers are out-stationed, the process will take longer.
    b. Time and effort consuming for documents retrieval. It is difficult to retrieve back the past order as the HRM staff has to search it manually from the shelves. Sometimes, the orders are misplaces and it become harder if there is any issue regarding the order.

2. **Too much use of papers**
    a. Excessive paper consuming from the orders of events and meetings by lecturers and staff. This practice is not in line with UTP encouragement or even the world promotion of going green (green computing initiative). The university really promotes paperless based of any operation as it costs much and sometimes, not efficient.

1.3 Objectives

Briefly, the objective of this project is to develop a system of FNB ordering and monitoring. The project is aimed:

- To present to HRMA a framework for food and beverages requisitions processes and develop a system of food and beverages ordering for events.
- To promote a more efficient process in terms of time and effort in handling request or application from staffs. The system is aimed to fasten the flow in the stage of managers' approval.
- To promote the green computing or green technology initiatives in UTP by reducing the use of papers in the campus.

1.4 Scope of Study

There are several scopes of study that need to be achieved through the system development of food and beverages.

- **Development of:**
  - Workflow diagram
  - UML diagram
  - Gantt chart
  - Prototype of the application
  - Final product and its testing
- **Research on:**
  - Food and beverages system
  - Automate system
  - MySQL for database
  - Adobe Dreamweaver for website development
- **End users:**
  - HR custodian.
  - UTP lecturers.
  - UTP management.

- **User requirement of the new system:**
  - Understand the weaknesses that the department wants to improve:
    - Lessen the time taken for the process to be completed.
    - Reduce the use of papers in the department.
  - The aim of the new system that the department wishes to achieve:
    - The approver can approve the application through email.
    - The orders can be retrieved faster and easier through the system.
  - The flow of the new system implemented:
    - The approver will get notification through email to approve any request.

- The applicants will be notified whether the application is approved or rejected.

1.5 Limitation

Limitation of this project:

- The developer is not the expertise of the language used.
- Restricted references of FNB system used in other universities of learning institutions.
- Only authorized person can apply for the food and beverages.

1.6 Project Significance

- Assist HRM in managing orders from UTP lecturers and staffs by reducing the use of papers in the department
- Ease the approval process through email notification

1.7 Feasibility

For this project, online application is implemented as HR, UTP lecturers and managements have the access to the system at anytime and anyplace. The users can access to the system as long as they are reachable to the internet connection. Besides, the project has the specific and limited users which are HR, UTP lecturers and managements. The applicants will be only UTP lecturers and managements and HR will be the custodian who manages the approval and system maintenance. Furthermore, the time allocation of eight months is quite feasible for the author to understand and execute the software and project development.

CHAPTER 2

LITERATURE REVIEW

2.1 Web-based Application

Ming-te Lu and W.L Yeung regard that Web application development as a type of software development projects. The web based application promotes usability as it encompasses a wide area of research. Janko Jovanovic (2010) defined web applications as dynamic, interactive systems that help businesses perform business critical tasks and that increase and measure their productivity. Thus, the primary role of a Web application is to perform a function that serves the user's tasks and according to defined business rules.

Web applications require a higher level of involvement and knowledge of the system on the part of the user. They don't just stumble upon the application, do their work and bounce off. They use it as a tool to perform critical business tasks in their daily work (Janko Jovanovic, 2010).

The power of web-based application is that, it is easy accessible regardless time and place, as long as there is an internet connection. This is much helped in this project because the manager and user can always access the system and the work flow does not stop. There is still an alternative for the user even they are outside the university.

Figure 3.1 Access anywhere with web-based application

2.2 Automate System

Automate system is widely used nowadays. It is used in order to increase production and improved the technology used by the organization. There are several benefits from the automate system which are low cost, low human effort and better result in the end (Shoshana, 2001). In the implementation of the food and beverages system, the most important aspect which is low cost is covered. No more papers and files are in need instead of a system which is affordable to purchase. The long run advantages will take place. Also, the use of papers is reduced since it requires internet connection only. Besides, the system lessens human efforts because the HR does not need to search through the papers to retrieve any orders back.

Furthermore, with the new system implementation, it will increase the competition in terms of market value (Shoshana, 2001). The university will be referred for the system as in Malaysia, not many university implements this kind of system yet. This is in line with the UTP's vision that is to be 'A Leader in Technology Education and Centre for Creativity and Innovation'

2.3 Green Technology

One of the green technology activities is go paperless. Johnston and Spencer have quoted that technology is not the major obstacle to a paperless; rather it is a resistance to re-engineering business process. Technology seems to driven factor to the process or procedure to be paperless-based. In fact, the use of system in handling works and replacing paper has brought new discovery coming into place (Johnston & Spencer, 2005). For instance, new analysis from the system is retrieved. When combining the data, figures and others, many kinds of analysis can be done.

Also, the use of technology in replacement with paper will have promised savings. It has been estimated that every dollar invested in going paperless will generate a return of as much as $30. Even if that estimate is overblown, the savings still would be considerable (Johnston & Spencer, 2005). Hence, the investment in buying or changing to automated system is worthwhile. The use of papers will have the possibilities of added cost if the papers happen to lost or damage.

However, some arguments said that going paperless also will cost a fortune in terms of money, effort, learning and cultural change (Shaw, 2001). The members of organization need to take time to understand the coding or the system. Besides, there is possibility that the organization necessitates to undergo trainings to make the members understand. There is also a risk of system breakdown where the system is not able to access. The user still needs to manually enter the documents (Shaw, 2004).

