

ONLINE PRINTING SHOP SYSTEM

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ONLINE PRINTING SHOP SYSTEM

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Thesis submitted in fulfillment of the requirements
for the award of the degree of
Doctor of Philosophy/Master of Science/Master of Engineering

Faculty of Computer Systems & Software Engineering

UNIVERSITI MALAYSIA PAHANG

DECEMBER 2018

ACKNOWLEDGEMENTS

Praise be to Allah SWT the Almighty and the All Merciful, who has given us , the powerless creature, His guidance so that we can smoothly finish our final year project entitle "Online Printing Shop System" as the requirement for the degree in Computer Systems & Software Engineering. First of all, my gratitude sincerely goes to my family who always give me dreams to be the excellent students. Our second gratitude belongs to my super-visor Jamaludin Bin Sallim who has patiently trained and taught me to be the real project development. In addition, we would like to thank to our lecturers that taught and all of my friends who have contributed and sharing the knowledge with me. I realize truly that this final year project needs the constructive criticism to be remarkable project development.

ABSTRAK

Dalam kajian ini, percubaan telah dibuat untuk mengkaji dan membangunkan sistem sistem percetakan dalam talian. Tujuan sistem ini adalah untuk membantu mengurangkan masalah pengurusan kedai dan pada masa yang sama membantu pelanggan untuk memudahkan pengurusan perkhidmatan percetakan. Matlamat projek ini adalah untuk membangunkan sistem atau program dalam talian yang menggunakan sambungan internet untuk menyerahkan bahan dan juga pada masa yang sama reka bentuk bahan untuk perkhidmatan cetakan. Metodologi yang telah digunakan untuk membangunkan projek ini adalah dengan menggunakan Pembangunan Aplikasi Rapid (RAD) yang lebih berkesan dan teratur yang dapat membantu menjadikan projek ini membangunkan kerja yang dilakukan. Oleh itu, dengan mewujudkan sistem ini juga dapat membantu pelanggan atau pelanggan untuk mengurangkan masa memakan masa dari pergi ke kedai dan juga membantu untuk merancang projek pelanggan. Kesimpulannya, dengan membangunkan projek ini mempunyai banyak kelebihan yang dapat membantu pelanggan untuk mendapatkan percetakan diservis bila-bila masa dan di mana saja tanpa masalah mengangap masa dan penjimatan kos.

ABSTRACT

In this study, an attempt has been made to study and develop the project of online printing shop system. The purpose of this system is to assist in reducing the problems on the store management and at the same time assisting customers or clients to facilitate the management of printing services. The Aim of this project is to develop an online system or program that use internet connection to submit the material and also at the same time design the material for print service. Methodology that has been use to develop the project is by using Rapid Application Development (RAD) which are more effective and organized that can help make this project develop work done. Therefore by creating the system also can help client or customer to reduce time consuming from going to shop and also help to design client project. In conclusion, by developing this project have many advantages that can help customer to get printing serviced anytime and anywhere without any problem regard time and cost saving.

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CHAPTER 1

INTRODUCTION

1.1 Background

Printing business are increasingly expanding especially in large urban areas where the need for the use of print services is particularly high for advertising companies, marketing companies, public service sectors, students and many more. But due to the use of too much service will cause user congestion in shop and print service limitation to avoid errors during the printing process. Hence, the purpose of this system is to assist in reducing the problems on the store management and at the same time assisting users or clients to facilitate the management of printing services.

Online printing is a very convenient service that gives a low cost solution to everyone who needs to have their business cards, custom flyers, personalized posters, brochures and any other type of print done quickly and effectively. The client simply upload files through the Internet, choose the paper, color or design choices, and have printed materials delivered to front door office or house. Even the user who do not have previous experience with online printing can use the system, getting prints to look exactly the way that client want is simple and intuitive. This system can be downloaded or by using the website .Therefore by creating the system also can help client or user to reduce time consuming from going to shop and also help to design client project.

1.2 Problem Statement

- i. Limit database template
 - When client send the material for printing but the template is limit in design for each certain of format printing.
- ii. Compressed file size submit problem
 - When client or user want to submit the file but the file is huge for submit. Client compressed the file using ZIP but the size of file is still huge.
- iii. Non system user guide
 - When client and user who first time experience use the system will having the problem to use the system and will caused accidental wrong product print when system do not provide user guideline.

1.3 Goal/ Aim and Objective

Goal:

The goal of this project is to develop an online system or program that use internet connection to submit the material and also at the same time design the material for print service. Guideline also will provide to use the system for first time user.

Objective:

- i. To improve systems give product material of printing and warranty with receipt.
- ii. To create the platform that can print each printing format in the system.
- iii. To testing database template for user priority to choose and design the template.

1.4 Scope

The scope of the project is:

- i. Design and implement printing shop system using Microsoft Visual Studio and SQL server software platform for web-based application.
- ii. Evaluate the existing printing shop system database to identify weakness and configure the database where possible management.

1.5 Significance

The significance explains the important of project:

- i. To reduce time consuming for client and user from going to shop or when user have free time.
- ii. To improve shop management to get more user and client.
- iii. To help computer scientist to solved compressed file in computer system and providing online shop system.

1.6 Report/ Thesis Organization

This thesis consists of five chapters:

Chapter 1: This chapter is focusing on Online printing shop systems which are very convenient service that gives a low cost solution to everyone who needs to have their business cards, custom flyers, personalized posters, brochures and any other type of print done quickly and effectively. The client simply upload files through the Internet, choose the paper, color or design choices, and have printed materials delivered to front door office or house. Even the user who do not have previous experience with online printing can use the system, getting prints to look exactly the way that client want is simple and intuitive.

Chapter 2: This chapter shows the existing technology system that is related to online printing serviced development. Based on the research conducted, the vital problem faced by user such as user need take more time to go shop for printing service which is cost more money and time consuming. Advantage of this research is many webpage provided adequate function to any user need. Based on analysis on related method, this online printing system has been widely develop but improvement can be done by using different method, hardware and software.

Chapter 3: This chapter will cover the details about explanation of methodology that is being used to make this project system working well and complete. To ensure the system is able to be developed within budget and time constraint, a good system development methodology is needed. There is various kind of system methodology, and each of it has advantages and disadvantages that show how the system is being development.

Chapter 4: This chapter, discuss the implementation and structure that been discussed in Chapter 3. After the concept and the benefits of Rapid Application Development (RAD) algorithm is implement properly, a test was conducted to obtain the output. Based on the output, a result will be display through system by display the result of final transaction of product which are the system will print receipt and the same time send the final product to print.

Chapter 5: This chapter, it will emphasize on conclusion of the project. The research that has been done has achieved the objective of the project which are declared in Chapter 1 in create system that can submit and design print product then will display receipt which system will be connected to the printer device to print the product. Rapid Application Development methodology which is to make sure that the system is delivered on schedule and meets the criteria. Rapid Application Development allowed system to be designed and developed and allowed changes to be implemented in the easier way.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

Online printing shop using online application is a system that can provide printing system for client or user to manage their printing material to submit in system in order to get printing service by shop. Users able choose type for print material by using the system such as format of print and also choose the design for material.

In addition, online printing shops are web-based application that using online also allow client and user to edit, design, view and search for their print design material. User can edit their colours and font, if they have desire to design by their own. The system also can be submitted for all kind of print format material.

There are many existing types of online system in this world, which can be seen in Figure 2.1, Figure 2.2, Figure 2.3, Figure 2.4, and Figure 2.5.



