Small and Medium Enterprises One Stop Center

By

Nurul Hawa Shafiq bt Badroll Hisham

Dissertation submitted in partial fulfilment of
the requirement for the
Bachelor of Technology (Hons)
(Business Information System)

JULY 2009

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CERTIFICATION OF APPROVAL

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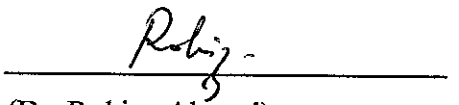
Approved by,



(Dr. Rohiza Ahmad)

UNIVERSITI TEKNOLOGI PETRONAS

TRONOH, PERAK

JULY 2009

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.

(Nurul Hawa Shafiq bt Badroll Hisham)

ABSTRACT

Small and Medium Enterprises mostly are sole proprietorships and partnerships and one of the sectors in generating economy of Malaysia. Nowadays, with vast development of technology, internet marketing is a big demand. People check for emails and browse the internet everyday. This is an opportunity to use technology to equip people with the correct information and do some marketing at the same time.

Overall, this project is a web based project targeting user from the SME sector. The website developed will be a stop center where user can buy products, get information about products, update on SME exhibitions and view directory of SME companies. Due to the diversity of SME products and services, handled by the website, the concept of personalization will be implemented to tailor highly relevant products according to individuals.

In the implementation phase, Parallel Approach is applied. Technical diagrams which are developed along the project are discussed in 'Result and Discussions' chapter. Adobe Photoshop and Macromedia Dreamweaver are some of the software that being use in completing this project. At initial stage, this project will collaborate with all4offer.Sdn.Bhd in data sharing of SME companies. All aspects in realizing the project are discussed and explained thoroughly in later chapters of this report.

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CHAPTER 1
INTRODUCTION

1.1 PROJECT WORK BACKGROUND

Small and Medium Enterprises (SME) are businesses which are small scaled in size and usually operating in rural areas. www.smeinfo.com.my [1] grouped SME into 3 categories; micro, small or medium. These groupings are decided based on either the number of people a business employs (less than 50 employees) or on the total sales revenue generated by a business in a year (less than RM 5 Million). In SME industry, the business includes food, medicine, manufacturing, machinery, fishery etc. Competing in the world of globalization, some of the SMEs have their initiative to promote their product online. Thus, many individual websites emerge.

This project, entitled SME One Stop Center, is a php-based project that is to gather and monitor information of Small and Medium Enterprises industry. Various users are targeted for the system, i.e; government, business entities and individuals. Solid information is demanded in achieving goals of the users. Since different types of users might demand different types of information and products from the website, the personalization concept will be explored here so that the information displayed on the web can best matched the users' interests. The features include are personalized product catalogue, exhibition management and viewing as well as user-friendly directory of SMEs.

1.2 PROBLEM STATEMENT

There is currently no one stop center with personalized content existed for SME in Malaysia. Hence it is difficult for user to find information. Current practice of a user or person, who demanded for the SME information, is by searching and gathers information by browsing through hundreds or thousands of websites, conferences and exhibitions. It is a time consuming process. And usually people prefer to see contents displayed according to their interests. With the system, event managers, exhibitors and interested people can browse through it to register or to know when

and where the exhibitions will be held, and user can find product that meet his preferences with ease. One of the advantages of having quality resources of information is decision makers can evaluate and make more accurate decisions.

1.3 OBJECTIVES

Due to the limited online center for SME related information in Malaysia, this project is therefore aimed:

- To develop a web-based system that gathers and monitors information regarding the SME industry. This information includes tracking, monitoring and promoting of SME exhibitions around Malaysia as well as selling products produced by some SMEs.
- To personalize the product catalogue presented on the website so that only highly relevant information will be presented to the user.

1.4 SCOPE OF STUDY

Technically, the website is divided into 3 main functions; promoting products, monitoring the SME exhibitions around Malaysia and directory listing of Malaysian's SMEs. Personalization concept will be applied during product listing.

Targeted users for this project are businesses entities, event organizers and individuals. Hence, a real user from the SMEs has been approached to collaborate in designing the website. All4offer Sdn. Bhd., the SME, has agreed to give some information and contact details about the SMEs that they have. However, due to confidentiality of some information, the information given is rather limited and only enough for realizing this project.

Usually in e-commerce related website, there are several components which must be implemented such as member sign in form, registration form, payment method, directory, shopping cart, etc. However, due to time and resource constraints, shopping cart and payment method is apart from the project.

CHAPTER 2
LITERATURE REVIEW

2.1 PERSONALIZATION CONCEPT

Personalization concept can make internet browsing easier for users. Gmail [2] by Google is one of the examples that applies personalization technology. The advertisements around the e-mail are based on user's browsing history. As stated by Hart [3], "e-commerce sites that utilize personalization technology are more effective in drawing new visitors, converting visitors into buyers, increasing revenue and improving customer retention and brand loyalty than those sites that do not offer personalization". The idea behind personalization is to give right information to the right user. With personalization, user only sees something that meets his or her interest.

Futhermore, according to Hart [3], "personalization is performed by the system itself, based on the aggregate history of previous interaction with that user, or on the profiles like minded-users". Personalization interacts directly with the users. Web pages are personalized based on the interests of an individual. With personalization, the website will help the individual customers find the products that they prefer to purchase.

Guo, Lu and Simoff [4] classified the existing personalization techniques into the following categories:

1. Profile-based Personalization

   In order to be able to purchase or receive advanced services from most websites, users are required to register and enter personal information (user profiles) such as gender, age, interests, etc. Websites store this information in a database on the web server. Websites also use user profiles for personalized services. For example, using a user's postal code, a website can predict the user's economic profile, and hence, provide and reorganize access according to this profile.

2. Link Personalization

This strategy involves selecting the links that are more relevant to the user, changing the original navigation space by reducing or improving the relationships between web pages. E-commerce applications use link personalization to recommend items based on the clients buying history or some categorization of clients based on ratings and opinions. Users who give similar ratings to similar objects are presumed to have similar tastes, so when a user seeks recommendations about products, the web site suggests the most popular or best correlated products for that class.

3. Content Personalization

Content is personalized when web pages present different information to different users. The difference with link customization is subtle since when links are personalized, part of the contents (the link anchors) present different information.

4. Structure Personalization

Structure personalization usually appears in those sites that filter the information that is relevant for the user, showing only sections and details in which the user may be interested. The user may explicitly indicate his preferences, or it may be inferred (semi) automatically from his profile or from his navigation activity.

Hart [3] mentioned that there are 4 phases of personalization which are: data collection, data preprocessing, data analysis and personalization publishing. Data collected is classified as implicit and explicit. Explicit data is mostly static and collected from registration forms and questionnaire. Users may submit false data due to privacy concerns. Implicit data is primarily collected in web servers, web browsers, proxy servers or obtained from corporate databases. Implicit data can also come from cookies.

2.2 E-COMMERCE BUSINESS MODELS CHANGES

The meaning of business models can be described as a doing of framework for creating economic, social and other business involvement values [5]. In the most basic sense, a business model is one method of doing business by which a company can sustain itself by generating their business revenue. The business model spells-out how a company makes money by specifying where it is positioned in the value chain.

Today's e-commerce is driven by a wider availability of tools and realistic business strategies and models. Besides, technologists, businesses, entrepreneurs, governments and academics have all invested time, money and other resources to test the boundaries of what is possible in e-commerce. Fortunately, these investments have been worthwhile, resulting in a better technological infrastructure to support the growth of e-commerce.

Business models have been defined and categorized in many different ways. Example of business models are online direct marketing, auction, group purchasing, electronic marketplaces and exchanges, and many more. Internet business models continue to evolve and more are expected in the future.

According to Wood [6], the old principles of business models are no longer work in the new economy. Businesses have reached the old model's limits with respect to complexity and speed. The real problem is a mismatch between today's business environment and the classic business model. In other words, the wrong model may transform a company into the vehicle of its own death. Ten years ago the numbers of online users are not as many as today. Firms were experimenting with how money could be made online. Unlike today, there are many methods of payment like credit card and online banking.

E-commerce was seen as an easy market to enter. Many entrepreneurs embraced the opportunity and the number of online companies also increased. Firms are benefited from e-commerce, both revenue and business processes. An example of this is General Electric. As mentioned in [7], General Electric saved their money by buying up to $1 billion worth of goods from its suppliers online. Although there are signs of a great deal of money being made online, not all firms enjoy the success like General Electric.

Online banking has been recognized by consumers as a convenient type of services in doing transactions such as bill payment, goods purchasing, etc. This indicates that technologies and business models have matured enough to provide the security required for banks and their customers to trade online and leading to greater confidence in e-commerce world.

The latest model of social networking websites has become a staple in the Internet landscape as it allows people to put their lives online. A person's profile becomes a representation of who they are in the offline world. The evolution of social networking is kick-starting a broad global shift to how people, content and culture interact on the web. In Facebook, users can connect to friends, updating events and even sell stuff.

The advancement of innovation had merged offline and online markets in which the new business model integrates all selling channels combining traditional shops, printed catalogues, home-shopping channel on TV, a phone-in order service and an e-commerce-enabled website. For Internet users in general, search engines have revolutionized the way they use the Internet; they have become entry to the Internet. The search engine market has also developed one of the most effective forms of advertising on the Internet, and it is already one of the most effective ways to reach consumers.