CHAPTER 3

METHODOLOGY

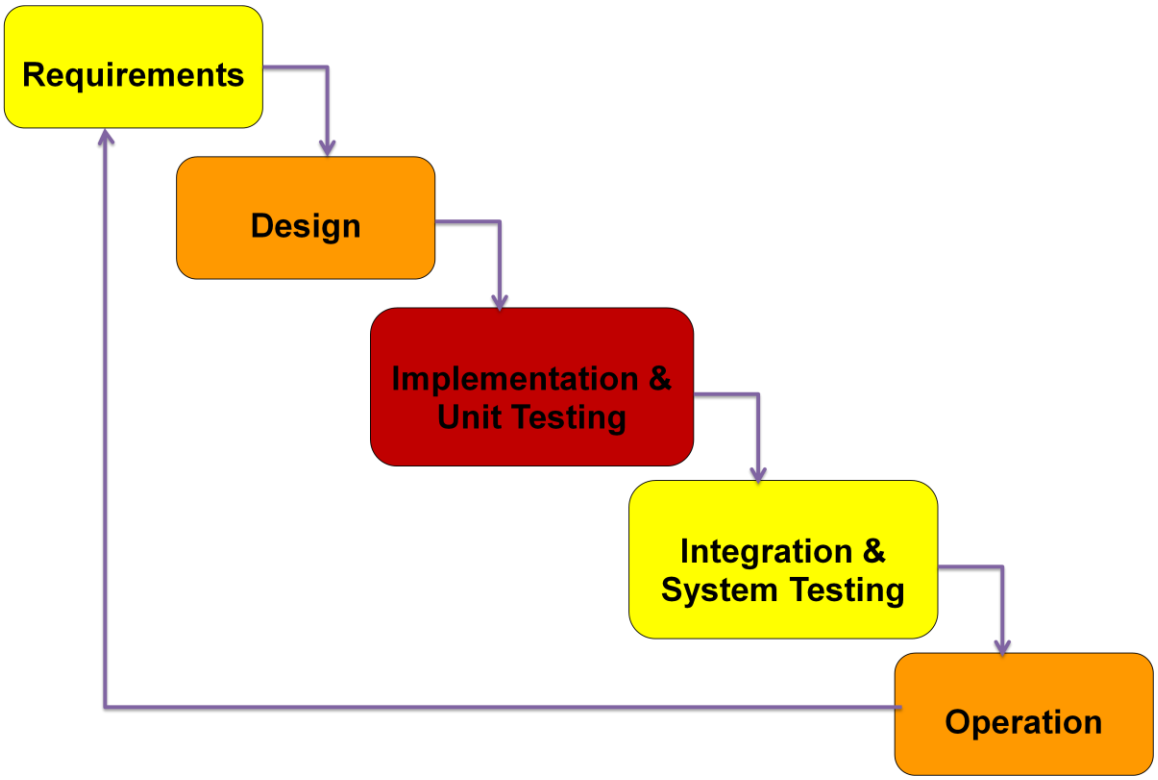


Figure 3.2: Increment Methodology

The methodology chosen for this project is incremental methodology. The phases of the project will be divided into:

1. Planning & Requirements Gathering
2. Analysis
3. Design
4. Implementation
5. Testing
6. Deployment

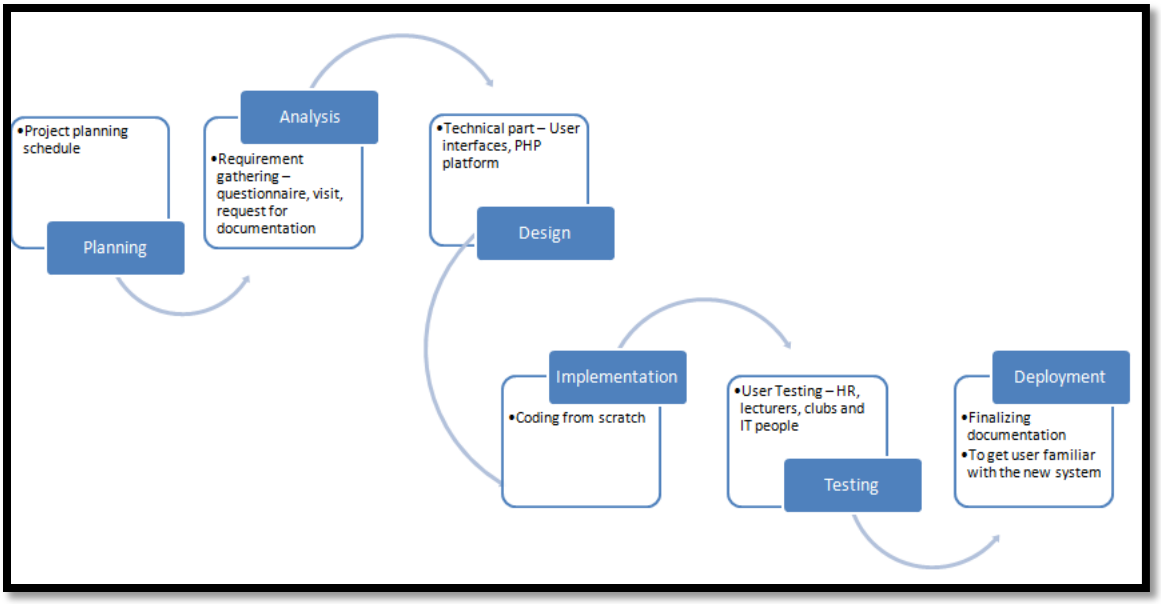


Figure 3.2: Project Development Details

This methodology is chosen because any modification to the application could be easily done, and less risk is incurred to develop the smaller system represented by the increments.

1. **Planning & Requirements Gathering**
    a. The systems business value and fundamental process of understanding why an information system will be build will be identified.
    b. Involve estimating time, cost, quality, change, risk and issues to make sure the project is completed within the budgeted resources.
    c. The planning phase will produce a milestone-driven schedules and detailed project planning schedule for the development and implementation of the system.

2. **System Analysis**
    a. The main purpose for this phase is to gather user requirement so that at the end of project, it will produce a system that meet clients expectation.
    b. This phase will investigate the current available system; identify opportunities and improvement as well as developing a new concept for the systems.
    c. There will be a thorough discussion with HRMA and questionnaire to them on what the department wants to achieve and weaknesses they want to overcome as well.

3. **System Design**
    a. This phase will focus more on the technical part of the system especially on how the system will operate.
    b. System developer will understand and get familiar with the programming language used before getting ready to code the system. For this project, the HRMA does not restrict which language to be used.

4. **Implementation**
    a. The goal for this system is to implement the system correctly, efficiently on the device involved.
    b. The main activity involved in this implementation part is coding from scratch and the most important things is it meets the user requirement as well as to remove critical error found in the program to make sure the program run successfully.

5. **Testing**
    a. This is to make sure that the system produced is error free and in a high quality condition.
    b. The HRMA will be using the system several times before it is released to them

6. **Deployment**
    a. In the deployment phase, it involves finalizing user documentation, finalizing the system set-up and conducting user training to get user familiar with the new system.

3.2 Project Tools

3.2.1 Hardware

Laptop and server.

3.2.2 Software

Software:

- Adobe Dreamweaver C3S
- PhpMyAdmin 3.3.9
- Microsoft SQL Server.

Programming Languange:

- HTML
- XML
- PHP

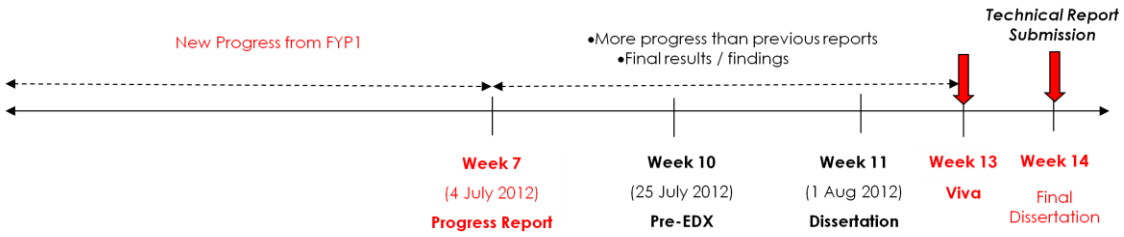


Figure 3.2.1: Fyp 2 Timeline

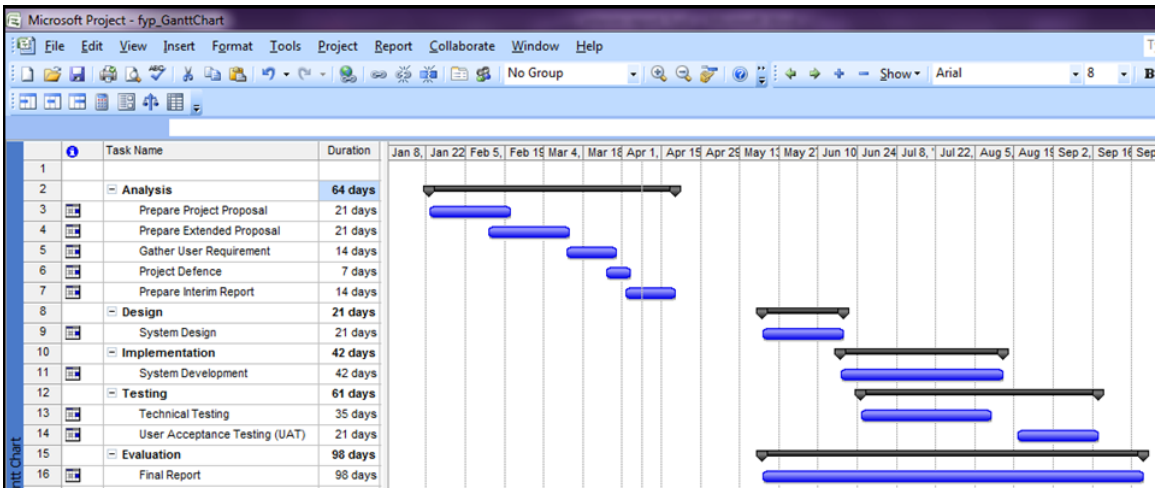


Figure 3.2.2 Gantt chart

CHAPTER 4

RESULT AND DISCUSSION

4.1 Interview

Several interviews have been conducted with the HR custodian of the new system who is Mr. Aminurrasyid during the data collection phase. Generally, the interviews are carried out in order to understand the current workflow of food and beverages ordering as well as the improvement desired from the department. From the interviews, I manage to collect the process flow and also the application form of food and beverages ordering. Apart from that, I have prepares few questions regarding the system:

1. How is the current or existing system works in the department? Is it done manually? What are the problems with the current system?

   The current system is done mnually where the applicants need to fill in forms (papers) and submit it to the HR for approval. The applicants have to wait for the manager to approve the application for certain period of time. If the manager is on leave or outstation, they have to wait until the manager comes back to the office.
   Also, the use of a lot of papers makes the HR staff difficult to retrieve or check again the orders if required. They have to go through a lot of papers that consumes times and energy. This shows that the current workflow or system is not really efficient.

2. What are the weaknesses that the department wants to improve? Time-saving, paperless, quick.

   Time consuming and waste of papers.

3. What are the functions that the department wants to implement through the system? The functions can be for example the list of caterers, selection of time slot (breakfast, lunch etc.), the type of food, the serving style (buffet, packed etc.), date and time, payment term and others.

   The requestors can apply the same as before but this time around they can do it online. They can also get notifications through email whether their application is approved or rejected.

4. Who is the main user of the system? Or who has the access to this system?

   HR, UTP lecturers and managements.

5. Who is the third party involved in this system? E.g. caterers, banks.

   No third party involved.

6. Is there any requirement on the specific software to be used?

   It depends on the developer preference.

4.2 Flowchart

4.2.1 As-Is Flowchart

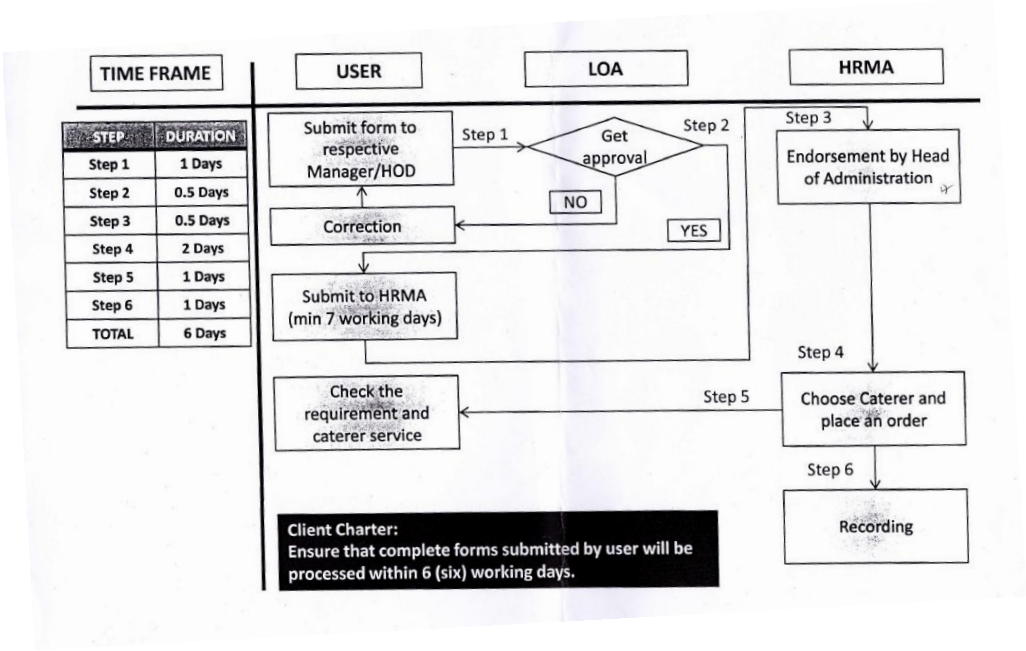


Figure 4.2.1: As-Is flowchart

4.2.2 To-be Flowchart

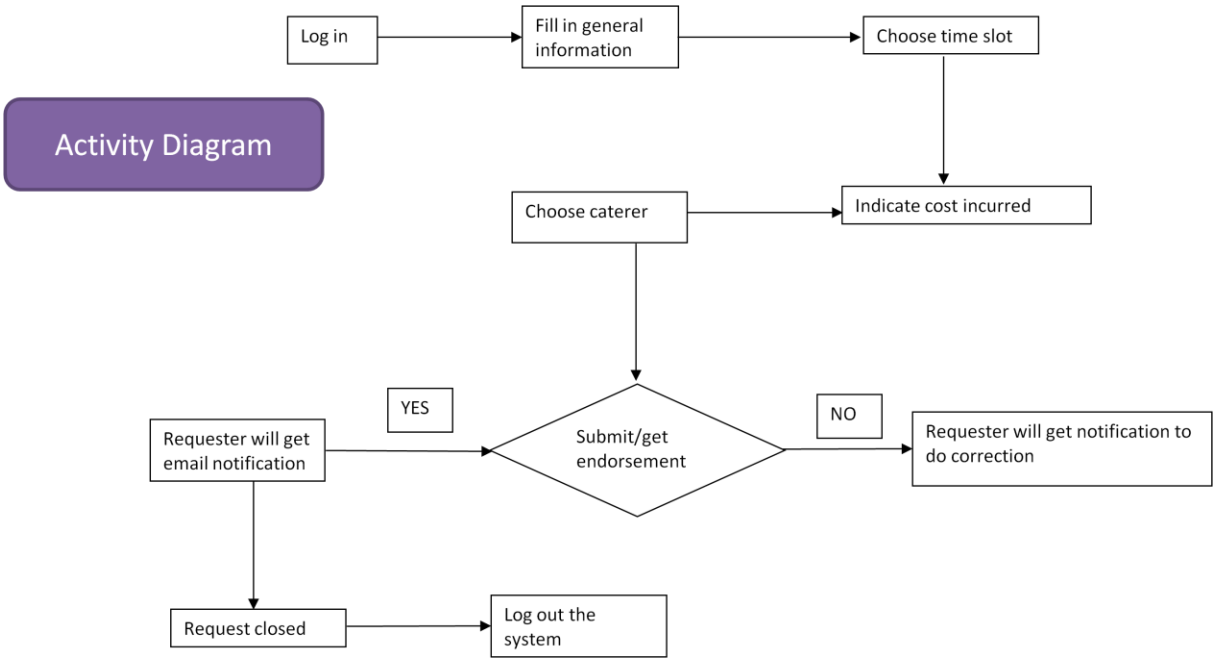


Figure 4.2.2: To-be flowchart

Figure 4.2.1 shows the new proposed flow chart for the system. The requesters need to log in and continue to fill in the required fields such as general information, time slot, cost involves and caterers. After that, the requesters will submit the form to the respective managers and get endorsement from them. Once the approver gets the application through emails, he or she will approve or reject the application. Then, the requesters will be notified whether their application is accepted or rejected. The time is saved a lot since they are communicating through emails and internet, which indicated the unlimited access as long as they are connected with the internet.