Figure 2.1 ONLINEPRINTERS System



Figure 2.2 Magic Online Printing System



Figure 2.3 PFL Systems



Figure 2.4 XprintSystem

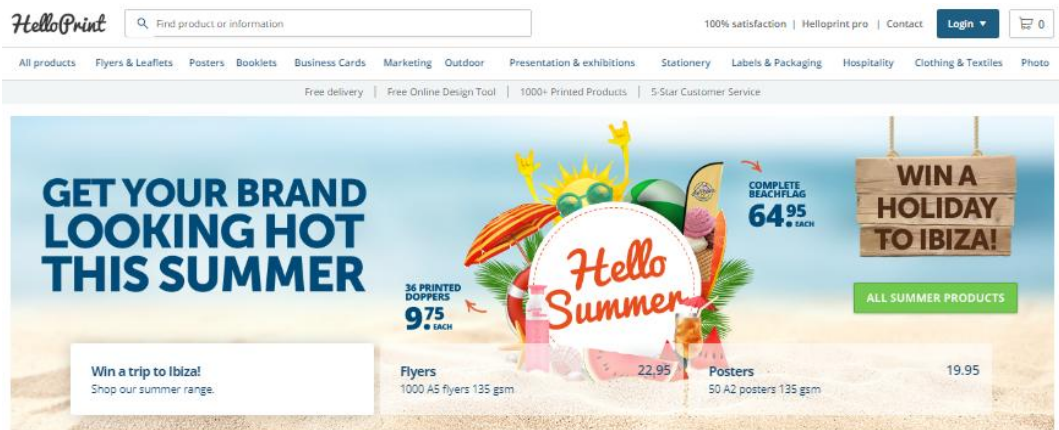


Figure 2.5 Helloprint System

2.2 EXISTING SYSTEMS

Each system has its own capability in providing service for user so the system will be more familiar to user choose based on system performance and it also can made as refer for future development new system(PressCentric, 2017).

2.2.1 Gogoprint Online Printing System

Gogoprint online printing system provides general printing serviced by using online system without troublesome the user or client from going to the shop and save time consuming. User can manage the material or product to print by submitting their material format through system. The gogoprint use the web system platforms where user can view and choose the product that also provided with price checking base on what product or serviced want to choose by user. The system also provides guideline to use the system with easy interface that can help any person who the first time user able to understand the concept and process who the system working can be seen in Figure 2.6. This system also has protocol that be used in system like use certain format to each material submit like PDF and more in order to use the printing serviced. Gogoprint also provide payment system with complete receipt provided where user can choose type of payment method such online banking.

Strengths of gogoprint online system are:

- i. Allow user to choose the product and check price online without having to going to the shop via online web system.
- ii. The system has function to authenticate the product format for each material that has been submitted by user.
- iii. Allow user choose payment method and also provide guideline of system.

However, this gogoprint online system only can be used by online system which is web based system on computer and cannot support for mobile web application which explain why it is not compatible with mobile web base .Thus, user who do not has laptop or pc cannot make use of this online system printing serviced.

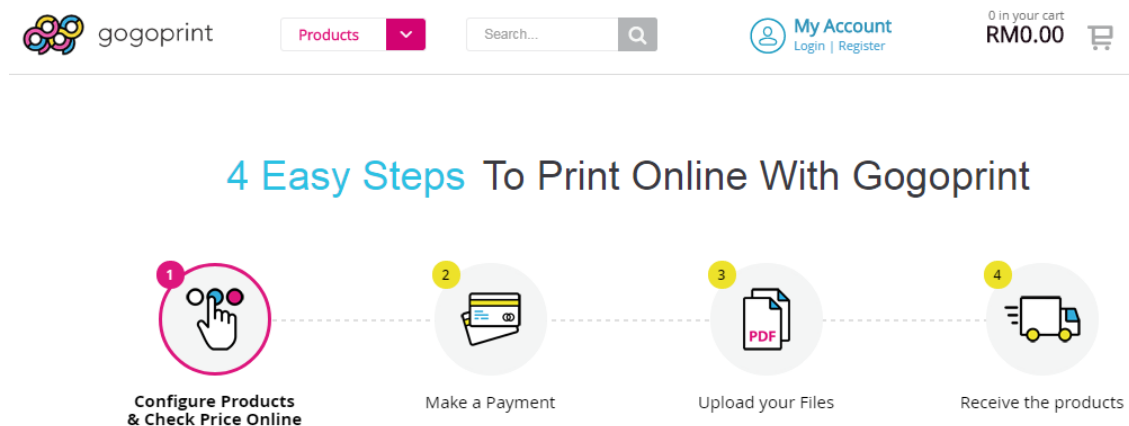


Figure 2.6 Gogoprint online system

2.2.2 Uprinting Online System

Based on figure 2.7, Uprinting online system allow user to manage the product of printing material and control of choosing product type and design that has also provided by system to help facilitate user in providing printing serviced. First user has to open the website of the shop in order to use the system which compatible to all operating system including MAC OS. This system also provided many type of printing product which is cover all format type. The system also provided user service to prevent or to help any user to deal in using the system and get what user desired in printing product result. User can send the material of product just by using e-mail that has given by system to submit the material which is easier and can prevent any file transfer or submitted error. Thus if userdo not has any laptop or pc, user can send via using mobile e-mail application. Uprinting online system also has system that can check file that has been submitted by user to find any error in spelling and font type that suitable for each format printing without charged any extra money which is give huge advantage to user who first time using the system.

However, this system also has disadvantage in interface which is more complicated and user has limit to choose the design or can't edit the design as user wanted. It because the system can't handle the design editing in order to prevent any information error.

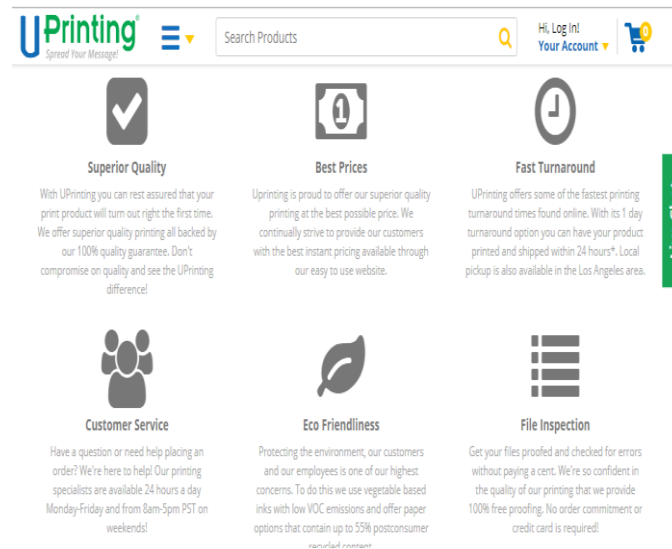


Figure 2.7 Uprinting online systems

2.2.3 Psprint Online System

This system developed combines of design system and online payment system in order to create the system that can satisfy user who want their product or material can be design by own .This system has easy-to-personalize designs for every occasion of printing product that can be view, edit and design by own self which give advantage to user who has own already design in mind. The system also has variety in type of design platform for each type of product that has been provided in system for more option to user chooses. However, this system also provide layout guideline for user who need help designing print ready file and also assist user to set up file quickly and easily that shown in Figure 2.8.

Psprint online system is the most top system that has been chosen lately by several user for the system management itself because system always update the design option base on timeline of trend that has been use in order to make sure user always get

satisfy with the printing product. User can submit the file material through system then design product and set up payment method, finally get the printing product send to your front door.

The advantage of this device are it is effective because easy to use and guideline provided at right cycle time. These system also help to reduce the user time consumption from going to the shop itself and also save the money and cost.



Figure 2.8 Psprint online systems

2.3 COMPARING THE EXISTING SYSTEM

The comparison between gogoprint online system, Uprinting system and Psprint online system are shown in Table 2.1 below.

Table 2.1 Comparison between Existing Systems

No.	Project Title	Advantages	Disadvantages
1	Gogoprint system	<ul style="list-style-type: none"> User can send the project through system for printing service. 	<ul style="list-style-type: none"> Limit database template that make user less option to choose.
2	Uprinting system	<ul style="list-style-type: none"> The system can identify user file or material to identify error 	<ul style="list-style-type: none"> Compressed file size submit problem that will cause file transfer

		and fix it.	and broken file.
3	Psprint system	<ul style="list-style-type: none"> • User can design or choose design that be provided by system. 	<ul style="list-style-type: none"> • Format project do not support because of system failure to identify the file or material type.

2.4 CONCLUSION

In conclusion, this chapter shows the existing technology system that is related to online printing serviced development. Based on the research conducted, the vital problem faced by user such as user need take more time to go shop for printing service which is cost more money and time consuming. Advantage of this research is many webpage provided adequate function to any user need. Based on analysis on related method, this online printing system has been widely develop but improvement can be done by using different method, hardware and software. However, the based on the research make also shown that user need the system because of its effectiveness that help big company to reduce human resource energy and also some of user are willing to pay developer to make the system(Leffingwell, 2007).