Electronic commerce is more than just another way of sustaining or enhancing existing business practices. The growth in Internet based businesses has triggered the need to better understand the characteristics of special business models adopted by successful organizations. Business models however seem to play an important role in success and failure of Internet based companies. The reason many firms failed during the dot com bust is primarily due to the rash, impractical business models that they employed. However, failures and successes in the early days of e-commerce are the reference for success in future.

2.3 HTTP COOKIE

HTTP cookies [8] are known as tracking cookies, or just cookies. Cookies are parcels of text sent by a server to a Web client (usually a browser) and then sent back unchanged by the client each time it accesses that server. Cookies attempt to keep track of visits by the same customers in order to build user profiles [3]. Cookies collect information about pages and advertisements seen or any other activity during browsing. HTTP cookies are used for authenticating, session tracking and maintaining specific information about users such as site preferences or the contents of their electronic shopping cart [8].

Technically, cookies are arbitrary pieces of data chosen by the Web server and sent to the browser. The browser return them unchanged to the server, introducing a state a state (memory of previous events) into otherwise stateless HTTP transactions. Different website can share tracking cookies and each website with the same tracking cookie can read the information and write new information into it [8].

HTTP cookies are used by Web servers to differentiate users and to maintain data related to the user during navigation, possibly across multiple visits. HTTP cookies were introduced to implement a shopping cart. However, study by Hart [3] found the effectiveness is limited as user may be disable the use of cookies on their web browsers, might access the Internet from public computers or even delete cookies from their computers. Disabling cookies can be a liability at times. Several misconceptions about cookies are cookies like worm and viruses in that they can erase data from users' hard disk, cookies generate popups, and they are used for spamming and advertising (i)[8]. As stated in www.wikipedia.org, cookies are only data and not program code. They cannot erase, or read information from the users' computer. Session cookies are being use in the implementation of this project in getting the user data such as username and password in order to display the other related data and information appropriately.

2.4 CREATING AN EFFECTIVE WEBSITE

In e-commerce, creation of effective website is a must. Hence, there are many guidelines to produce such websites. According to Phillips (i)[9], "It must look professional and represent the image of the firm. It should be colorful, with excellent design features and plenty of white spaces".

Phillips added, "The navigation should be easy and fast with friendly search-engine. Website picked up quickly and often by various search engines". Melur.com (i)[10] is a knowledge sharing website for herbs in Malaysia. There are plenty of herbs available in their directory. Test done at Google search engine, and pages about herbs from Melur.com were retrieved more often.

According to a website designer, deGeyter (i)[11], site's main navigation elements is important. He said, "When performing a site architectural review, one of the first things I look at is the site's main navigation elements. This includes top, side and footer navigation. Together, they all play an important role in both the ability of the search engines to properly spider your website, as well as allowing your visitors to find important areas and information quickly and efficiently". He added that top navigation should always display the company's logo and tagline clearly. Threadless.com [12] is an e-commerce website selling t-shirt and t-shirt design. They specialize in t-shirt design for adults and kids. From the observation, it has easy, simple with fast navigation. The website presents it products in easy to read way. User just needs to click at the product image and the details about the product which are about the t-shirt and design will appear.

Another attractive SME website observed was Phytoshoppe.com.my(i)[13]. The website sells health and beauty products. At first sight, the top navigator shows the company's name and tagline. Please refer to Figure 1 for the screenshot. Cited from deGeyter [11], "The header is a good place to put other important links and information. Things such as a link to the shopping basket, site search and contact information are commonly found near the top of the page. Placing this information where typical visitors expect to find them makes it easier for them to navigate through your site finding what they need more quickly". By referring to Figure 2.1, Phytoshoppe can be an example of deGeyter's opinion.

Figure 2.1: Phytoshoppe Home Page

deGeyter also elaborate more on side navigation technique. Since primary navigation usually located at the top or side of the page and link to the most important sections and pages, categorization is pretty important. deGeyter recommends drop down and fly out lists in providing additional sub links. Another navigation technique recommended by deGeyter is the footer. The footer is a great place to provide additional links that might be relevant to visitors once they hit the bottom of the page. Links frequently found in the footer are policy pages, shipping info, sitemaps and another link to the home page.

CHAPTER 3
METHODOLOGY

3.1 DEVELOPMENT METHODOLOGY

Parallel development as illustrates in appendix 1 was chosen as the development methodology. Instead of doing design and implementation in sequence, a general design for the whole system is performed before the project is divided into a series of distinct subprojects and implemented in parallel. Once all subprojects are completed, there is a final integration of the separate pieces [15]. For this project, once planning, analysis and design have been completed, the implementations of each module of the project were carried in parallel. After all modules have been developed according to specifications, they were integrated into a complete system.

This project is applying various tools. The editor for this project is Macromedia Dreamweaver and mySQL as the database. Microsoft Visio is the main tool in creating technical diagram such as Use Case, Flow Chart, etc. Xampp as the server and Adobe Photoshop CS2 as the main tool in handling pictures, graphics, creating buttons and layout of the website. In addition, the system is run on Windows platform and Internet Explorer as the browser.

By referring to the Gantt chart in appendix 2, the key milestones are for Final Year Project 1 (FYP1) and Final Year Project 2 (FYP2). During FYP 1, the phases were more into planning, analysis and design. Data are collected during this time. The implementation phase started during semester break. Implementation phase are divided into 3 parts which are develop the website, error checking and website touch up. All the processes end at week 9.

CHAPTER 4
RESULTS AND DISCUSSIONS

The results of this poject will be discussed in four parts. The first part is on initial data gathering results. The second part is on the project framework and the third part is on product development. Product development will touch upon interfaces of the system as well as the personalization concept which is the research element of the project. Lastly the results of some user testings are also included in the fourth part.

4.1 DATA GATHERING – INTERVIEWS

During data gathering stage, several interviews have been conducted which involved 20 randomly selected UTP students during March 2009. The purpose of the interview was to measure awareness of personalized website among regular internet users. The results from the interviews can be summarized as below:

1. 60% of the respondents do not have any idea about personalization concept but they are aware of personalization concept when an example given.

2. 14 over 20 respondents prefer a website or web pages specialized to their preferences such as sport, health and beauty, finance, and etc.

3. Online shopping and personalized website are related with one another. With personalized website, data is being filtered before it is present to users. Users will see something that they prefer and unwanted information is set aside.

Another interview was conducted with Tuan Haji Badroll Hisham Ahmad, the Managaing Director of All4Offer Sdn. Bhd. All4Offer is a company providing directory of SME to government, and other companies. It was conducted on 29th August 2009 at the All4Offer office at Skudai, Johor. Basically, the purposes of conducting the interview are to inform the company about the intention of developing a web based system targeting SME industry, Knowing All4offer, one of SMEs in Malaysia's business process and to get corporate view about e-commerce website. The results from the interviews can be summarized as follow:

1. All4offer is a local company providing directory of companies so that it becomes resourceful for state and federal government, business association and stakeholders.
2. From his view, e-commerce website should deliver correct information and a very reliable database is a must. Selling product is number two. An e-commerce website should have variety of payment methods.
3. He also shares his experiences dealing with other SMEs. They are not really trust web developer because they just build the website, take the money and go away. Without any maintenance.

4.2 TECHNICAL DIAGRAMS AND THE WEBSITE

In the technical diagrams section, several diagrams will be discussed. The diagrams include use case diagram, activity diagram and entity relationship diagram.

4.2.1 Use Case Diagram

In portraying the basic functions of the system, a use case diagram was developed. Please refer to Appendix 3. In this use case, system functionality that been highlighted are member registration, view product catalogue, view directory and, adding or updating exhibitions information. There are 3 users that can use the website. Anonymous, normal user and event organizer. As for anonymous, the functions that they can use are quite similar like normal registered user except the anonymous cannot register to be an exhibitor and no product catalogue tailored to their interest. While for normal registered user, he can view product catalogue, view directory, get exhibitions information and register as exhibitor. Unlike other type of users, event organizer has extra function they can perform. The functions are the organizer can add, edit, delete or view their exhibitions details.

4.2.2 Activity Diagram

Activity diagram for SME One Stop Center was developed in order to model the behavior of the website business process. The activity diagram is attached at Appendix 4. When user entering the website, he can be either anonymous or logged in user. There are 3 main functions he can choose; view products, get companies details or view exhibitions details. Extra function available for event organizer whereby the organizer can add, edit, delete or view their exhibitions details.

4.2.3 Entity-Relationship Diagram

This website involves database. In order to describe the database, ER diagram is needed. Please refer to appendix 5 for the ERD. There are 8 entities all together; exhibition, person, takepart, product, manufacturer, user_pref, organizer and product_manufac. Table below describes their relationship.

Table 4.1: Relationships of Entities

Entity 1	Entity 2	Relationship	Bridge	Description
Product	Manufacturer	M:N	Prod_Manufac	Manufacturer can manufactured many products
Product	Normal user	M:N	User_Pref	User interested in different types of products.
Normal_user	Exhibition	M:N	Take Part	User interested to join in exhibitions.
Event Organizer	Exhibition	1:M	-	Event organizer organizes exhibitions.