4.3 UML Diagram

4.3.1 Use Case Diagram

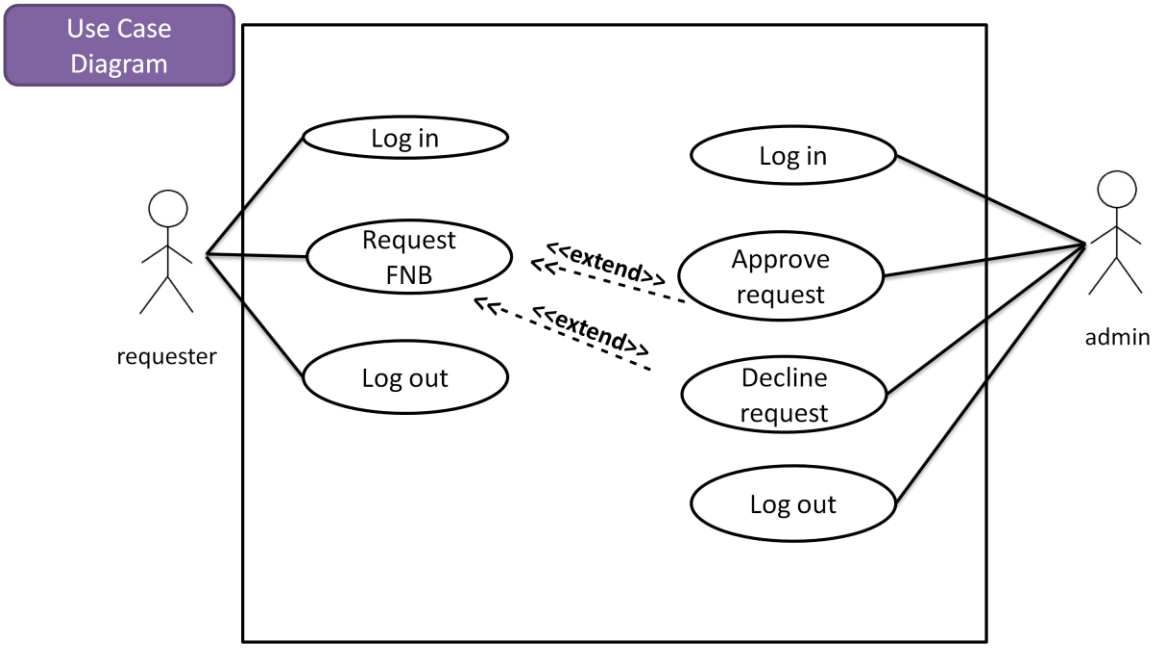


Figure 4.3.1: Use Case Diagram

Figure above shows the use case diagram for the new system. It shows the stakeholders involved and the activities done by them. The first stakeholder is the requester (UTP lecturers and managements). They have access up to three tasks which are log in to the system, apply for food and beverages and lastly log out. The second stakeholder is the admin. He or she can log in, approve request, decline request and lastly log out. The extend signs between the two stakeholders indicates the choice that can be done by the respective managers.

