

BORANG PENGESAHAN STATUS TESIS\*

JUDUL : CLOUD STORAGE SUBSYSTEM FOR PIN-IT SOCIAL NETWORK

SESI PENGAJIAN : 2012 / 2013

Saya MOHD FARID BIN MOHD YUSOF (B031010350)

mengaku membenarkan tesis Projek Sarjana Muda ini disimpan di Perpustakaan Fakulti Teknologi Maklumat dan Komunikasi dengan syarat-syarat kegunaan seperti berikut:

1. Tesis dan projek adalah hakmilik Universiti Teknikal Malaysia Melaka.
2. Perpustakaan Fakulti Teknologi Maklumat dan Komunikasi dibenarkan membuat salinan untuk tujuan pengajian sahaja.
3. Perpustakaan Fakulti Teknologi Maklumat dan Komunikasi dibenarkan membuat salinan tesis ini sebagai bahan pertukaran antara institusi pengajian tinggi.
4. \*\* Sila tandakan (/)

           SULIT (Mengandungi maklumat yang berdarjah keselamatan atau kepentingan Malaysia seperti yang termaktub di dalam AKTA RAHSIA RASMI 1972)

           TERHAD (Mengandungi maklumat TERHAD yang telah ditentukan oleh organisasi/badan di mana penyelidikan dijalankan)

  /   TIDAK TERHAD

  
(TANDATANGAN PENULIS)

  
(TANDATANGAN PENYELIA)

Alamat tetap: NO 32, JLN BBI6,  
TMN BKT BERUANG INDAH,  
75450 AYER KEROH, MELAKA.

NURIDAWATI BINTI MUSTAFA

Tarikh: 30 / 8 / 2013

Tarikh: 30 / 8 / 2013

CATATAN: \* Tesis dimaksudkan sebagai Laporan Projek Sarjana Muda (PSM).  
\*\* Jika tesis ini SULIT atau TERHAD, sila lampirkan surat daripada pihak berkuasa.

**CLOUD STORAGE SUBSYSTEM  
FOR PIN-IT SOCIAL NETWORK**

MOHD FARID BIN MOHD YUSOF

This report is submitted in partial fulfillment of the requirements for the  
Bachelor of Computer Science (Software Development)

FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY  
UNIVERSITI TEKNIKAL MALAYSIA MELAKA

2013

## DECLARATION

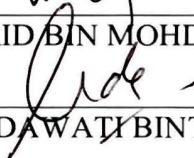
I hereby declare that this project report entitled  
CLOUD STORAGE SUBSYSTEM FOR PIN-IT SOCIAL NETWORK

is written by me and is my own effort and that no part has been plagiarized  
without citations.

STUDENT

:   
(MOHD FARID BIN MOHD YUSOF) Date: 30/8/2013

SUPERVISOR

:   
(MISS NURIDAWATI BINTI MUSTAFA) Date: 30/8/2013

## **DEDICATION**

This thesis report is dedicated to my parents for their love, endless support and encouragement. Without their love and support, I would not have been possible to complete this project.

## ACKNOWLEDGEMENTS

I would like to express our appreciation to all those who gave me the opportunity to prepare this report. A special thanks I give to our last semester project supervisor, Ms Nuridawati Binti Mustafa, on the contribution of stimulating suggestions and encouragement that helped me to streamline my projects, especially in the writing of this report.

In addition I also wish to acknowledge the many important roles in technical staff, who give permission for the use of all necessary equipment and materials needed to complete the “Cloud Storage Subsystem for Pin It”. A special thanks goes to all my teammates, who helped me to assemble the system components. I appreciate the guidance provided by other supervisors and public systems testers, especially in our projects that have improved the projects performance and I highly appreciate the comments and advice.