4.3 INTERFACE

4.3.1 Development Phase

Basically, the main functions of SME One Stop Center are product, exhibition and directory. In the index page, there are welcoming notes, recent updates and sign in form. Figure 4.1 is the initial home page for the website but it has been refined and redesigned. Currently, the new home page looks like Figure 4.2 whereby its layout color has been changed to green and yellow. Since this project is for SME industry, batik element is being used as background image of the website.

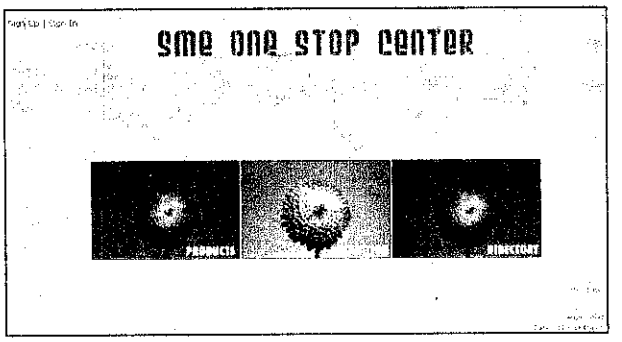

Figure 4.1: Screen shot of index.php (version 1)

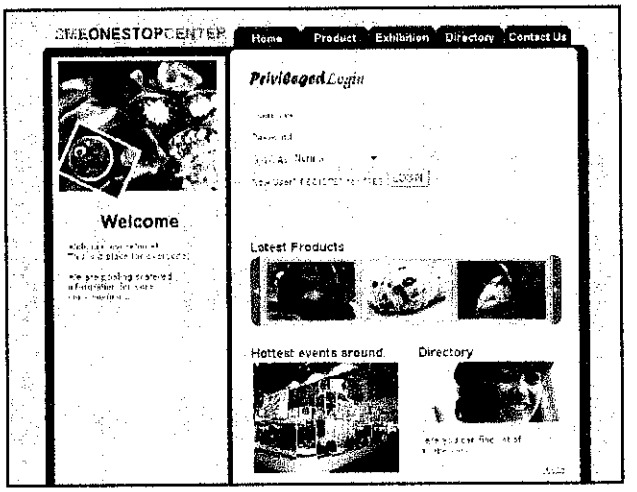

Figure 4.2: Screen shot of index.php (current version)

4.3.1.1 Products

In Product tab, user can either view product list or make purchasing. Personalization concept applies here. When user clicks at 'Product', categories of products will appear. When the user chose any of the categories, the respective product details will appear. Please refer to appendix 6 for the flowchart.

Since there are 3 various types of users can access the website, only logged in user data are personalized. If the user is anonymous or event organizer, random products from all categories will appear. Figure 4.3 shows the catalogue.

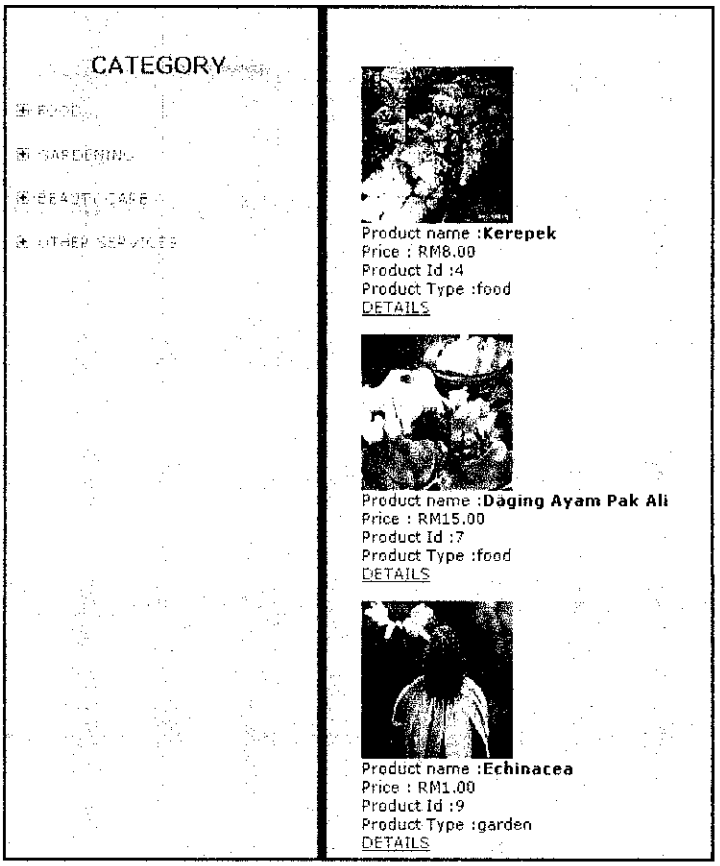

Figure 4.3: Random products from random categories

But if the user is a normal logged in user, the product will display according to the preferences. For example, Mr X loves food and gardening, random products from food and gardening categories. However, if he wanted to browse other product categories, he can simply click at categories at left panel. Figure 4.4 shows an example of Mr X situation.

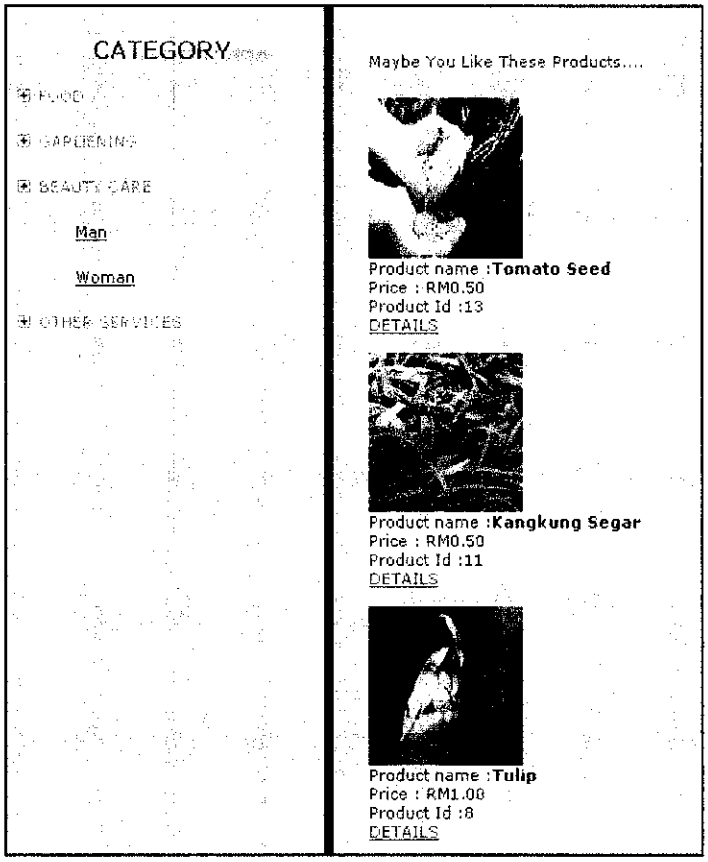

Figure 4.4: Personalized Product Catalogue

Additionally, if the user wants to check the details, just click at the details and product description will appear. In the product description, further information about respective product is available. See Figure 4.5.

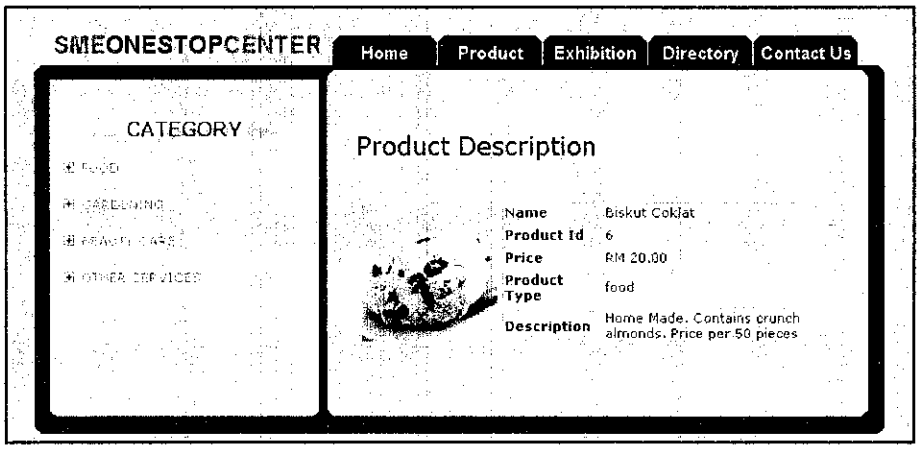

Figure 4.5: Product Description

4.3.1.2 Exhibitions

Appendix 7 describes the exhibition functions in a flow chart form. For exhibition, there are 2 types of user; the event organizers who want to promote and place their events in the website and, businesses or individuals who are interested to take part as exhibitor in available exhibitions. Both types of users can register by filling in a form available in the website and the system itself will link both users. Figure 4.6 is the screenshot of current webpage for Exhibition tab.