4.3.2 Activity Diagram

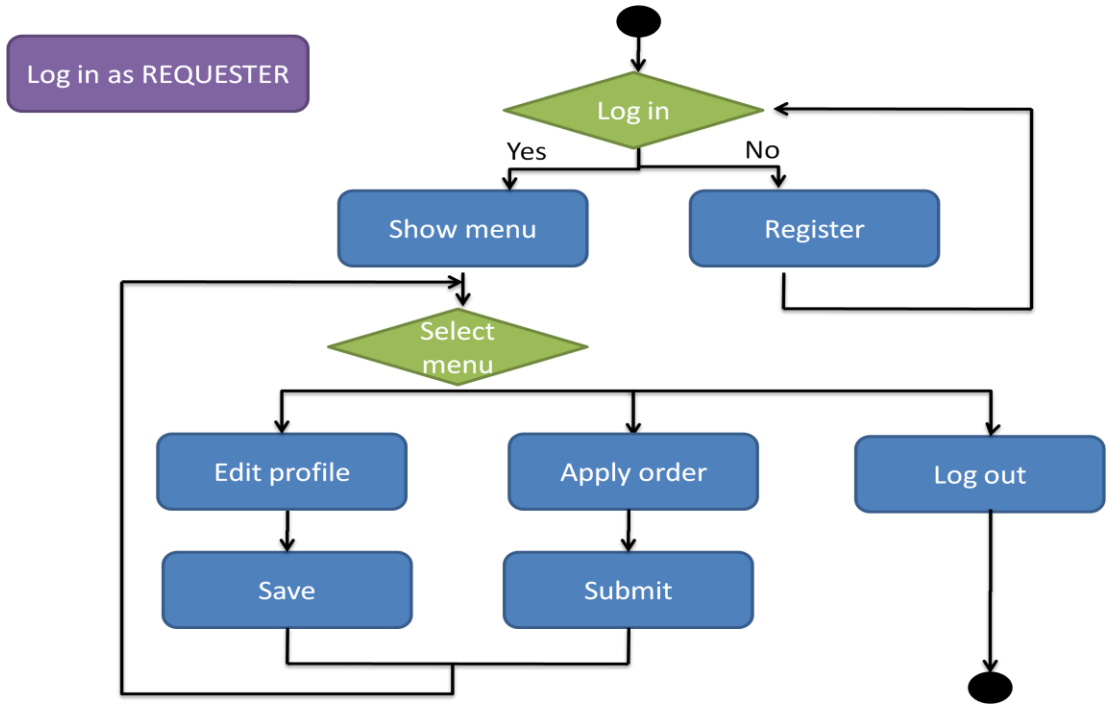


Figure 4.3.2 (1): Activity Diagram for Requester

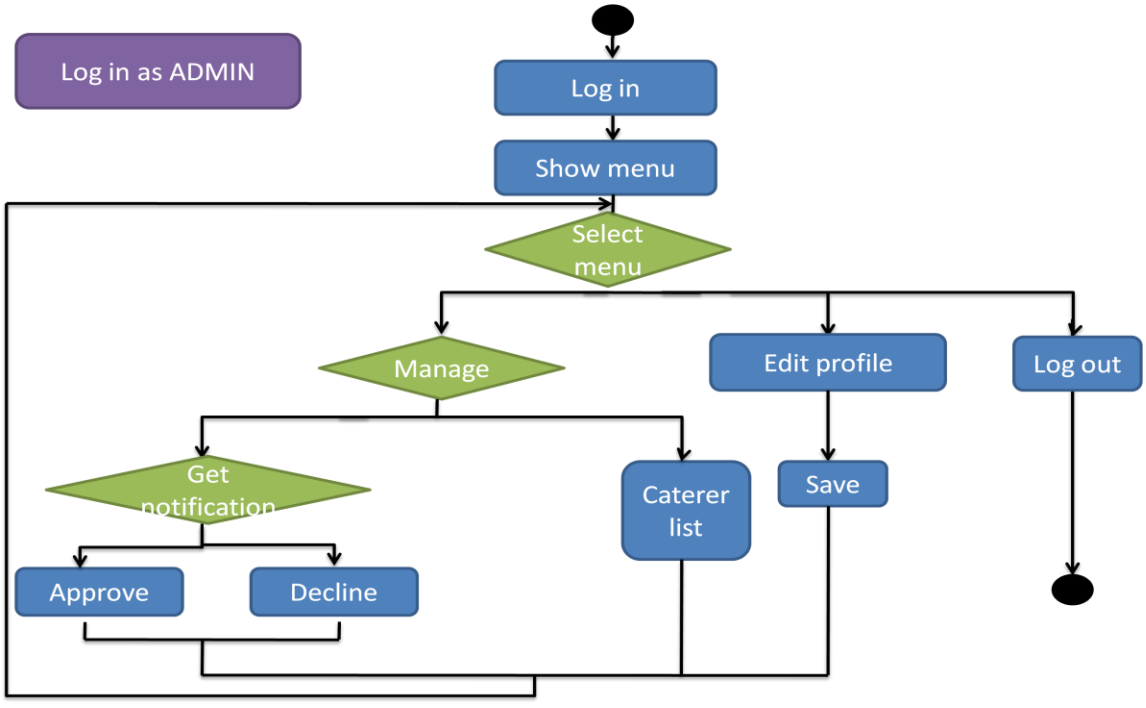


Figure 4.3.2 (2): Activity Diagram for Admin

4.4 System Architecture

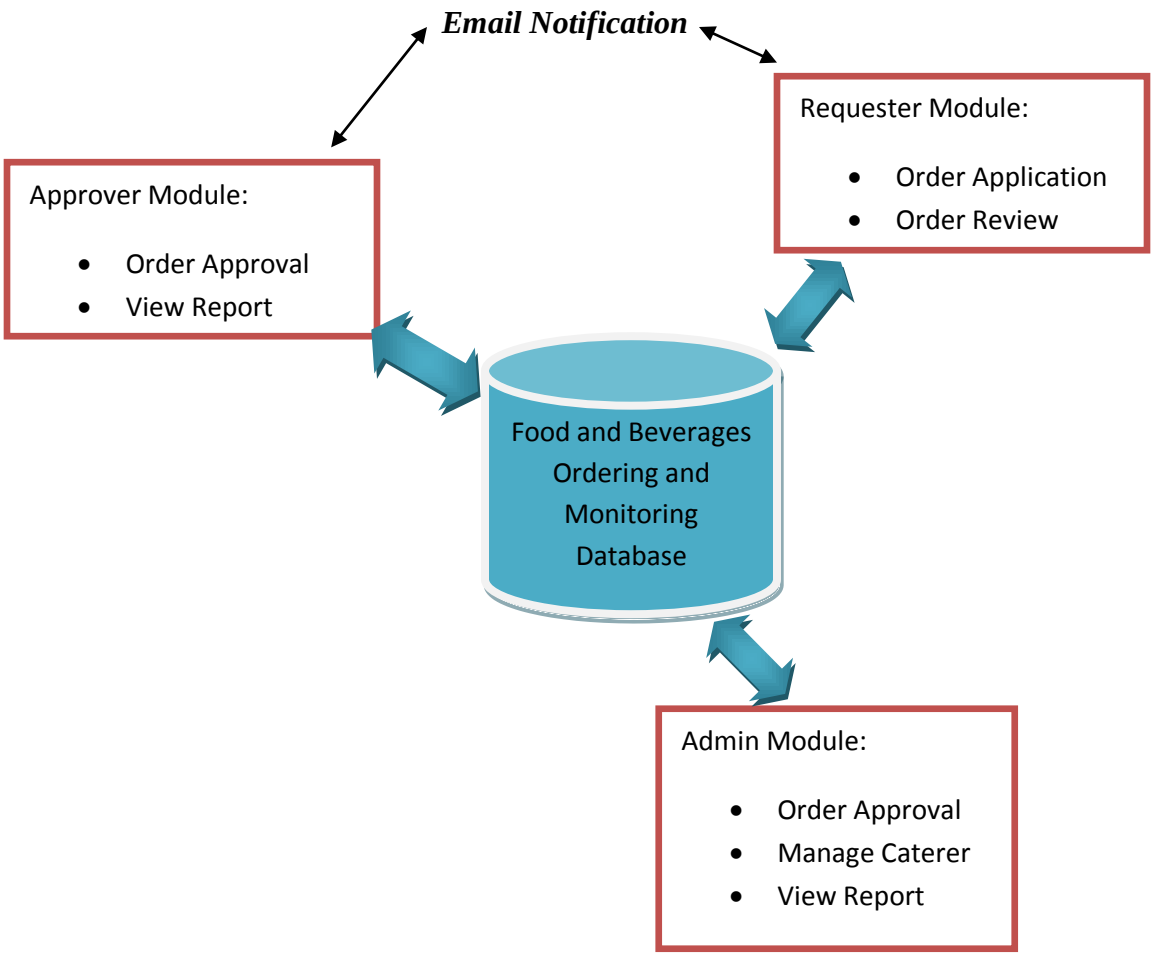


Figure 4.4.1 System architecture

4.5 System Interface

4.5.1 Admin

Figure 4.5.1 (1) Log in admin page

The admin (HRM and approver) will arrive to the first page that require them to log in to the system. The first-timer will have to sign up to enable them to use the system. The sign up or registration is quite simple whereas they need to fill in their details such as name, username, password and others. Once they click on sign up, their records will be saved in the database. Also, they can enter to the system at any time they want, providing there is an internet connection. The home page includes the welcoming notes as well as featured gallery. This gallery is just an album depicting university events and others. Also, there is a department news section where there will be updates form HRM that the user can see or read.

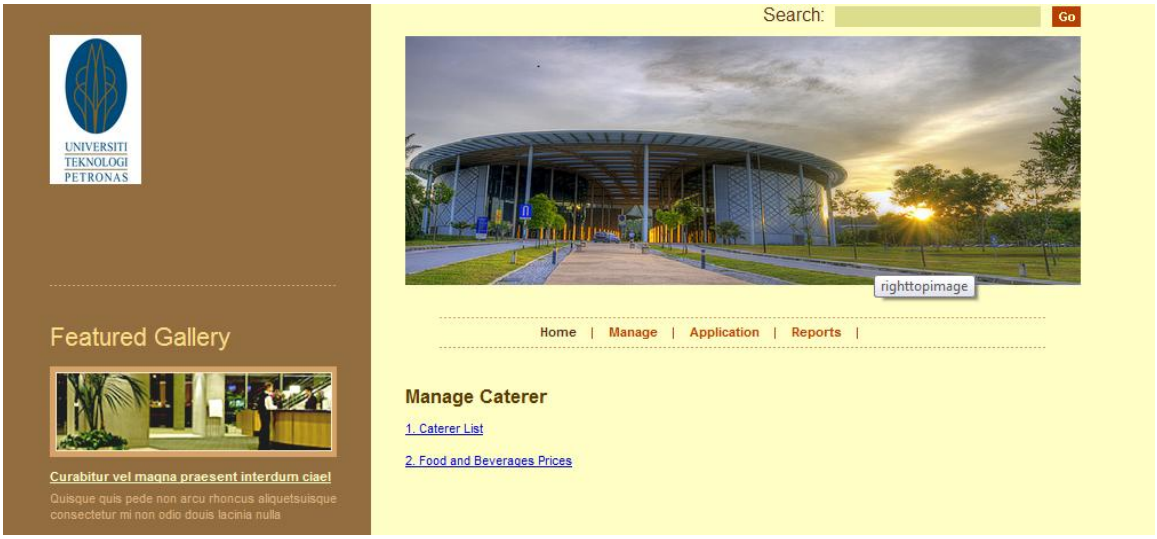


Figure 4.5.1 (2) Manage Caterer

Next, the user will be able to access the system which provides few sections, suchas Manage, Application and Reports. Firstly, the Manage section enable the user to manage the caterer that deals with the university. These caterers are the internal one and the user can see the list of caterer as well as the price of food and beverages available. Any updates or changes will be made by the HRM and the approver can take note. This is to ensure the budge or amount requested is reasonable and accurate.