CHAPTER 3

METHODOLOGY

3.1 Introduction

This chapter will cover the details about explanation of methodology that is being used to make this project system working well and complete. To ensure the system is able to be developed within budget and time constraint, a good system development methodology is needed. There is various kind of system methodology, and each of it has advantages and disadvantages that show how the system is being development. Much methodology that more like of findings from this field mainly generated into a discussion method for others to take advantages and improve as upcoming studies(Kayla, 2009). These chapters also show several method used to develop the online printing system was discussed, along with the requirement of the system and how it was used on the development of this system. The method is use to achieve the objective of the project that will accomplish a perfect result.

3.2 Project Methodology Framework

Methodology is a system of method that used in a particular area of study. It was a kind of documentations that consists of all the procedure, schematic presentation of tools and also material that need to be used or not to be used(Jared, 2007).The reason why researcher use methodology are Rapid Application Development (RAD) method is artificial techniques that solve the current problems using the rapid development to detect problem in developing system or project. For this system, the project methodology frameworks of development are applied using the Rapid Application Development (RAD) methodology as it competent with the system requirement that has been shown by Figure 3.1.

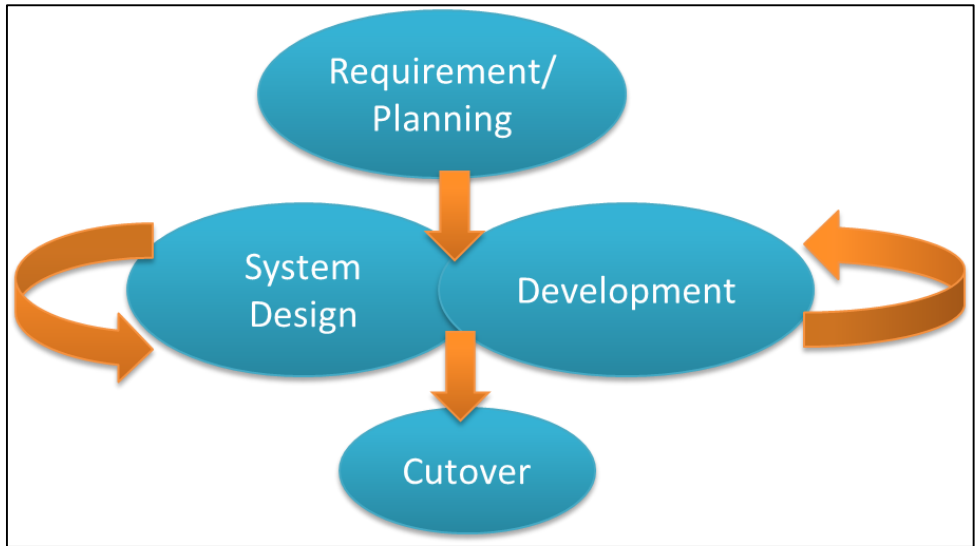


Figure 3.1 RAD Phase

3.3 Methodology

This project used four major steps to implement project starting from requirement planning, user design, development or construction, and cutover. All the methods used for development system regarding the project related(Jared, 2007).Table 3.1 shows the description for each phase of RAD and its deliverables.

Table 3.1 Project Methodology Description

Phase	Tasks	Deliverables
Requirement And Planning	<ul style="list-style-type: none"> Gathering all important information that concludes what needed for this system. Does the planning or brainstorm to make sure that the 	<ul style="list-style-type: none"> Project background Problem statements Objectives Scope of project Techniques to be used in the project List of appropriate software and hardware to be used

	system can be created and work successfully.	
System Design	<ul style="list-style-type: none"> • Capture appropriate software and hardware to be used in this project. • The flow of the project including the project flow process and use-case diagram. 	<ul style="list-style-type: none"> • Process flow diagram • Use-case diagram
Development	<ul style="list-style-type: none"> • Implement the program with code with the selected software and hardware. 	<ul style="list-style-type: none"> • Designing tasks up to this point that integrate the code and implement into the project.
Testing/Cutover	<ul style="list-style-type: none"> • Testing the project to identify if there are errors or issues that need to be fix 	<ul style="list-style-type: none"> • The project is completely finish and ready to be used by the user.

3.3.1 Requirement / Planning

To identify the entire requirement such as hardware and software, requirement analysis must be done in the proper manner. The requirement analysis phases have two main elements which is list of requirement and use case diagram. The first element is need to list all the requirement information that conclude all possible software and hardware so the information can be analyzed which important or not based on cost and time implement consuming(Kayla, 2009). Next, use case must be prepared in order to understand how the system work and process flow concept of the system like diagram shown below that will make planning process for creating the project system more easy and organized.

Various data and researches have been collected from articles, book and online journals to help in developing the proposed project including:

- i. Collecting information regarding the components when developing the project, along with the software and hardware to be used.
- ii. Select and search the best development method for the proposed project.

3.3.2 Feasibility Study

Feasibility study is conducted to study and whether the proposed project can be developed or not. The proposed project is specifically to ease the user who in terms of getting printing serviced without going to the shop. User often has problem in dealing with time and people as for need printing serviced from printing shop that sometimes user need to wait long for line up of people that consuming time and cost. This project is implemented to allow user to get printing serviced by using an online application from computer platform anywhere and anytime.

3.3.3 System Design

Design phase is a stage which needs to design architecture interface which required general architecture and package module for object-oriented analysis and design (OOAD) approach in order to purpose the interface and system develop process system can be done and work properly(McConnell S. , 2003). Each diagram and figure show the general architecture design that need to be design based on diagram and figure shown as below which contain flow process, use case diagram and project system interface design purpose.

3.3.4 Flow Process Design

Based on the Figure 3.2 the flow process of online printing system which start with user open the system from the website. In the system user has many option to choose with such choose the available product, use design assistant for product or just upload and submit the already product for printing service. Next, the data which contain order information will be save by user account in digital access and payment process will proceed. Finally, the product will get printed and move to production department for shipping department and product will send into front door of user.

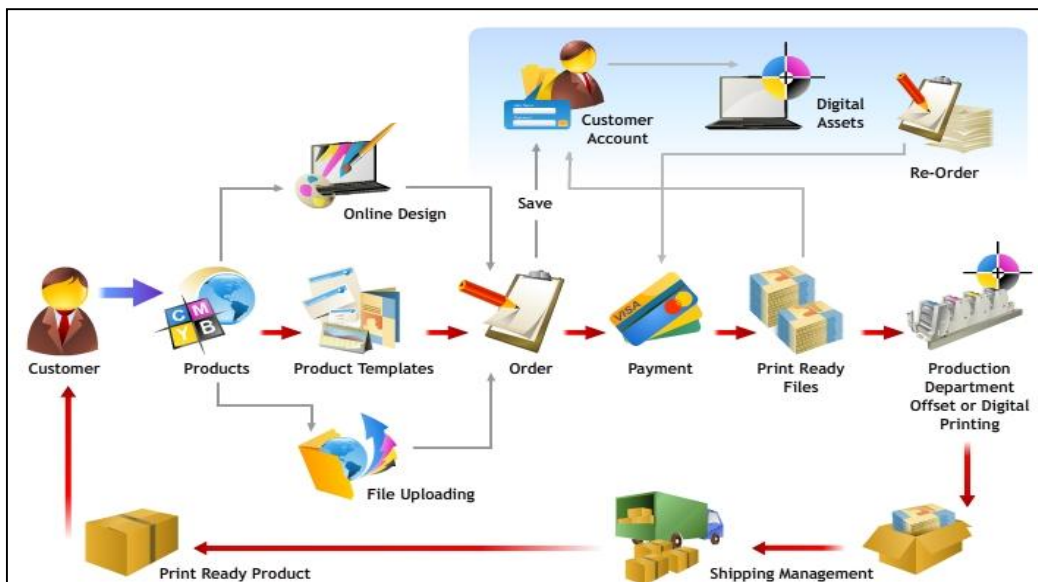


Figure 3.2 Flow Process Diagram

3.3.5 Use Case Diagram Design

Refer to Figure 3.3 shows that use case diagram for this project system. The people in use case diagram is representing the user or user that has two option which is register and unregister user that each of them has different option to work or action can be done. Each people has it represent that has own role that need to done which is authentication for collect user data and credit payment service and PayPal as managing payment system for user. Same as for other, that has role to fulfilling which make the system more organized and work properly.