Figure 4.6: Screen shot of exhibition.php

As we can see, there is a drop down menu on the left panel. It is useful when the user wants to sort the list according to state. For example when a user clicks on Johor, list of exhibitions around Johor will appear under 'Exhibition list' which is located at the right panel. The data includes; date, venue, title and the organizer.

Another function available in this tab is for Event Organizer. The Event Organizer needs to create an account before they can publish and organize their events information. Figure 4.7 shows the organizer's account. The organizer can add new exhibition, edit or delete previously entered exhibitions. While for Figure 4.8, the Event Organizer can view the exhibition details and the list of people who are interested to join together with their contact number. Back button will direct user to the page in Figure 4.7.

Figure 4.7: An Event Organizer's account

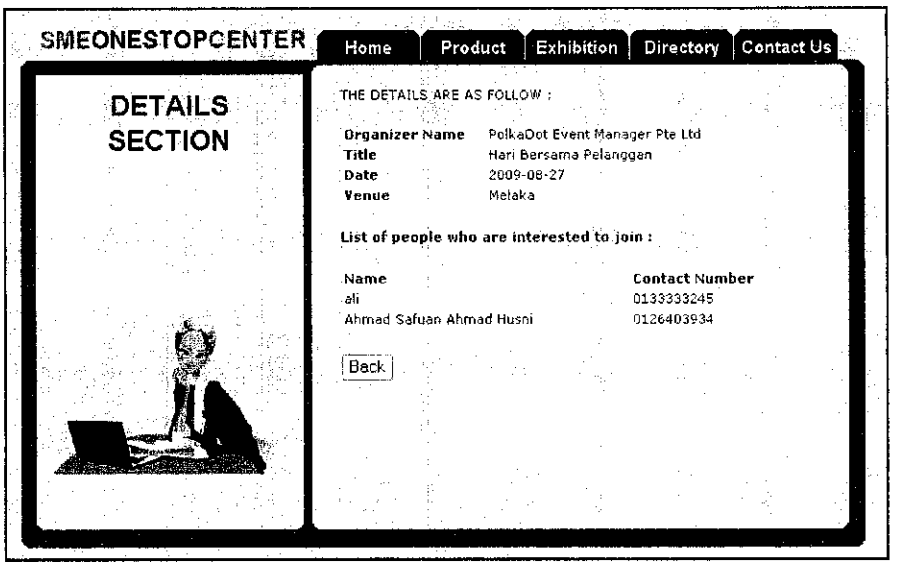

Figure 4.8: Exhibition Details

4.3.1.3 Directory

In directory, users can search any companies that they want but the results are based on the data available in the database. At first, user will enter a search term. The result will appear together with 'Click here' link which will direct the user to the company's details. Figure 4.9 until 4.11 are the flow in the Directory tab. Please refer to appendix 8 for directory flow chart.

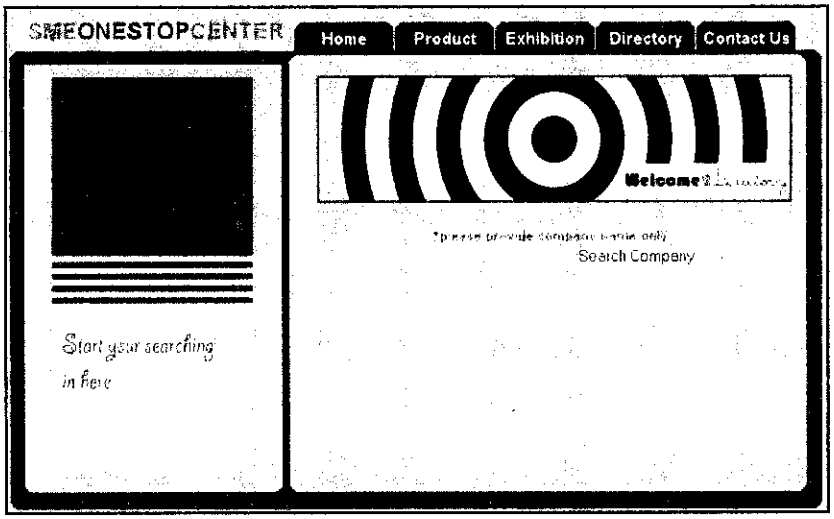

Figure 4.9: User need to enter a search term

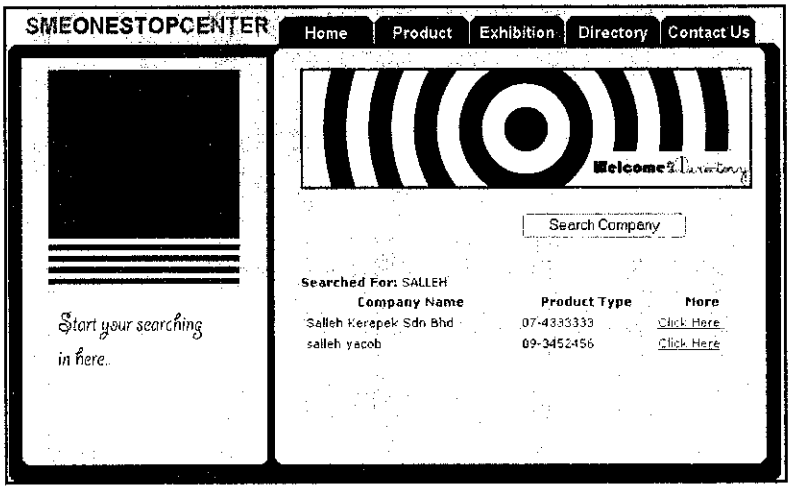

Figure 4.10: The result appears

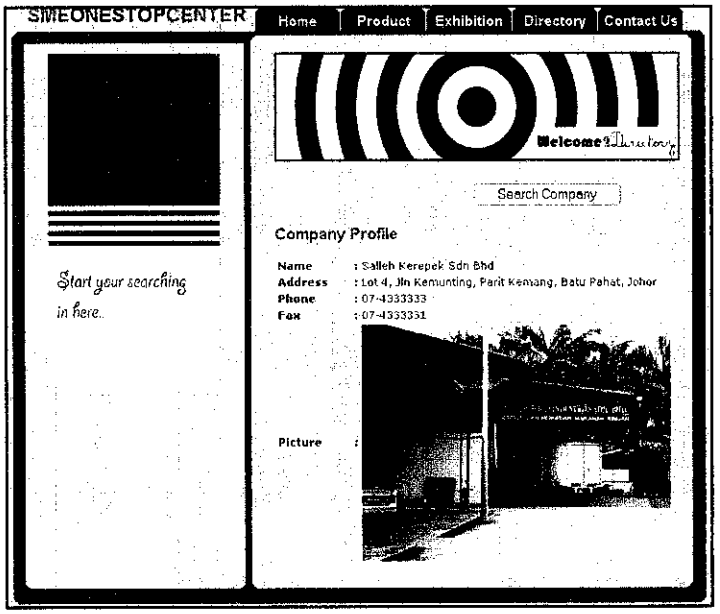

Figure 4.11: After the user clicks at 'Click here'

4.3.2 Personalization Concept - Implementation

In literature review, it is stated that according to Guo, Lu and Simoff [4] they classify personalization techniques fall into 4 categories. The categories are profile-based personalization, link personalization, content personalization and structure personalization. In implementing personalization concept for this SME One Stop Center Website, the first and third categories have been chosen. A user's particulars and preferences are collected during registration to create profile for him. This profile is then used to personalize the content of the web site, i.e., product listing presented to him. Below are steps on how the personalization being implemented in this project:

1. When a user registers, 2 tables will be inserted.
    - Normal User table (represents table for normal user, not event organizer). Please refer to Table 4.2.

Table 4.2: Normal User table in mySQL

IC	Name	Username	Password	Contact Number
876583908	Ali b Abu	Ali	Ali	0123456789

    - User_Pref table – table that stores preferences. Table 4.3 shows a sample content of the table.

Table 4.3: User Preferences table in mySQL

IC	Food	Gardening	Beauty Care	Services
876583908	1	0	1	0

2. At Product page, the php will check whether the user is a logged in user or not. If the result is true, the code will check the user's preferences and display relevant product tailored to the user's preferences. Below is the excerpt of the code:

```
$rowpref = mysql_fetch_array($resultpref);
$FOOD = $rowpref['food'];
$BEAUTY = $rowpref['beautycare'];
$GARDEN = $rowpref['gardening'];
$SERVICES = $rowpref['services'];

    if ($FOOD == "1" && $BEAUTY == "1" && $SERVICES == "1" && $GARDEN == "1") {

            $checkpref = "SELECT * FROM product LIMIT 8";
            $pref = mysql_query ($checkpref);
        }

    elseif ($FOOD == "1" && $BEAUTY == "0" && $SERVICES == "0" && $GARDEN == "0") {
            $checkpref = "SELECT * FROM product WHERE Prod_Type='food' LIMIT 8";
            $pref = mysql_query ($checkpref);
        }

    elseif ($FOOD == "0" && $BEAUTY == "1" && $SERVICES == "0" && $GARDEN == "0") {

            $checkpref = "SELECT * FROM product WHERE Prod_Type='beauty' LIMIT 8";
            $pref = mysql_query ($checkpref);
        }
```

Figure 4.12: Code excerpt

According to wikiHow [15], when the website welcomes the user with his or her name, it is also can be considered as personalization. This is because the user feels belong or part of the website. Figure 4.13 shows another implementation of personalization in this project. Another way of implementing personalization is CSS Switcher. This is where the user selects font size, font type, and background image or layout color.