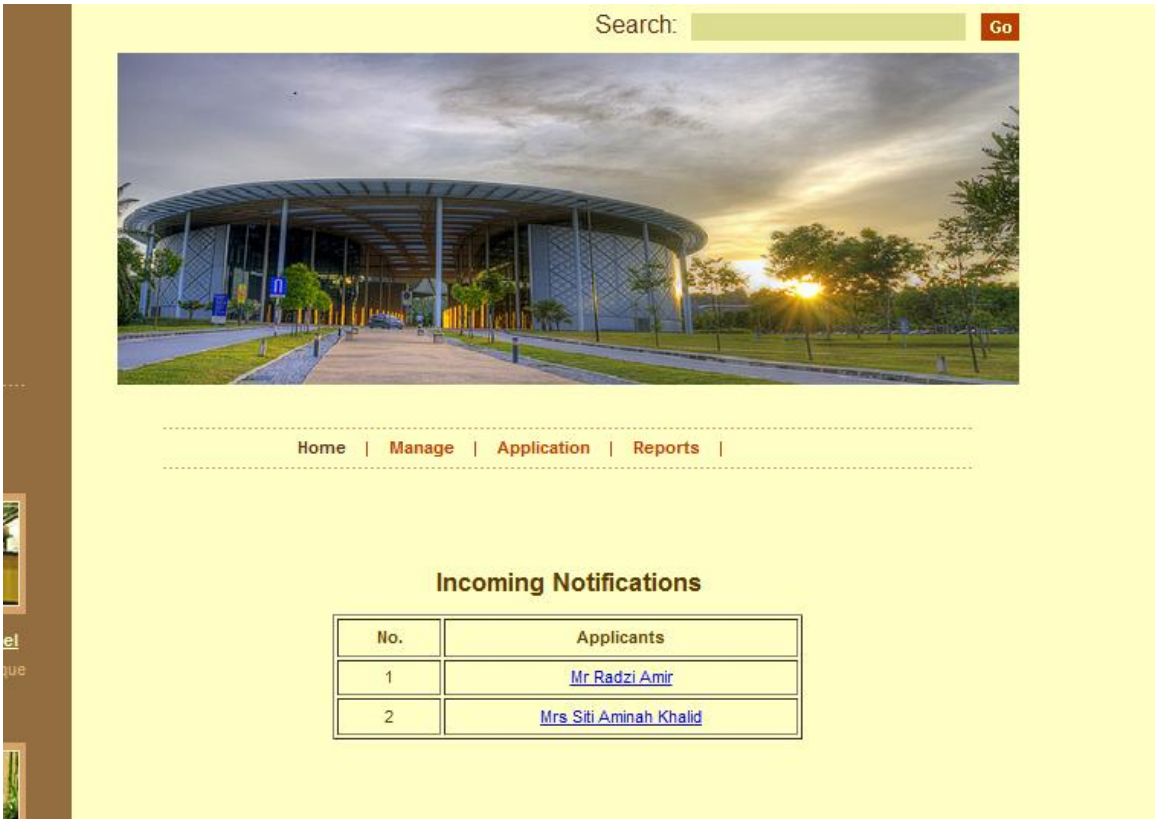


Figure 4.5.1 (3) Order Application

Then, the section where the manager can approve the application lies under Application section. There will be a list of applicants that do order application and the manager can click on the name to view the order. In this page, the manager will approve or reject the order application. After that, the applicants will be notified through email. Also, the can view updates through Review Order section (requester page).

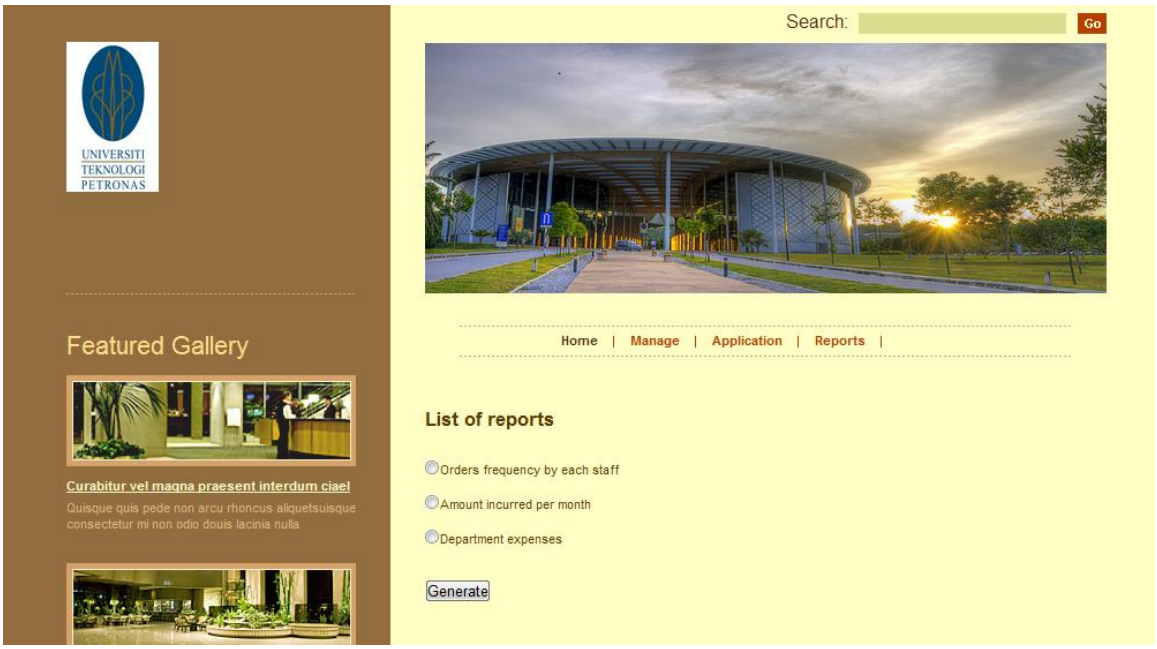


Figure 4.5.1 (4) Reports

Finally, the admin can view few reports they desired. This report section is still in development. Examples of report that will be available is the amount incurred for each department, order frequency per staff and others.

4.5.2 Requester

The requester will come to same first page as the admin which is the log in page. The procedure is the same where the first-timer will have to sign up and register. Then only they can use or enter to the system.