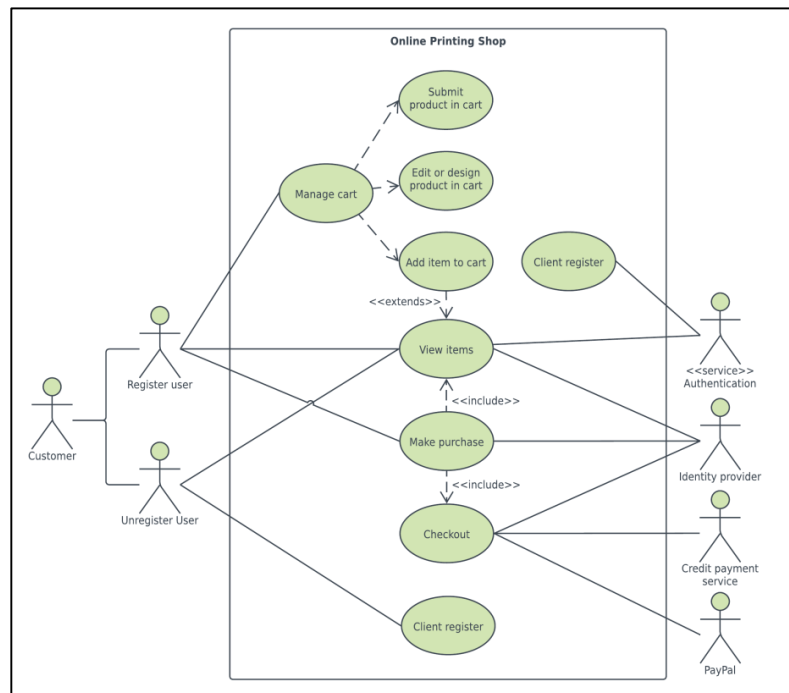


Figure 3.3 Use Case Diagrams

People refer in use case diagram:

- i. User - can be register or not
- ii. Authentication - organized client register
- iii. Identity provider – store data about client
- iv. Credit Payment Serviced – organized payment for client
- v. PayPal – organized payment method for client

3.3.6 Layout Design System Purpose

As be shown by Figure 3.4, that design interface of the project which is still in prototype. Design that has be made based by research that be done in chapter two that required the entire important interface need such as user registration Figure 3.5 , product list in Figure 3.6 and also upload system that can submit the product by user that will make the system more efficient.

System capability:

- i. Can choose and add to cart based what the product of printing serviced
- ii. Can register and log in for user
- iii. Can design and send product
- iv. Can choose what type of payment
- v. Provide guideline

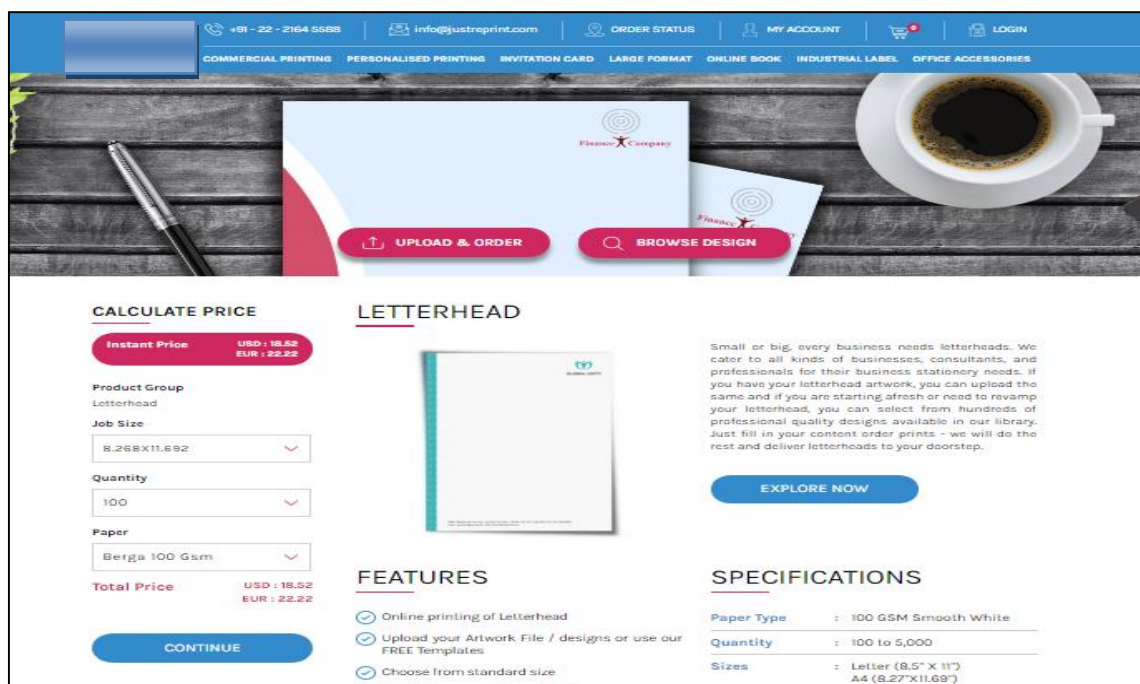
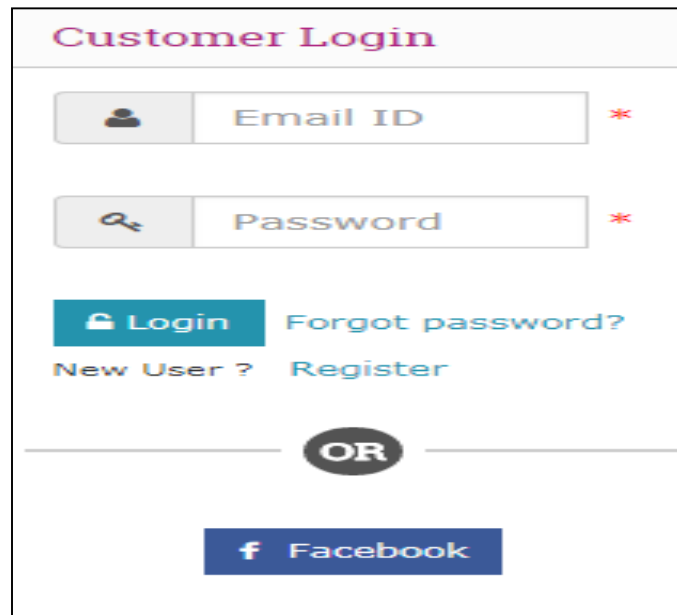
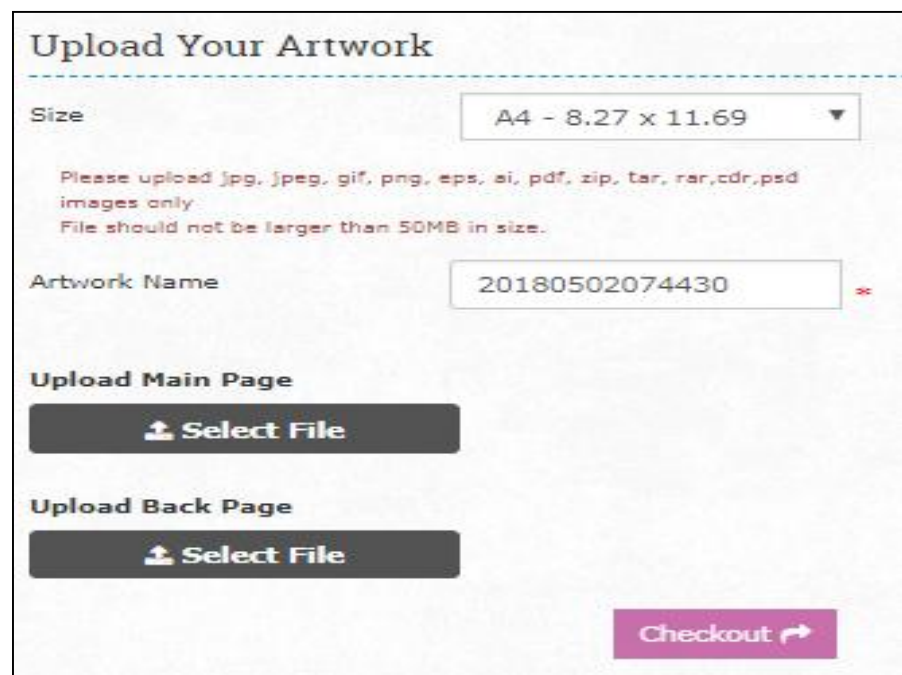