Figure 4.13: Another way of personalization

4.4 ACCEPTANCE TEST

An acceptance test was conducted with the testing user which is a representative from All4Offer Sdn. Bhd. The purposes of the test are as follow:

- To verify that individual application forms are performing correctly.
- To ensure that all required fields and buttons exist on the application forms.
- To ensure that the flow of information and data entry is logical and correct based on the application's business requirements.
- To ensure that a new form added to an existing application is functioning according to specifications.
- To verify that new functionality added to an existing form has not adversely affected the existing functionality on that form.
- To ensure that the flow of fields on a new form is sensible.
- To check common relationships of fields between forms.
- To verify navigation between forms.

The results of the testing are as below:

- Some modification needed whereby there are several confusion of format when filling forms, confusion where to register as normal user or event organizer and no function to help user when he forgot his password or username.
- Other functions and layout run smoothly.

CHAPTER 5
CONCLUSION

For now, all the objectives have been achieved. They are; to develop a web-based system that gathers and monitors information regarding the SME industry. This information includes tracking, monitoring and promoting of SME exhibitions around Malaysia as well as selling products produced by some SMEs and to personalize the content presented on the website so that highly relevant information will be presented to the user.

Personalization concept can be summarized as presenting the information or web pages based on user's preferences. Besides, the personalization concept implemented in the web can help users to have information which suit them the most. The project helps pool together scattered information on SMEs in Malaysia so that the people will be more aware of the activities available, the SMEs available and the availability of products which suit their interest.

As for recommendation and future enhancement, I recommend extra function such as floor plan in the exhibition room, program itinerary for respective exhibitions and also shopping cart with payment function. For the floor plan, the user can choose location of booth that they want like selecting seats when buying movie ticket. As a conclusion, a full working web based system has been developed and ready to use.

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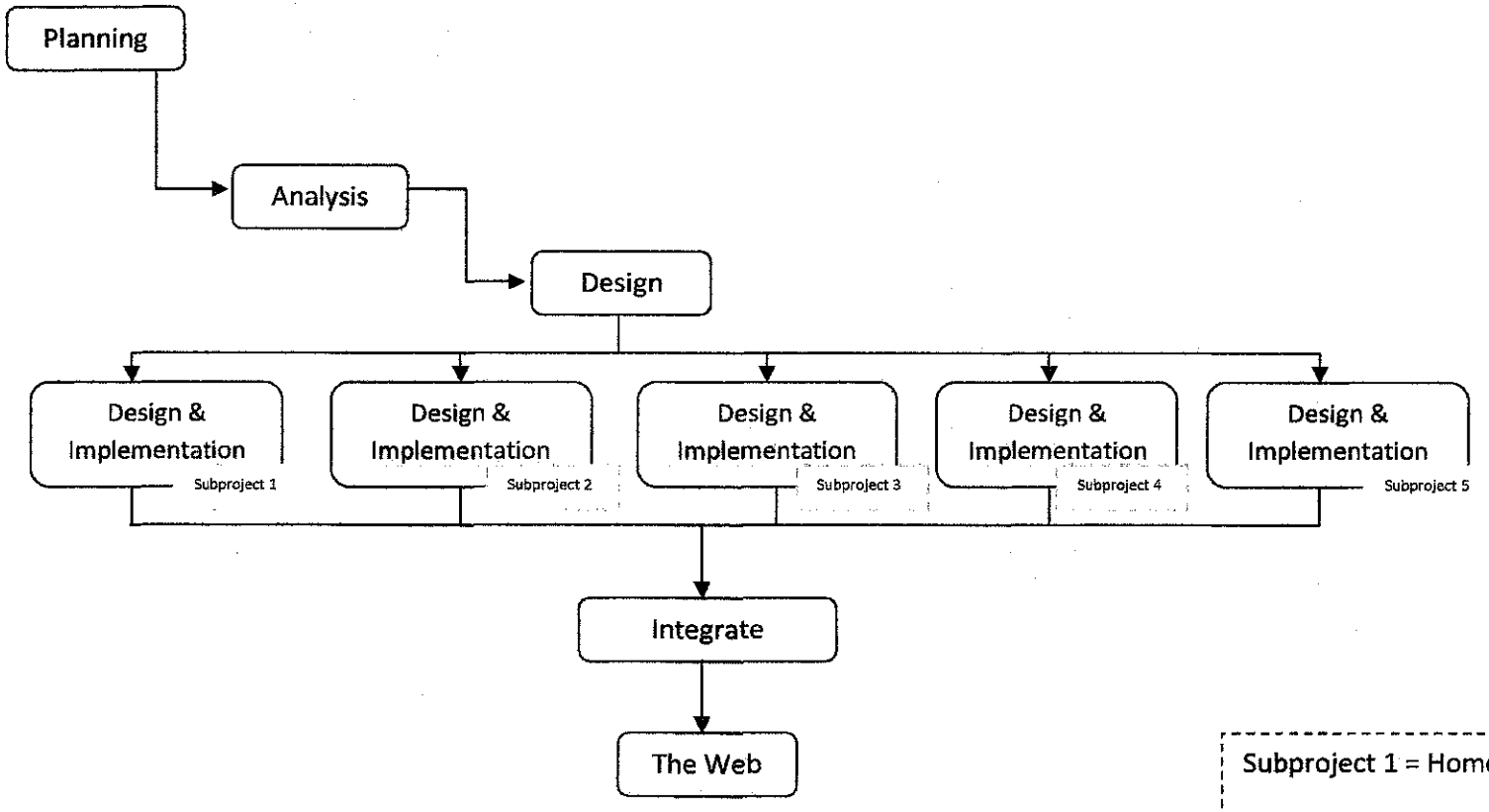
APPENDICES

1. Project Life Cycle Model
2. Gantt Chart
3. Use Case Diagram
4. Activity Diagram
5. Entity-Relationship Diagram
6. Flow Chart Product
7. Flow Chart Exhibition
8. Flow Chart Directory
9. Code for Personalization