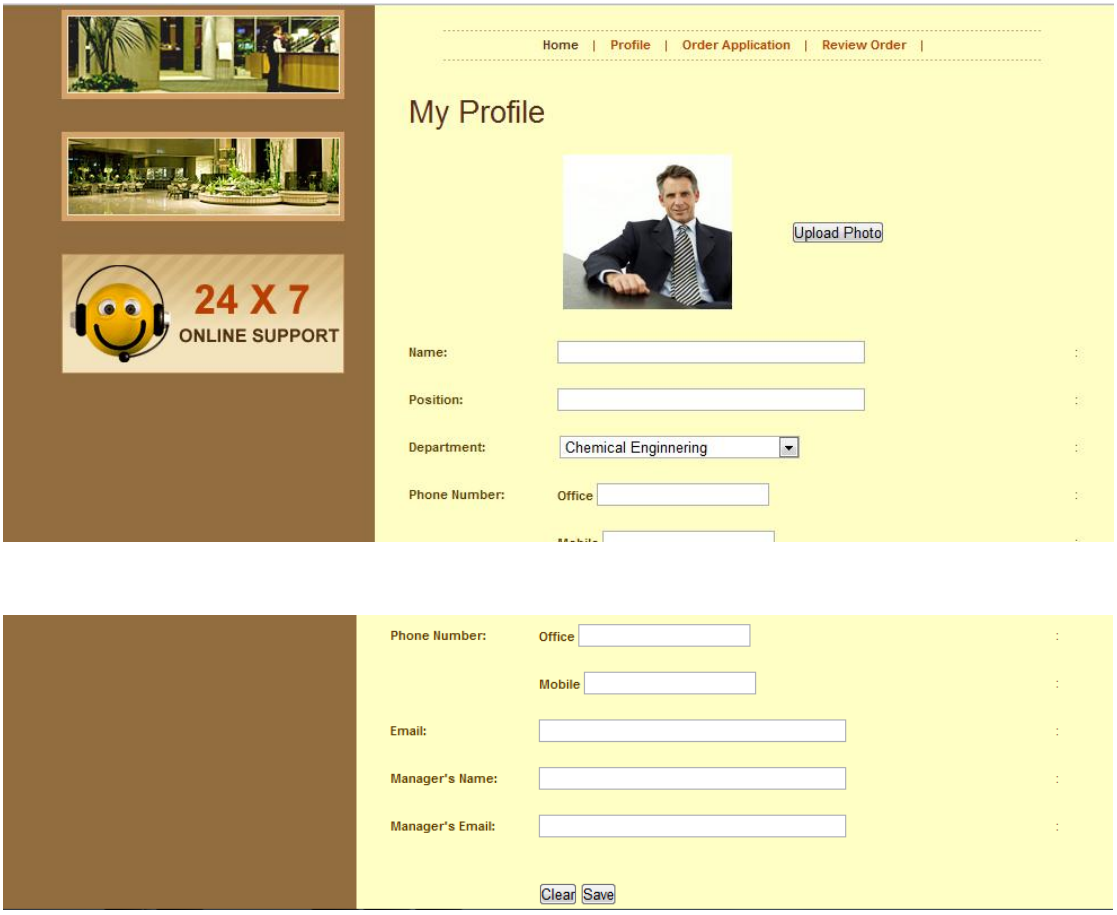


Figure 4.5.2 (1) Edit user profile

To begin with, the requester can update their profile page. This information will be saved as a reference of user information (departmant, phone number, email etc.) and also in the reports. Few reports generated require the user information. Besides, the user can upload ther photo as well.

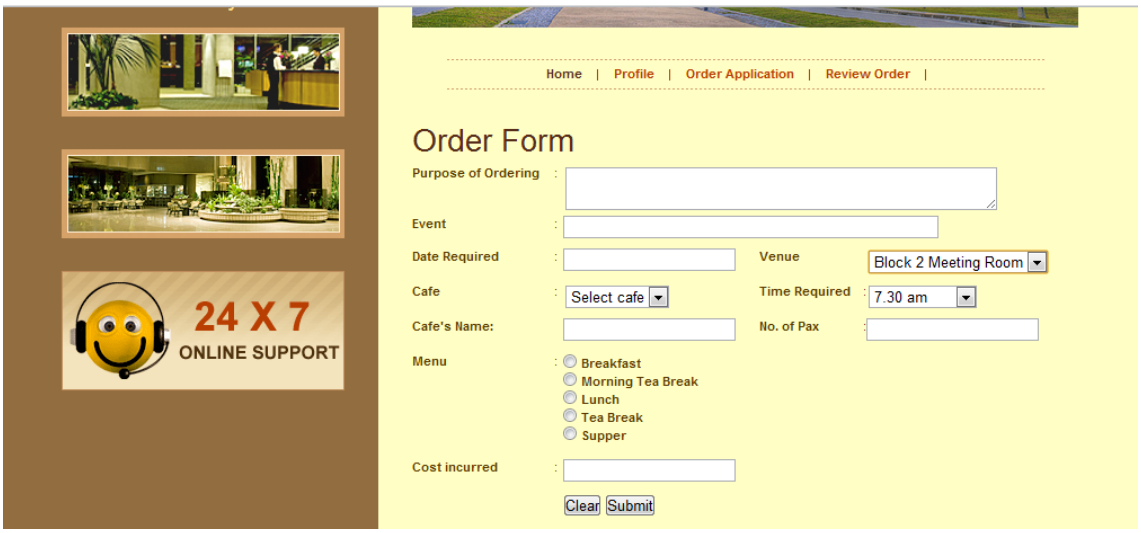
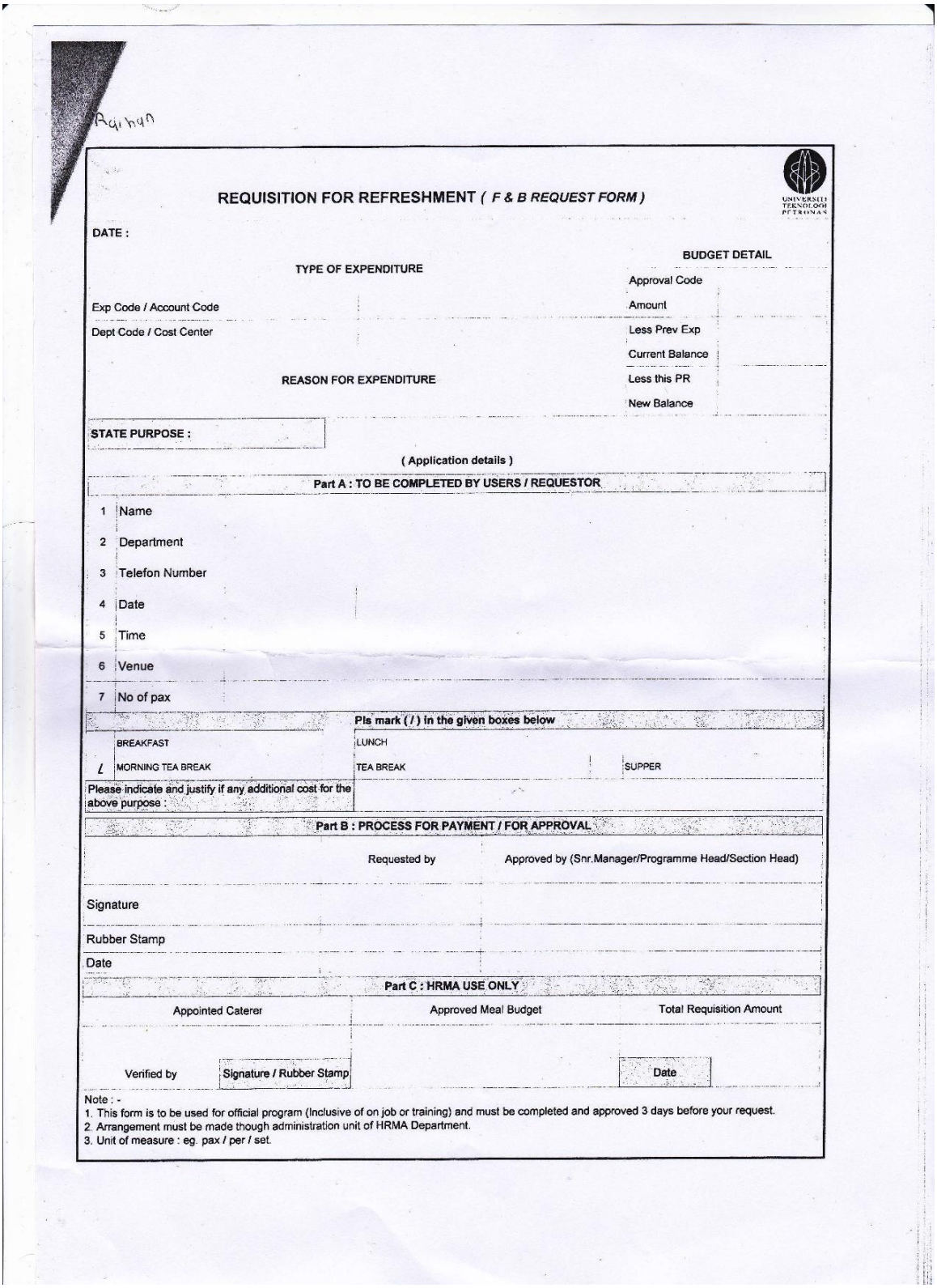