Figure 3.4 Prototype Interface Design



The image shows a 'Customer Login' form. At the top, the title 'Customer Login' is displayed in a purple font. Below the title are two input fields: 'Email ID' with a person icon and 'Password' with a key icon. Both fields have a red asterisk on the right. Below the input fields is a blue 'Login' button with a lock icon, a link for 'Forgot password?', a link for 'New User ? Register', and a blue 'Facebook' button with the Facebook logo. A horizontal line with a black circle containing the word 'OR' is positioned above the Facebook button.

Figure 3.5 Prototype User Login Design



The image shows an 'Upload Your Artwork' form. The title 'Upload Your Artwork' is at the top. Below it is a 'Size' dropdown menu set to 'A4 - 8,27 x 11,69'. A note below the dropdown reads: 'Please upload .jpg, .jpeg, .gif, .png, .eps, .ai, .pdf, .zip, .tar, .rar, .cdr, .psd images only. File should not be larger than 50MB in size.' Below this is an 'Artwork Name' input field containing the text '20180502074430' and a red asterisk. There are two 'Select File' buttons, one for 'Upload Main Page' and one for 'Upload Back Page'. At the bottom right is a purple 'Checkout' button with a right-pointing arrow.

Figure 3.6 Prototype Upload Product Design

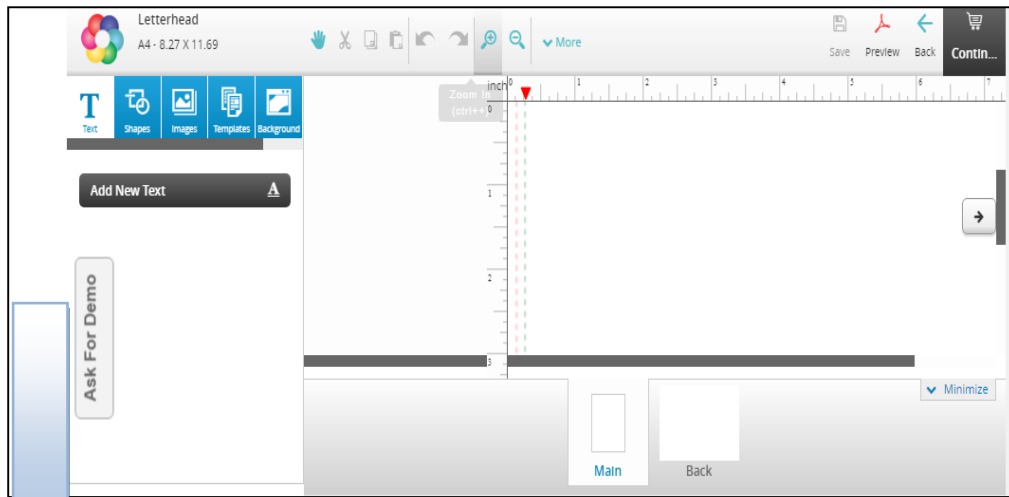


Figure 3.7 Prototype Design Product Interface

Price Calculator

Size

Quantity

Total \$ 169.99

Shipping 📦

calculate

Estimated Total \$ 169.99

Figure 3.8 Prototype Pricing Product Interface

3.4 Hardware and Software Requirement

In this chapter shows the important of hardware and software requirement in developing this project base on analysis that has been done in chapter 3 which are in planning process.

3.4.1 Hardware Requirement

Below is the list of all hardware components and other material that will support to complete this project. Each hardware requirement is very important and has advantage to make system done in time as planned without any error.

Hardware tool:

- Computer desktop / Laptop
- TP-LINK Wireless Router w8961

The hardware running the system will be Intel Pentium 4, running on with 2 GB minimum RAM and also processor speed 2.0 GHz and higher in order to get system running smoothly and prevent any error such as file broken when user submit product file and data information missing like user order data. Mostly hardware tool are used computer desktop or laptop to make the system running. The requirements are really important to make this project complete and work perfectly. However, the reasons why researcher choose this hardware because of easy to get hardware and also can low the cost in develop the project. User also need to use any display tools such as monitor of computer or laptop screen to get clear view about product design of printing product. For internet connection tools researcher choose TP-Link Router because of it quality of router and the high speed coverage can be get by using this router and easy to configure, thus this product can easy be get at nearby store and can save the cost of development .

3.4.2 Software requirement

For software requirement, has choose the software based on what has been research and analysis each type of software that suitable to create this system that will make the system work perfectly. Below are the software requirement lists that will support to complete the system.

This system is a web-based application, that the system it runs from a browser. The system should able to run from client remote machine with an internet connection that used operating system which is Window 7 and above to operate the system that can be work done, and easy to implement with all software which need to create the system. The option is made by user depending on what type product want to choose by or just submit the product into the system for print serviced. The internal interface with be through the browser, through HTML with ASP.net version 3.5 and Ajax along with some JavaScript to structure the system as programming by using java or HTML.

Development environment will be Microsoft Visual Studio version 2015 or higher version for design interface of system like external interface as for database to store data about user by using SQL server database as database system for my project because of capability in storing data in server. By make research and analysis about browser that suitable to used show that Google Chrome browser is the best browser to use because of stable in internet connection and also high security environment to secure the data in web-based system

3.5 Gantt Cart

Gantt cart are very important in process of developing the system, this project timeline consists of task name, start date, finish date and duration of a project. It is an important milestone the developer must follow. As diagram below, Figure 3.9 show the Gantt cart of this project as researcher refer it to make project done and work