Appendix 1: Parallel Development Methodology

Subproject 1 = Home page

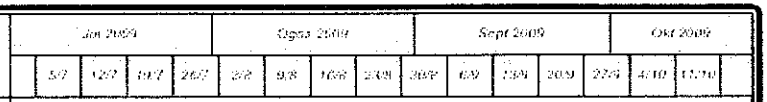
Subproject 2 = Product page

Subproject 3 = Exhibition page

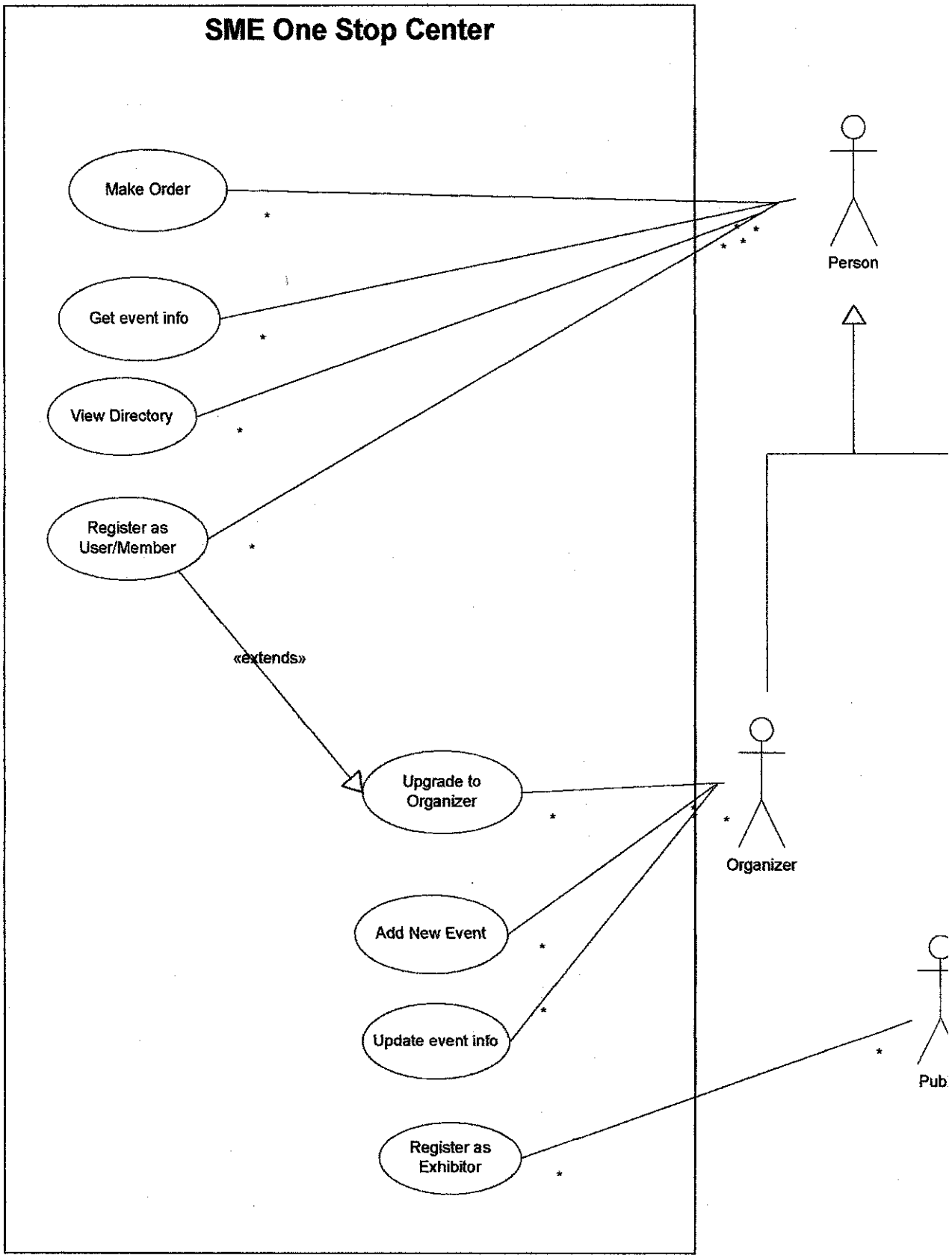
Subproject 4 = Directory page

Subproject 5 = Other functions

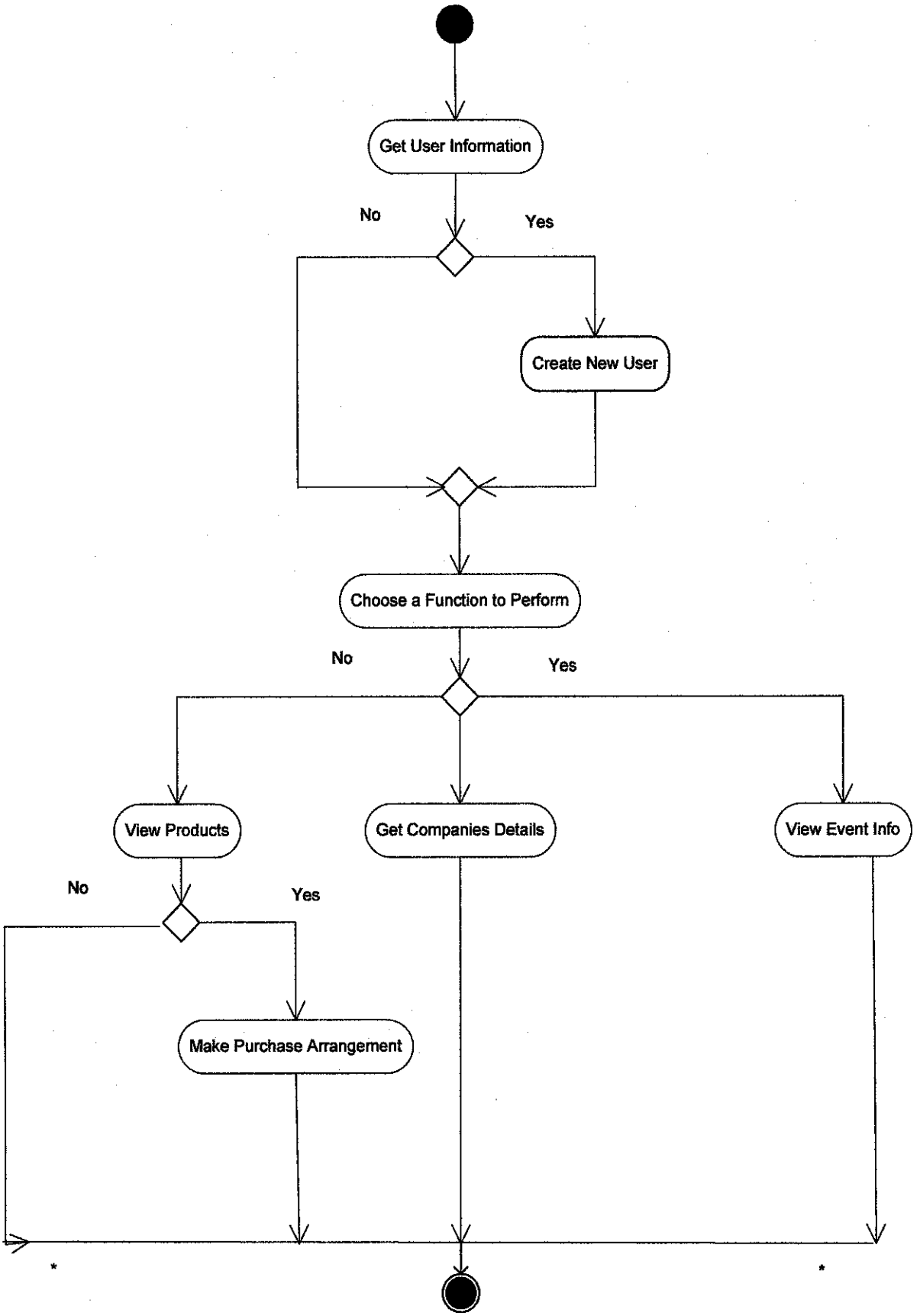
ID	Task Name	Start	Finish	Duration
1	Planning, Analysis - Research	19/01/2009	30/06/2009	23.4w
2	Design	30/06/2009	28/07/2009	4.2w
3	Progress Report	29/07/2009	29/07/2009	2w
4	**Development phase**	**29/07/2009**	**02/09/2009**	**5.2w**
5	Design & coding	29/07/2009	28/08/2009	4.6w
6	Error checking	28/08/2009	02/09/2009	8w
7	Progress Report 2	02/09/2009	02/09/2009	2w
8	Seminar	09/09/2009	09/09/2009	2w
9	Website touch up	09/09/2009	28/09/2009	2.8w
10	Pre Edx	30/09/2009	30/09/2009	2w
11	Final report	07/10/2009	07/10/2009	2w
12	Oral Presentation	21/10/2009	22/10/2009	4w