Figure 4.5.2 (2) Order form

Next, the user can fill in the order application for food and beverages. They must fill in the details of order such as personal details, purpose, amount incurred, number of pax and others. The order details will be saved and the admin can view as well as it is in the database. Once the user submit the application, the admin will get notified and they can proceed the process.



REQUISITION FOR REFRESHMENT (F & B REQUEST FORM)

DATE :

TYPE OF EXPENDITURE		BUDGET DETAIL	
		Approval Code	
Exp Code / Account Code		Amount	
Dept Code / Cost Center		Less Prev Exp	
		Current Balance	
REASON FOR EXPENDITURE		Less this PR	
		New Balance	

STATE PURPOSE :

(Application details)

Part A : TO BE COMPLETED BY USERS / REQUESTOR

1	Name			
2	Department			
3	Telefon Number			
4	Date			
5	Time			
6	Venue			
7	No of pax			
		Pls mark (/) in the given boxes below		
	BREAKFAST	LUNCH		
/	MORNING TEA BREAK	TEA BREAK	SUPPER	
Please indicate and justify if any additional cost for the above purpose :				

Part B : PROCESS FOR PAYMENT / FOR APPROVAL

	Requested by	Approved by (Snr.Manager/Programme Head/Section Head)
Signature		
Rubber Stamp		
Date		

Part C : HRMA USE ONLY

Appointed Caterer	Approved Meal Budget	Total Requisition Amount

Verified by | Signature / Rubber Stamp | Date

Note : -
1. This form is to be used for official program (Inclusive of on job or training) and must be completed and approved 3 days before your request.
2. Arrangement must be made though administration unit of HRMA Department.
3. Unit of measure : eg. pax / per / set.

Figure 4.5.2 (3) Original order form

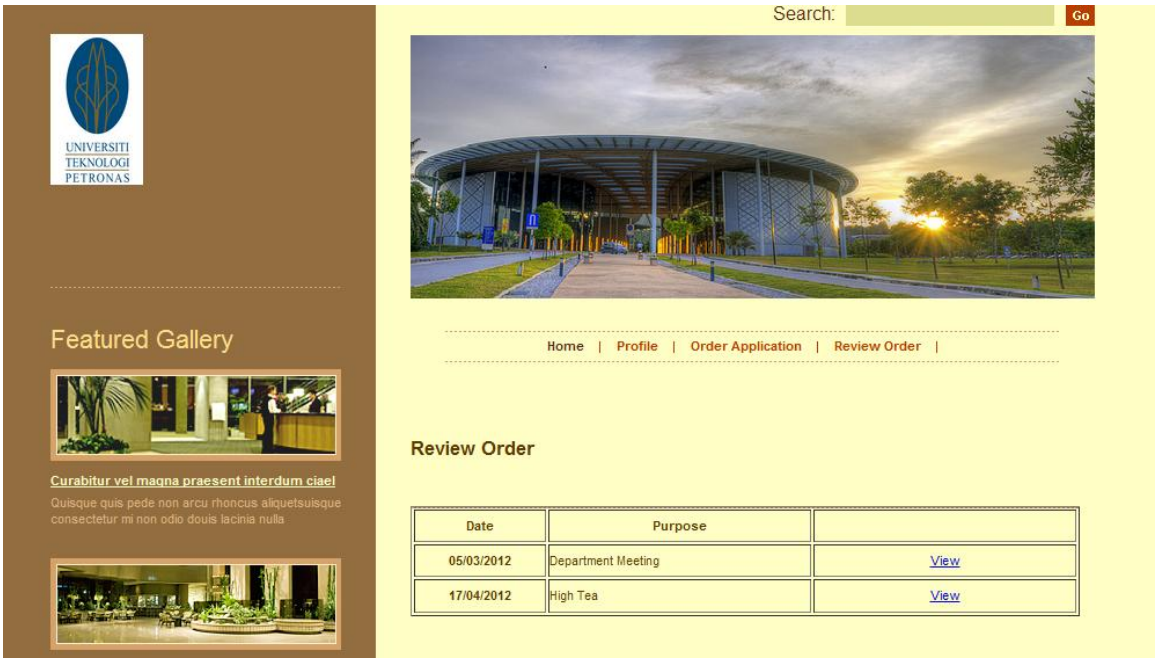


Figure 4.5.2 (4) Review order

Furthermore, the user can view their order history form the website. There will be a list f orders that they have made and they can view them too. Also, they can see the updates of their application, whether it has been approved, rejected or pending.

4.6 Email Notification (future enhancement)

Email notification will be involved when the requester submit the order form. The email notification will reach to the approver so that they can aware of new order coming in.

Dear Sir/Madam,

Please be informed that there is a new update regarding the order application from the applicants. Please come and visit https://www.fnbutp.com.my/

Thank you

Regards,

HRMA

Universiti Teknologi Petronas

Also, the applicants will get email once the manager approves or rejected their application.

Dear Sir/Madam,

Please be informed that there is a new update regarding the order application from the manager. Please come and visit https://www.fnbutp.com.my/

Thank you

Regards,

HRMA

Universiti Teknologi Petronas

CHAPTER 5

CONCLUSION AND RECOMMENDATION

- In conclusion, the author expects the project can improve and ease the existing food and beverages workflow for the UTP community especially the lecturers and managements. The author believes the project can be delivered within the time interval with satisfied quality as well as meeting the project objectives. The project is not meant to help the HRMA in improving time efficiency, but the UTP community as well in promoting green computing and also the efficient working culture. The author expects further enhancement of the project in the future since it is the first time for the department to make the workflow online. The system can be elaborated more and added with new and useful functions. The user and the system developer also must work closely to produce a good working system.

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APPENDICES