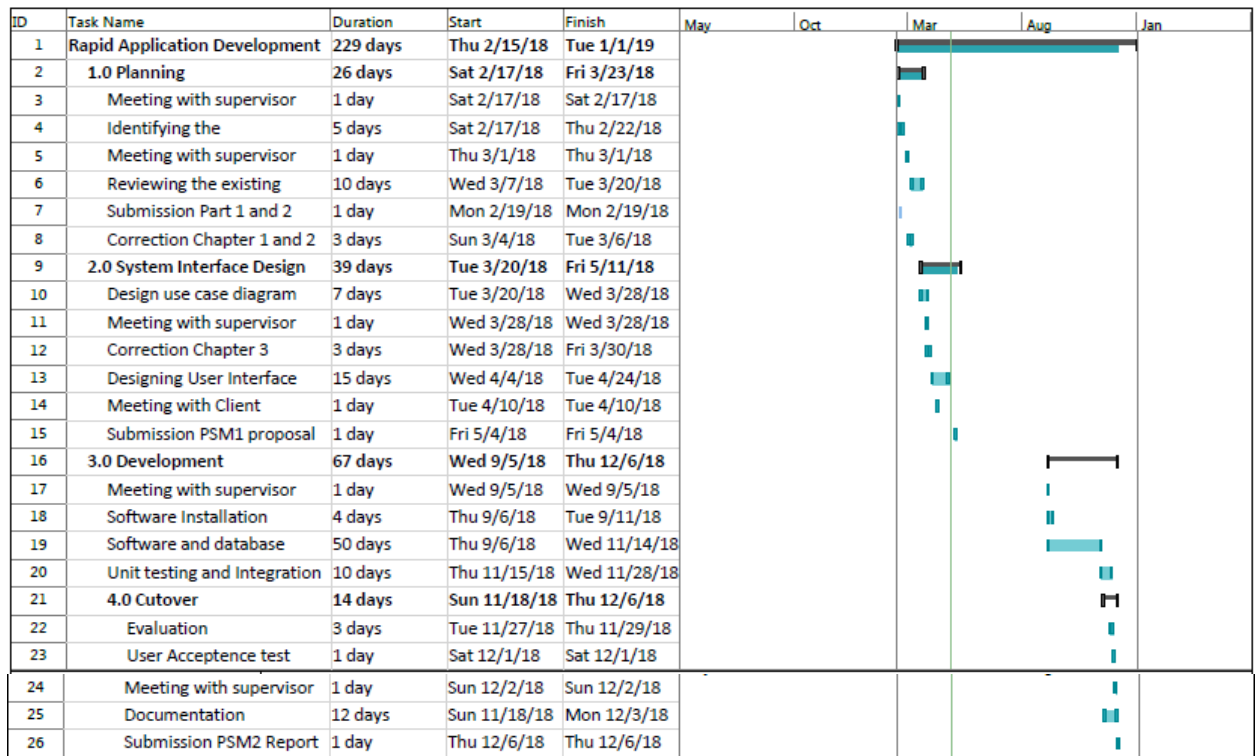


Figure 3.9 Gantt cart diagram project

3.6 Implementation

This phase is where the development started. In this phase, the proposed project has been developed to meet the project objectives. From the proposed project design that was prepared, the developer started to code and develops the project based on the design a guideline. With the complete tasks in previous phase, the implementation phase can be done smoothly(PressCentric, 2017).

3.7 Testing

Testing phase is the last phase in the methodology. Testing is needed after the project has been developed for the purpose of to test all the function to ensure it works perfectly as planned. Moreover, while performing all the testing activities including functional and non-functional, to make sure the system meets the requirements and objectives. This phase is important to verify if there is any error or bugs in the system. If there are any, the process must reverse back to the system design phase to fix the error. The testing phase is done to all components involved in the system. If it is error-free, the project is ready for users.

Table 3.2 shown test that is carried out to test the functionality of the project:

Table 3.2 Testing System Table

Test	Condition (Yes/No)
Testing the functionality system interface	Yes
Testing Registration system	Yes
Testing Product list and add cart	Yes
Testing client submit or upload material	Yes
Testing design product system	Yes
Testing payment method system and PayPal	Yes

3.8 Summary

This chapter has explained about the research methodology selected in this project which is the Rapid Application Development (RAD) methodology involves phases requirement planning, user design, development or construction, and cutover/testing. Each phase has its own function and duty and acts as a guideline by the developer in order to develop this project(Frew, 2000).

CHAPTER 4

IMPLEMENTATION, TESTING AND RESULT DISCUSSION

4.1 INTRODUCTION

In this chapter, it will prioritize the implementation and structure that been discussed in Chapter 3. After the concept and the benefits of Rapid Application Development (RAD) algorithm is implement properly, a test was conducted to obtain the output. Based on the output, a result will be display through system by display the result of final transaction of product which are the system will print receipt and the same time send the final product to print , by connecting the system to the printer device. This system must be connected to the internet in order to be used to finalized process of transaction for client to get the product, the printed product will be sent to the client immediately by the company and client can refer the receipt in order to identify the product.

4.2 IMPLEMENTATION

Implementations are the most important phase where in these phase show each process of implementing the project system by using software and hardware that list in chapter 3.

4.2.1 CASE-BASED REASONING TRAINING

Figure 4.1, shown that how case-based reasoning by using Microsoft Visual for training the application as show in flowchart diagrams in order to identify how the application works and operate from phase to other phase. Each phase have its own flow of operation, which it depends to user how to operate the application.

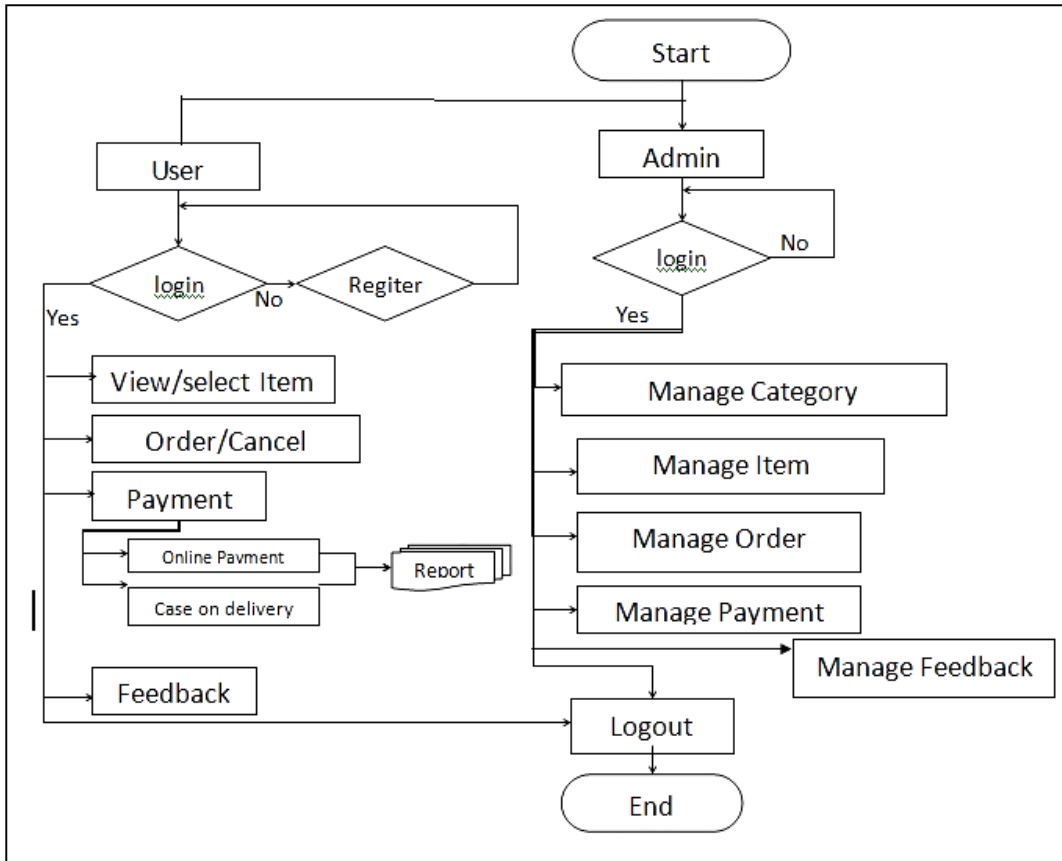


Figure 4.1 Flowchart of Online case-based reasoning training

4.2.2 DATABASE ARCHITECTURE

The database application used for this web-based application is SQL server which the database name given in this application are printing database used in this application. All the data required by the application consist of tables which is Account and database cart .Figure 4.2 shows the database architecture and list of table of Online Printing Shop system.

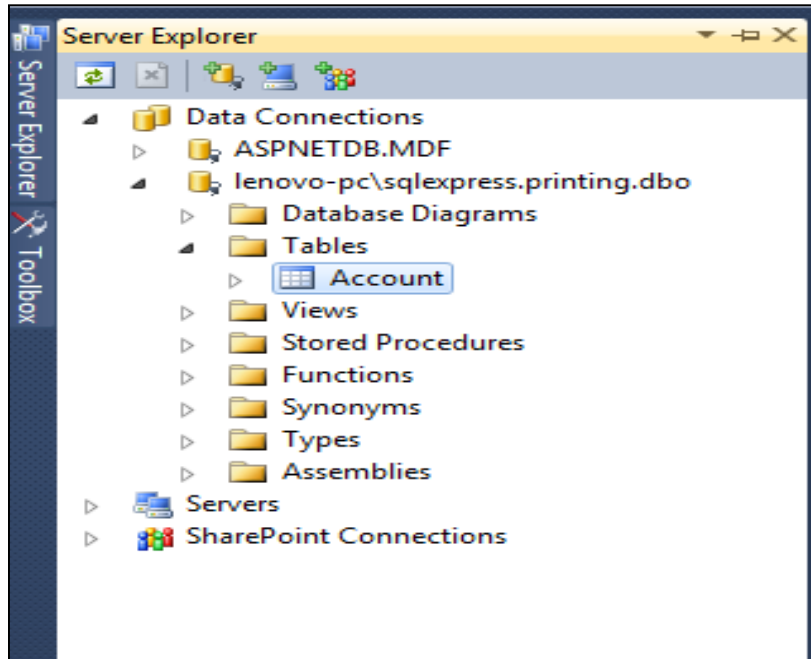


Figure 4.2 Database architecture and list of table in SQL server

4.2.3 Database Table

Figure 4.3 shows the table structure for the entire table in Online Printing Shop system which consist Username, Password, E-mail, Security Question and Security Question.