## ABSTRACT

PIN-IT is a web application that utilize the use of Microsoft's integrated Bing Maps as the main display. PIN-IT bring a new social networking style that differs from the current web application. In this application, each activity will be shared on Bing Maps. PIN-IT also uses geo-tagging technology, a technology which allow any location shared through Bing Maps such as status updates, documents, videos, pictures or other media. This application has several categories or subsystem and one of them is 'Cloud Storage Subsystem'. This subsystem is very important in a social network because it allows all the data files manageable and securely safe. It also allows users to upload and download their files wherever they are as long as there is an internet connection available. There are other functionalities that facilitate the use of applications such as storing files using folder, remove the file, and also display photos in tile view album. If users want to share their files with other external users, they can use the 'Share' functionalities. All upload activities will be displayed in the newsfeed that can be seen by other colleagues. However, this option can be turned off if the user concerned about their privacy. This application also display the users' files directly such as photos, documents and videos. This subsystem is a web-based system using PHP as the server side scripting and HTML for the interface as well as other languages such as CSS and JavaScript. Object-oriented concepts are also used for some functions such as uploading function for easy integration with other subsystems. Language SQL (MySQL) database is used as a database statement and it is managed by using phpMyAdmin and MySql Workbench and Apache has been chosen as web server application.

## ABSTRAK

PIN-IT merupakan aplikasi web yang mengadaptasikan penggunaan integrasi Bing Maps dari Microsoft sebagai paparan utama. PIN-IT sebagai sebuah laman sosial membawa gaya rangkaian sosial baru yang berbeza berbanding aplikasi web semasa di mana dalam aplikasi ini, setiap aktiviti akan dikongsi pada Bing Maps. PIN-IT juga menggunakan teknologi geotagging, sebuah teknologi di mana ianya membenarkan perkongsian lokasi apa jua aktiviti di dalam aplikasi seperti kemas kini status, dokumen, video, gambar atau media lain. Aplikasi ini mempunyai beberapa kategori atau pecahan sisten dan salah satunya merupakan 'Cloud Storage Subsystem'. Kategori ini amat penting di dalam sesebuah laman sosial kerana ianya membolehkan kesemua data yang berbentuk fail dapat diurus dengan baik dan selamat. Ia juga membolehkan pengguna memuat naik dan memuat turun fail mereka di mana sahaja mereka berada sekira terdapat sambungan internet. Terdapat fungsi-fungsi lain yang memudahkan lagi penggunaan aplikasi ini seperti penyimpanan fail menggunakan 'folder', membuang fail, dan juga paparan gambar 'tile view photo'. Sekiranya pengguna ingin berkongsi fail dengan pengguna luar, mereka boleh menggunakan fungsi 'Share'. Aktiviti memuat naik fail akan dipaparkan di Newsfeed agar dapat dilihat oleh rakan-rakan yang lain. Namun, opsi ini dapat dipadamkan sekiranya pengguna mementingkan privasi mereka. Aplikasi ini juga memudahkan para pengguna untuk memaparkan fail mereka secara terus seperti gambar, dokumen dan video. Sistem ini adalah satu sistem berasaskan web yang menggunakan PHP sebagai server side scripting dan HTML untuk antara muka di samping bahasa lain seperti CSS dan JavaScript. Konsep berorientasikan objek juga digunakan untuk sebahagian fungsi seperti fungsi muat naik bagi memudahkan integrasi dengan subsistem yang lain. Bahasa SQL (MySQL) digunakan sebagai bahasa pangkalan data dan ia diuruskan menggunakan phpMyAdmin dan MySql Workbench manakala Apache dipilih sebagai server.

## TABLE OF CONTENT

| <b>CHAPTER</b>   | <b>SUBJECT</b>                                       | <b>PAGE</b> |
|------------------|--|-------------|
|                  | <b>DEDICATION</b>                                    | <b>iv</b>   |
|                  | <b>ACKNOWLEDGEMENTS</b>                              | <b>v</b>    |
|                  | <b>ABSTRACT</b>                                      | <b>vi</b>   |
|                  | <b>ABSTRAK</b>                                       | <b>vii</b>  |
|                  | <b>TABLE OF CONTENTS</b>                             | <b>viii</b> |
|                  | <b>LIST OF TABLES</b>                                | <b>xi</b>   |
|                  | <b>LIST OF FIGURE</b>                                | <b>xiii</b> |
|                  | <b>LIST OF APPENDICES</b>                            | <b>xiv</b>  |
|                  | <b>LIST OF ABBREVIATIONS</b>                         | <b>xv</b>   |
|                  | <b>LIST OF ATTACHMENT</b>                            | <b>xvi</b>  |
| <br>             |  |             |
| <b>CHAPTER 1</b> | <b>INTRODUCTION</b>                                  |             |
|                  | 1.1 Introduction                                     | 1           |
|                  | 1.2 Problem statement(s)                             | 2           |
|                  | 1.3 Objective  | 2           |
|                  | 1.4 Scopes   | 3           |
|                  | 1.5 Project significance                             | 4           |
|                  | 1.6 Conclusion                                       | 4           |
| <br>             |  |             |
| <b>CHAPTER 2</b> | <b>LITERATURE REVIEW AND PROJECT<br/>METHODOLOGY</b> |             |
|                  | 2.1 Introduction                                     | 5           |