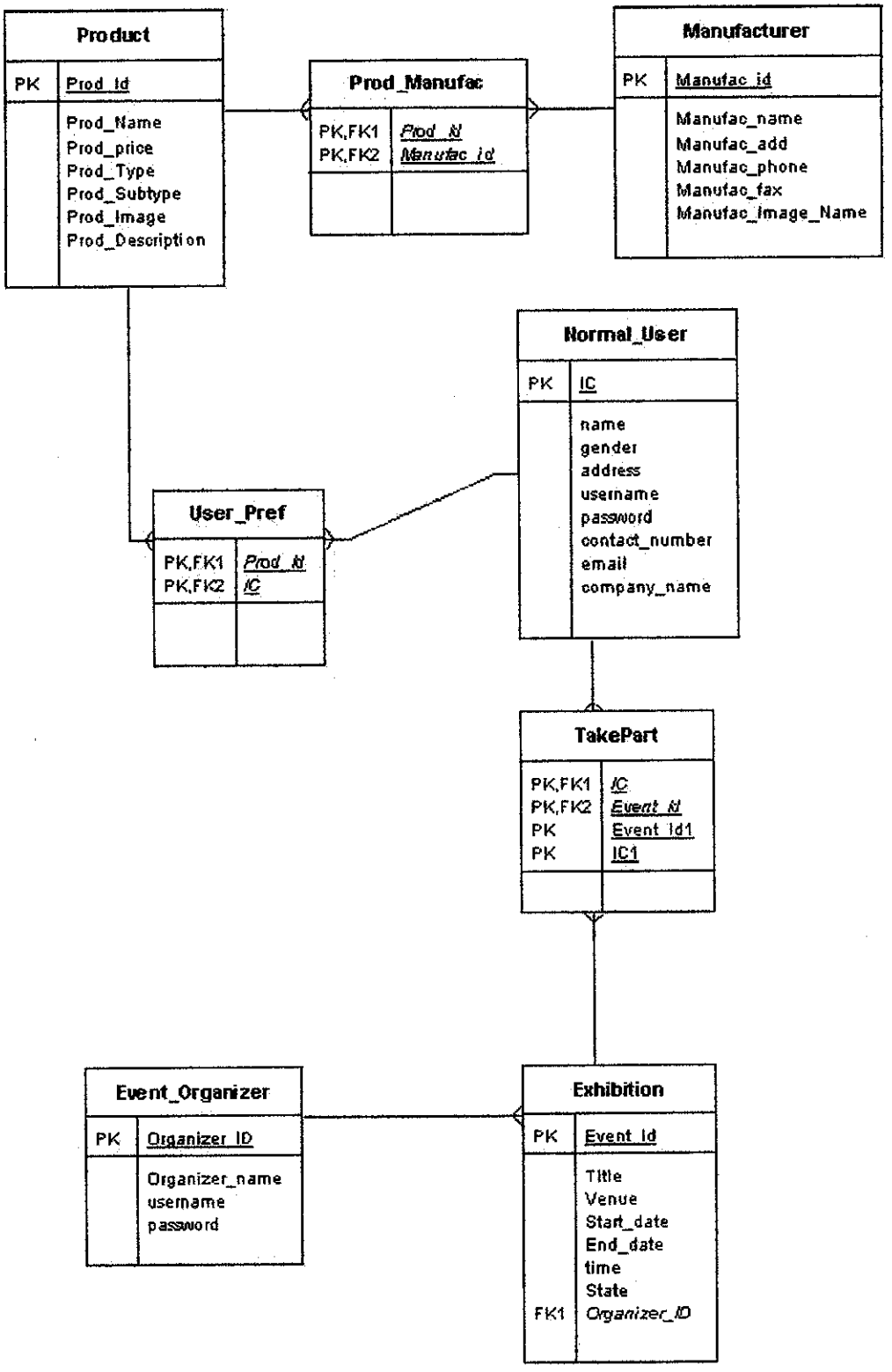
Appendix 2 : Gantt Chart



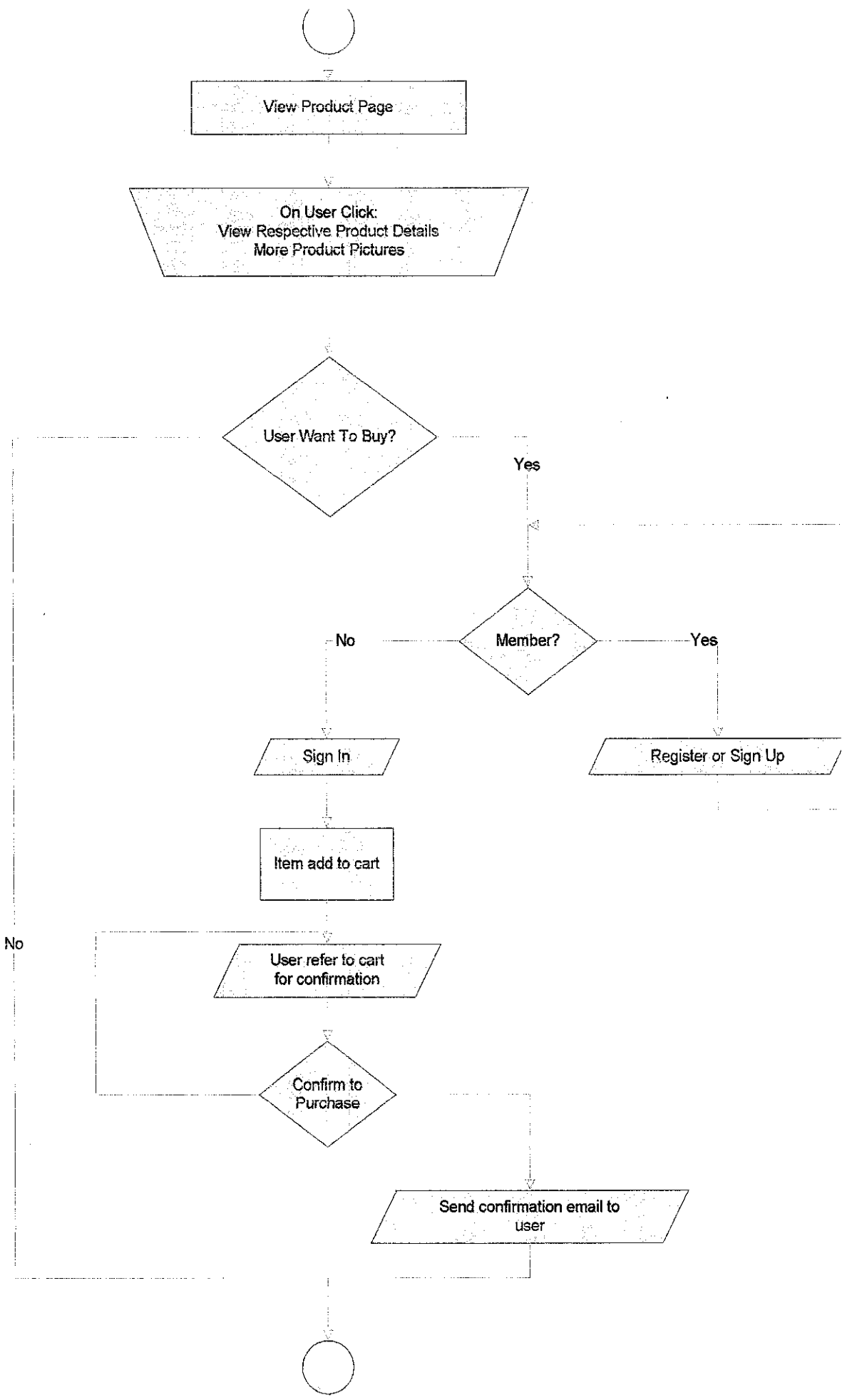
Appendix 4 – Use Case Diagram



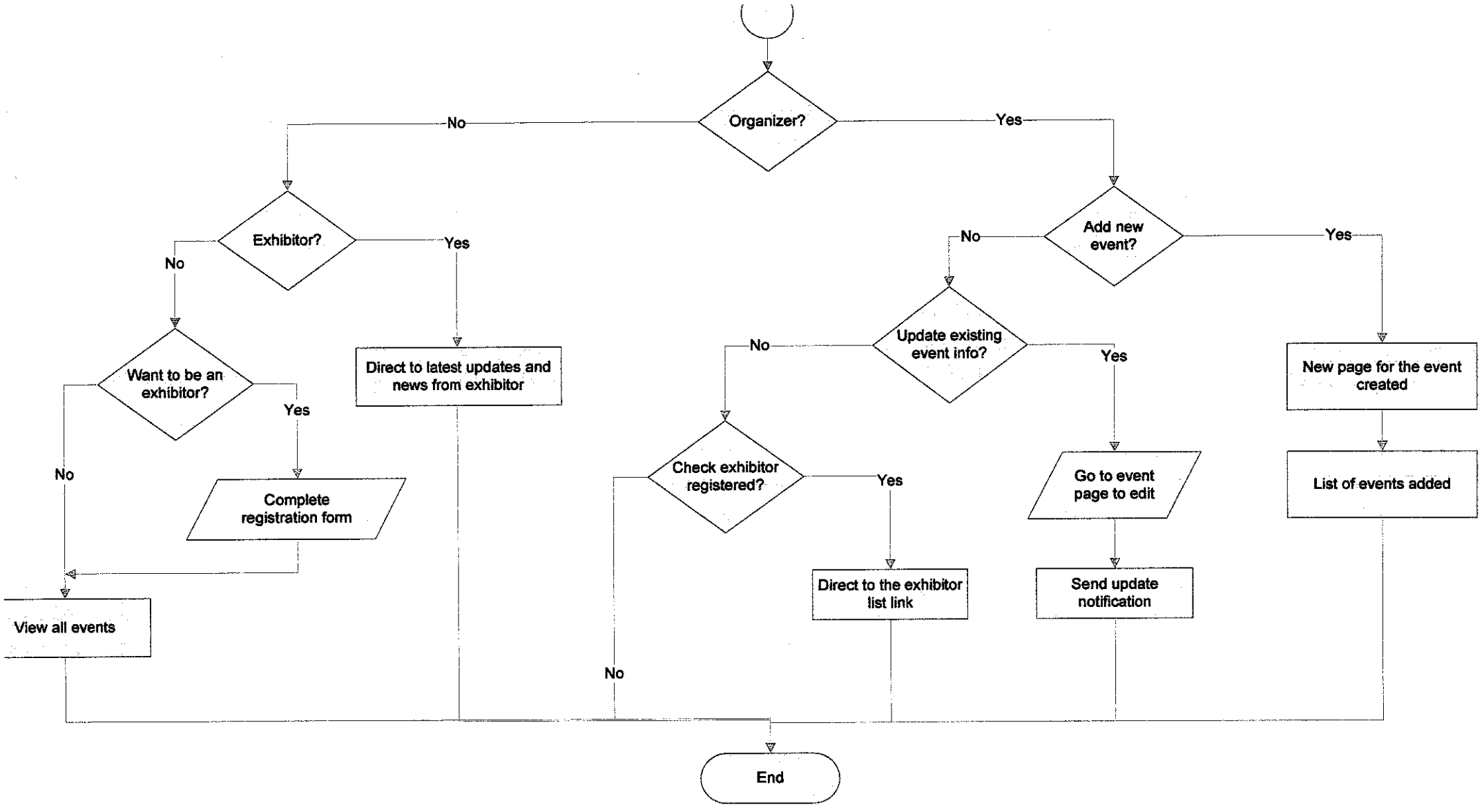
Appendix 3 – Activity Diagram



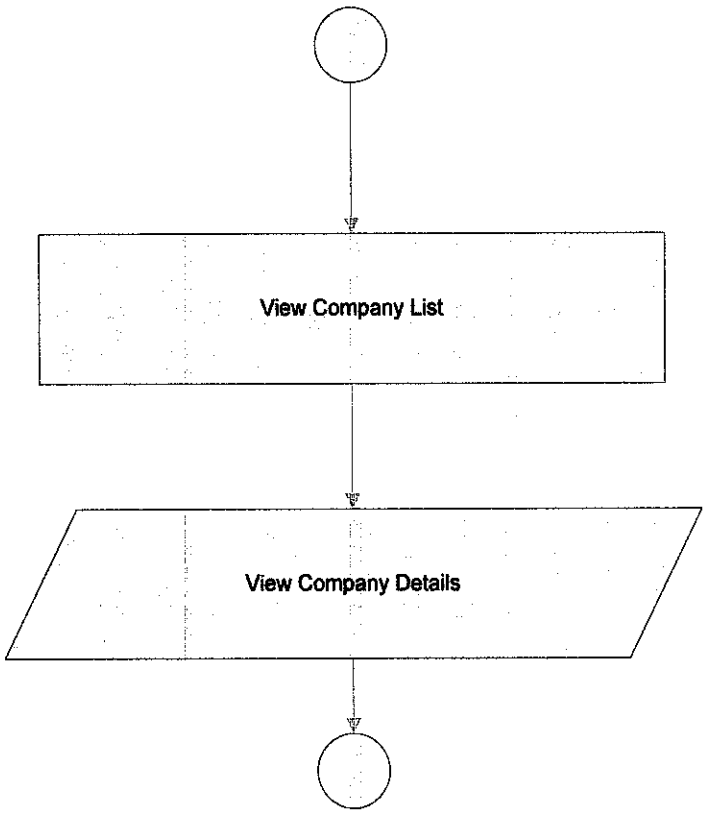
Appendix 5 – Entity Relationship Diagram