Column Name	Data Type	Allow Nulls
UserName	nchar(10)	<input type="checkbox"/>
Password	nvarchar(50)	<input type="checkbox"/>
Email	nvarchar(50)	<input type="checkbox"/>
SQuestion	nchar(10)	<input type="checkbox"/>
SAnswer	nchar(10)	<input type="checkbox"/>

Column Properties	
(General)	
(Name)	UserName
Allow Nulls	No
Data Type	nchar
Default Value or Binding	
Length	10

Figure 4.3 Account table


```

<%@ Page Title="" Language="C#" MasterPageFile="~/MasterPage.master" AutoEventWireup="true" CodeFile="about.aspx.cs" Inherits="Default" %>
<asp:Content ID="Content1" ContentPlaceHolderID="head" Runat="Server">
  <style type="text/css">
    .style13
    {
      background-color: #FFFFFF;
    }
    .style14
    {
      font-size: medium;
    }
  </style>
</asp:Content>
<asp:Content ID="Content2" ContentPlaceHolderID="ContentPlaceHolder1" Runat="Server">
  <h1>
    WHY SHOULD YOU KNOW ABOUT US<br />
  </h1>
  <p class="style14"
    style="border-style: none; border-color: inherit; border-width: 0px; box-sizing: border-box; margin: 0px; padding: 0px;">
    Curious about our paper stocks? Place an order for our free sample kit. Inside
    you will find examples of our high-quality printed products and premium paper
  </p>
</asp:Content>

```

Figure 4.10 About Us page code for C# programming language

```

<p class="style14"
  style="border-style: none; border-color: inherit; border-width: 0px; box-sizing: border-box; margin: 0px; padding: 0px;">
  Curious about our paper stocks? Place an order for our free sample kit. Inside
  you will find examples of our high-quality printed products and premium paper
  stocks. Our free sample kit contains a variety of printed samples, a paper
  sample guide, and other helpful information to get you started.</p>
<p class="style14"
  style="border-style: none; border-color: inherit; border-width: 0px; box-sizing: border-box; margin: 0px; padding: 0px;">
  Whether you are printing brochures for your nonprofit organizations, business
  cards for your business, postcards for your startup or invitations for your
  wedding, PsPrint wants to help you shine and empower you to do what you do best
  – build community, grow your business, make meaningful connections or save the
  world – and make a lasting impression.</p>
<p style="box-sizing: border-box; margin: 17px 0px; padding: 0px; border: 0px; font-style: normal; font-size: 1em;">
  <span class="style14"
    style="border-style: none; border-color: inherit; border-width: 0px; box-sizing: border-box; margin: 0px; padding: 0px;">
    <span class="style4">
      <strong>Our Values:</strong></span></span></p>
<ul>
  <li class="style4"><span class="style14"><strong>Our customers come first, always.</strong></span></li>
  <li class="style4"><strong>We are dedicated to exceeding expectations.</strong></li>
  <li class="style4"><strong>Our customers count on us, and we deliver.</strong></li>
</ul>

```

Figure 4.11 About Us interface code

Figure 4.10 and Figure 4.11 shows that code in development of interface for about us page in Online Printing Shop system as web-based application.

4.2.5.1 LOGIN PAGE

In login page, there are two edit texts for user to input their user name and password, one button for Sign In and bring them to another activity which is homepage. The button will load background task which connect to the SQL file which is intermediate to connect to database as show in Figure 4.14.

The screenshot displays the login page for 'JANZ@PRINT'. At the top left, the site name 'JANZ@PRINT' is visible. To its right is a search bar with a 'Search' button and a 'Sign Up / Login' button. Below the site name is a logo of a printer with a dollar sign and the text 'SERVICE ONLINE'. A horizontal navigation bar contains buttons for 'Home', 'Product', 'Design Template', 'Shipping', 'About Us', and 'Cart'. The main login section is titled 'Log In' and includes a 'User Name:' label with an input field, a 'Password:' label with an input field, and a checkbox labeled 'Remember me next time.'. Below the password field, there is a link 'Not member yet? sign up here' and a 'Sign Up' button. A 'Log In' button is positioned to the right of the password field.

Figure 4.14 Login page user interface

4.2.5.2 SIGN-UP PAGE

This page is for unregistered users who want to use this application. To use this application, they need user name, password and email. In registration page they need to insert user name which is full name, confirm password, security question and answer for security protection for user.

The screenshot shows the sign-up page for JANZ@PRINT. At the top left, the text "JANZ@PRINT" is displayed next to a search bar and a "Search" button. To the right is a "Sign Up / Login" button. Below this is a logo of a printer with a dollar sign and the text "SERVICE ONLINE". A navigation bar contains buttons for "Home", "Product", "Design Template", "Shipping", "About Us", and "Cart". The main content area is titled "Sign Up for Your New Account" and contains the following form fields:

- User Name:
- Password:
- Confirm Password:
- E-mail:
- Security Question:
- Security Answer:

A "Create User" button is located at the bottom right of the form area.

Figure 4.15 Sign-up user interfaces

4.2.5.3 PRODUCT USER INTERFACE

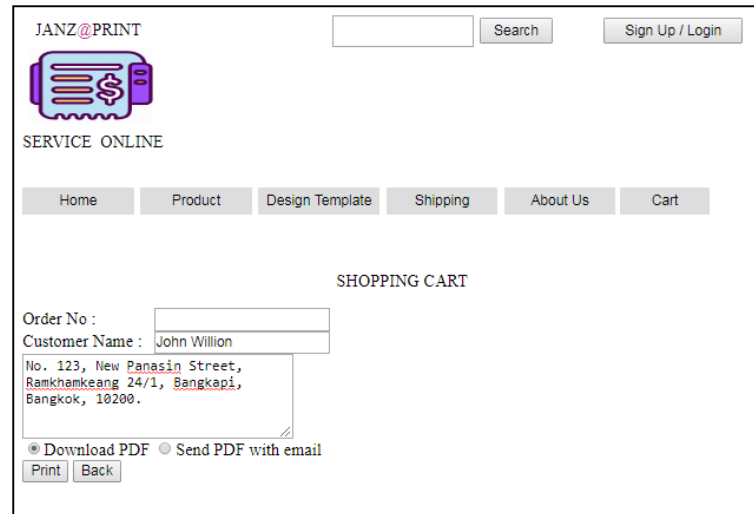
Product interface form is operation where user can choose type of product that want to buy which has been display in the form. User can select type or submit their own product by click the choose file button in order to get the service from the application as shown in Figure 4.16.



Figure 4.16 Product user interface

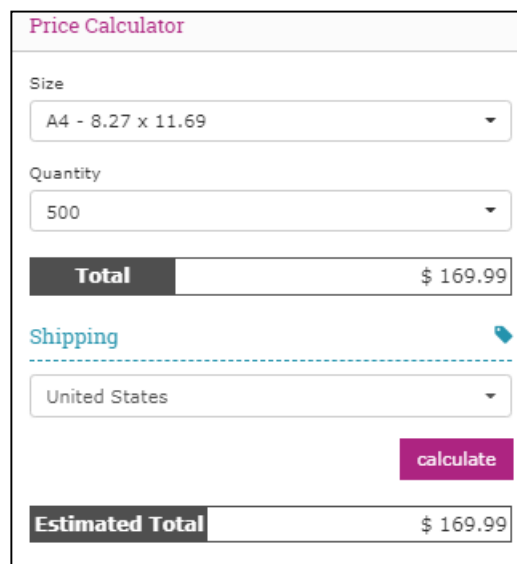
4.2.5.4 CART USER INTERFACE

Cart user interface is for view and add or manage the product that has been choose for display the price for each product. User are allowed to manage their own cart by add or remove the item and set the number of product. User move to next phase by click next button for paying and receipt will be given as with sample of product to user.