Appendix 6 - Product Flow Chart



Appendix 7 - Exhibition Flow Chart



Appendix 8 - Directory Flow Chart

APPENDIX 9
CODE FOR PERSONALIZATION IMPLEMENTATION

```
amek data dari field Prod_Type WHERE prod_type = food
                                                    $checkpref = "SELECT * FROM product WHERE
Prod_Type='services'LIMIT 8";
                                                    $pref = mysql_query ($checkpref);
                                                }
                                            elseif ($FOOD == "0" && $BEAUTY == "0" && $SERVICES == "0"
&& $GARDEN == "1") {
                                                    //SELECT TABLE product according to IC and
preferences
                                                    //kalau food = 1, pegi kat table product,
amek data dari field Prod_Type WHERE prod_type = food
                                                    $checkpref = "SELECT * FROM product WHERE
Prod_Type='garden'LIMIT 8";
                                                    $pref = mysql_query ($checkpref);
                                                }
                                            elseif ($FOOD == "1" && $BEAUTY == "0" && $SERVICES == "0"
&& $GARDEN == "1") {
                                                    //SELECT TABLE product according to IC and
preferences
                                                    //kalau food = 1, pegi kat table product,
amek data dari field Prod_Type WHERE prod_type = food
                                                    $checkpref = "SELECT * FROM product WHERE
Prod_Type='garden' OR Prod_Type='food' ORDER BY RAND()LIMIT 8";
                                                    $pref = mysql_query ($checkpref);
                                                }
                                            elseif ($FOOD == "1" && $BEAUTY == "0" && $SERVICES == "1"
&& $GARDEN == "1") {
                                                    //SELECT TABLE product according to IC and
preferences
                                                    //kalau food = 1, pegi kat table product,
amek data dari field Prod_Type WHERE prod_type = food
                                                    $checkpref = "SELECT * FROM product WHERE
Prod_Type='garden' OR Prod_Type='food' OR Prod_Type='services' ORDER BY RAND()LIMIT 8";
                                                    $pref = mysql_query ($checkpref);
                                                }
                                            elseif ($FOOD == "1" && $BEAUTY == "1" && $SERVICES == "0"
&& $GARDEN == "0") {
                                                    //SELECT TABLE product according to IC and
preferences
                                                    //kalau food = 1, pegi kat table product,
amek data dari field Prod_Type WHERE prod_type = food
                                                    $checkpref = "SELECT * FROM product WHERE
Prod_Type='food' OR Prod_Type='beauty' ORDER BY RAND()LIMIT 8";
                                                    $pref = mysql_query ($checkpref);
                                                }
                                            elseif ($FOOD == "0" && $BEAUTY == "1" && $SERVICES == "1"
&& $GARDEN == "0") {
                                                    //SELECT TABLE product according to IC and
preferences
                                                    //kalau food = 1, pegi kat table product,
amek data dari field Prod_Type WHERE prod_type = food
                                                    $checkpref = "SELECT * FROM product WHERE
Prod_Type='services' OR Prod_Type='beauty' ORDER BY RAND()LIMIT 8";
                                                    $pref = mysql_query ($checkpref);
                                                    }
                                            elseif ($FOOD == "0" && $BEAUTY == "1" && $SERVICES == "1"
&& $GARDEN == "1") {
                                                    //SELECT TABLE product according to IC and
preferences
                                                    //kalau food = 1, pegi kat table product,
amek data dari field Prod_Type WHERE prod_type = food
                                                    $checkpref = "SELECT * FROM product WHERE
Prod_Type='services' OR Prod_Type='garden' OR Prod_Type='beauty' ORDER BY RAND()LIMIT 8";
                                                    $pref = mysql_query ($checkpref);
                                                }
                                            elseif ($FOOD == "1" && $BEAUTY == "0" && $SERVICES == "0"
```

```
&& $GARDEN == "1") {

                                                    //SELECT TABLE product according to IC and
preferences
                                                    //kalau food = 1, pegi kat table product,
amek data dari field Prod_Type WHERE prod_type = food

                                                    $checkpref = "SELECT * FROM product WHERE
Prod_Type='food' OR Prod_Type='garden' ORDER BY RAND()LIMIT 8";
                                                    $pref = mysql_query ($checkpref);
                                }

                                        elseif ($FOOD == "1" && $BEAUTY == "1" && $SERVICES == "0"
&& $GARDEN == "1") {

                                                    //SELECT TABLE product according to IC and
preferences
                                                    //kalau food = 1, pegi kat table product,
amek data dari field Prod_Type WHERE prod_type = food

                                                    $checkpref = "SELECT * FROM product WHERE
Prod_Type='food' OR Prod_Type='beauty' OR Prod_Type='garden'  ORDER BY RAND()LIMIT 8";
                                                    $pref = mysql_query ($checkpref);
                                                }

                                        elseif ($FOOD == "0" && $BEAUTY == "0" && $SERVICES == "1"
&& $GARDEN == "1") {

                                                    //SELECT TABLE product according to IC and
preferences
                                                    //kalau food = 1, pegi kat table product,
amek data dari field Prod_Type WHERE prod_type = food

                                                    $checkpref = "SELECT * FROM product WHERE
Prod_Type='services' OR Prod_Type='garden'  ORDER BY RAND() LIMIT 8";
                                                    $pref = mysql_query ($checkpref);
                                                    }

                                        elseif ($FOOD == "0" && $BEAUTY == "1" && $SERVICES == "0"
&& $GARDEN == "1") {

                                                    //SELECT TABLE product according to IC and
preferences
                                                    //kalau food = 1, pegi kat table product,
amek data dari field Prod_Type WHERE prod_type = food

                                                    $checkpref = "SELECT * FROM product WHERE
Prod_Type='beauty' OR Prod_Type='garden'  ORDER BY RAND() LIMIT 8";
                                                    $pref = mysql_query ($checkpref);

                                                     }

                                        else {

                                    echo "nothing";

                                                    }

                            } //close 2nd if..else
} //close 1st if..else

?>


  <div id="body">

<!--DIV for all content-->
                <div id="body-top">

      <!--LIGHT CHOCO UPPER-->
                        <div id="body-top-2"></div>
        <!--END LIGHT CHOCO UPPER-->

<div id="body-bot">

                                <!--code for left panel of exhibition using class style 7 and div id
= welcome-->
                                <div class="style10" id="welcome">

                                  <p> </p>
                                  <p> </p>

                                  <? include ("leftpanel_product.php");?>
                                <!--end of code-->

                                <!--code for right panel-->
```

APPENDIX 9 - CODE FOR PERSONALIZATION

```
            <div id="content">

                                                <!--code for section 1 of right panel-->

        <div id="heading">
                            <p align="center"> </p>
                            <p align="left">Maybe You Like These Products....</p>


        <!--to display the data-->
                  <? while ($rowpref2 = mysql_fetch_array($pref)){

                                $image_name = $rowpref2['Prod_Image'];


                                echo "<tr>";

                                echo "<img border=\"1\" src='/myFYP/images/".$image_name."'
width=\"110\" height=\"110\">"."<br>";
                                echo "Product name
:"."<strong>".$rowpref2['Prod_name']."</strong>"."<br>";
                                echo "Price        : RM".$rowpref2['Prod_Price']."<br>";
                                echo "Product Id   :".$rowpref2['Prod_Id']."<br>";
                                echo "<a
href=product_detail.php?Prod_Id=".$rowpref2['Prod_Id'].">DETAILS</a>"."<br>";
                                echo "<br>";


                                echo "</tr>";



                           }

                           ?>




        </div>
                                                <!--end of code for section 1-->


                  <div class="fineline"></div>

                                                <!--code for Exhibition list-->
                 <h2> </h2>
                            <!--end of code for Exhibition list-->
<div class="fineline-flat"></div>

                                    <div class="clear-flat"></div>
                 </div>
<!--end of code for right panel-->


              <div class="clear"></div>
                   </div>
                  </div>
  </div>

 <!-- code for footer-->

  <div id="footer">
    <p>Copyright of Final Year Project UTP</p>
  </div>

<!-- end footer code-->
</div>


</body>
</html>
```