The screenshot shows the 'SHIPPING CART' interface for 'JANZ@PRINT'. At the top, there is a search bar and a 'Sign Up / Login' button. Below the site logo, there is a navigation menu with buttons for 'Home', 'Product', 'Design Template', 'Shipping', 'About Us', and 'Cart'. The main content area is titled 'SHIPPING CART' and contains a form for customer information. The form includes fields for 'Order No:', 'Customer Name:' (filled with 'John Willion'), and a multi-line address field (filled with 'No. 123, New Panasin Street, Ramkhamkeang 24/1, Bangkok, 10200.'). Below the address field, there are radio buttons for 'Download PDF' and 'Send PDF with email', and 'Print' and 'Back' buttons.

Figure 4.17 Cart interface



The screenshot shows the 'Price Calculator' interface. It features a 'Size' dropdown menu set to 'A4 - 8.27 x 11.69' and a 'Quantity' dropdown menu set to '500'. Below these, a 'Total' field displays '\$ 169.99'. A 'Shipping' section follows, with a dropdown menu set to 'United States' and a 'calculate' button. At the bottom, an 'Estimated Total' field also displays '\$ 169.99'.

Figure 4.18 Price calculator

4.3 RESULT OF PROJECT

After training is been executed using 70% client testing, this system is been tested by adding and evaluated the new set of client data. There are attributes is taken from the user which are in login phase including username and password, while for register phase including username ,password ,e-mail, security question ,security answer. This attribute then will be saved in file in database. After user finalized the shopping product and to the payment section then system will display the receipt, user can print the receipt. The product will be send to the user by company and user get the print product as the buy through the system as shown in Figure 4.19.

ABC Co.,Ltd
111/206 Moo 9, Ramkhamheang Road,
Nonthaburi 11120

INVOICE
No : 635263
Date : 26 Jan 2014
Bill To : John Willon
No. 123, New Panasin Street,
Ramkhamkeang 24/1, Bangkok,
Bangkok, 10200.

NO	ITEM	QUANTITY	AMOUNT(USD)
1	Item 0	1	1
2	Item 1	2	2
3	Item 2	3	3
4	Item 3	4	4
5	Item 4	5	5
6	Item 5	6	6
7	Item 6	7	7
8	Item 7	8	8
9	Item 8	9	9
10	Item 9	10	10
Total Amount			55.00

*** Please note that ABC Co., Ltd's bank account is USD Bank Account.***

Your Bank Account:
Account No : D123456789012
Account Name : John Willon
Branch : Phahon Yothin Branch
Bank : Kasikorn Bank

Figure 4.19 Receipt print out display

CHAPTER 5

CONCLUSION

5.1 INTRODUCTION

In this chapter, it will emphasize on conclusion of the project. The research that has been done has achieved the objective of the project which are declared in Chapter 1 in create system that can submit and design print product then will display receipt which system will be connected to the printer device to print the product. Rapid Application Development methodology which is to make sure that the system is delivered on schedule and meets the criteria. Rapid Application Development allowed system to be designed and developed and allowed changes to be implemented in the easier way .Conclusion, on the benefits and constraint about the implementation of Rapid Application Development (RAD) online printing system. It also will discuss on the future work on this related research.

5.2 CONSTRAINT

Throughout the implementation and research process that has been done, some constraints have been clearly stated. The constraints of this chapter are to understand the concept of Rapid Application Development (RAD) and how to implement it in Online Printing Shop system. Implement it in web-based application in computer and feature as can connected to printed device and can submit the file through system by user computer or laptop to print the product for user. Feature of this system are enable user to upload their own file to system, each file has its own type and size different. The systems needed to be connected to multiple printed devices are very crucial to company as related to number of user. Multiple databases also crucial because system required to stored many data such as user and product management as system develop as web-based application.

5.3 CONCLUSION AND FUTURE WORKS

From the research and development that has been done, artificial intelligence technique really helps in the development of the advance technology such as web-based application in order to facilitate users by using this system. Rapid Application Development method be refer as one of the most effective and accurate artificial technique in develop this system as web-based application. This also been proved by the testing that been done in Chapter 4 that shows how system can operate as user requirement.

The test been done by using Microsoft Visual Studio by aspn.net file which can be operate as demo system which similar to development of original system in performance and stability of web application. Rapid Application Development (RAD) method is artificial techniques that solve the current problems using the rapid development to detect problem in developing system or project.

Overall, the main objective of this research and development in facilitate users in time management by developing the system by using (RAD) Rapid Application Development is achieved even though there some improvement still needed in this development. However, this artificial technique can be considered as the most preferable and effective in developing system and this can be used for future studies.

For future benefits and the technology advancement, the Online Printing Shop soon will be implemented in real-time and also future research also can be done for next future project such as develop real-time system for mobile application in online printing shop system. The disadvantages in using of this development method is hoped to be improved in the future.

REFERENCE

Frew. (2000). "From Web to Print". Retrieved from Print future (online publication).

Jared, S. (2007). Usability Tools Podcast: Home Page Design.

Kayla, K. (2009). Essential Tips for Designing an Effective Homepage, Six Revision.

Leffingwell, D. (2007). Scaling Software Agility: Best Practice For Large Enterprises. *Addison-Wesley Professional* .

McConnell. (2003). Online Shopping Developer.

McConnell, S. (2003). Professional Software Development: Shorter Schedules, Higher Quality Products, More Successful Projects, Enhanced Careers, Addison-Wesley.

PressCentric. (2017). *Web-based management software, optimized for the printing industry*. Retrieved from <http://www.presscentric.com/technology>

APPENDIX A

GANTT CHART

ID	Task Name	Duration	Start	Finish	May	Oct	Mar	Aug	Jan
1	Rapid Application Development	229 days	Thu 2/15/18	Tue 1/1/19					
2	1.0 Planning	26 days	Sat 2/17/18	Fri 3/23/18					
3	Meeting with supervisor	1 day	Sat 2/17/18	Sat 2/17/18					
4	Identifying the	5 days	Sat 2/17/18	Thu 2/22/18					
5	Meeting with supervisor	1 day	Thu 3/1/18	Thu 3/1/18					
6	Reviewing the existing	10 days	Wed 3/7/18	Tue 3/20/18					
7	Submission Part 1 and 2	1 day	Mon 2/19/18	Mon 2/19/18					
8	Correction Chapter 1 and 2	3 days	Sun 3/4/18	Tue 3/6/18					
9	2.0 System Interface Design	39 days	Tue 3/20/18	Fri 5/11/18					
10	Design use case diagram	7 days	Tue 3/20/18	Wed 3/28/18					
11	Meeting with supervisor	1 day	Wed 3/28/18	Wed 3/28/18					
12	Correction Chapter 3	3 days	Wed 3/28/18	Fri 3/30/18					
13	Designing User Interface	15 days	Wed 4/4/18	Tue 4/24/18					
14	Meeting with Client	1 day	Tue 4/10/18	Tue 4/10/18					
15	Submission PSM1 proposal	1 day	Fri 5/4/18	Fri 5/4/18					
16	3.0 Development	67 days	Wed 9/5/18	Thu 12/6/18					
17	Meeting with supervisor	1 day	Wed 9/5/18	Wed 9/5/18					
18	Software Installation	4 days	Thu 9/6/18	Tue 9/11/18					
19	Software and database	50 days	Thu 9/6/18	Wed 11/14/18					
20	Unit testing and Integration	10 days	Thu 11/15/18	Wed 11/28/18					
21	4.0 Cutover	14 days	Sun 11/18/18	Thu 12/6/18					
22	Evaluation	3 days	Tue 11/27/18	Thu 11/29/18					
23	User Acceptance test	1 day	Sat 12/1/18	Sat 12/1/18					
24	Meeting with supervisor	1 day	Sun 12/2/18	Sun 12/2/18					
25	Documentation	12 days	Sun 11/18/18	Mon 12/3/18					
26	Submission PSM2 Report	1 day	Thu 12/6/18	Thu 12/6/18					

Figure A.1: Gantt cart diagram project