|       |                                 |    |
|-------|---------------------------------|----|
| 2.2   | Fact and finding                | 6  |
| 2.3   | Project methodology             | 7  |
| 2.3.1 | Phase : requirements            | 8  |
| 2.3.2 | Phase : architecture and design | 8  |
| 2.3.3 | Phase : development             | 9  |
| 2.3.4 | Phase : test and feedback       | 9  |
| 2.4   | Project requirements            | 10 |
| 2.4.1 | Software requirements           | 10 |
| 2.4.2 | Hardware requirements           | 11 |
| 2.5   | Project schedule and milestones | 11 |
| 2.6   | Conclusion                      | 12 |

### **CHAPTER 3 ANALYSIS**

|       |   |    |
|-------|---|----|
| 3.1   | Introduction                                | 13 |
| 3.2   | Problem analysis                            | 14 |
| 3.2.1 | Context Diagram – Current<br>Business       | 14 |
| 3.2.2 | Data Flow Diagram - Current<br>Business     | 14 |
| 3.3   | Requirement analysis                        | 15 |
| 3.3.1 | Context Diagram – Proposed<br>Application   | 15 |
| 3.3.2 | Data Flow Diagram - Proposed<br>Application | 16 |
| 3.4   | Conclusion                                  | 16 |

### **CHAPTER 4 DESIGN**

|       |                       |    |
|-------|-----------------------|----|
| 4.1   | Introduction          | 17 |
| 4.2   | High level design     | 17 |
| 4.2.1 | System architecture   | 18 |
| 4.2.2 | User interface design | 20 |

|         |   |    |
|---------|---|----|
| 4.2.2.1 | Navigation design.                        | 20 |
| 4.2.2.2 | Input and Output Design                   | 21 |
| 4.2.3   | Database design                           | 33 |
| 4.2.4   | Conceptual and Logical Database<br>Design | 36 |
| 4.3     | Conclusion                                | 36 |

## **CHAPTER 5 IMPLEMENTATION**

|       |  |    |
|-------|--|----|
| 5.1   | Introduction                           | 37 |
| 5.2   | Software development environment setup | 38 |
| 5.3   | Software configuration management      | 39 |
| 5.3.1 | Configuration environment setup        | 39 |
| 5.3.2 | Version control procedure              | 40 |
| 5.4   | Implementation status                  | 43 |
| 5.5   | Conclusion                             | 47 |

## **CHAPTER 6 TESTING**

|         |                     |    |
|---------|---------------------|----|
| 6.1     | Introduction        | 48 |
| 6.2     | Test plan           | 49 |
| 6.2.1   | Test organization   | 49 |
| 6.2.2   | Test environment    | 50 |
| 6.2.3   | Test schedule       | 50 |
| 6.3     | Test strategy       | 52 |
| 6.3.1   | Classes of tests    | 53 |
| 6.3.1.1 | Unit testing        | 53 |
| 6.3.1.2 | System testing      | 54 |
| 6.3.1.3 | Performance testing | 54 |
| 6.3.1.4 | Security testing    | 54 |
| 6.3.1.5 | Integration testing | 55 |
| 6.4     | Test design         | 55 |
| 6.4.1   | Test description    | 55 |

|       |                           |    |
|-------|---------------------------|----|
| 6.4.2 | Test data                 | 63 |
| 6.5   | Test results and analysis | 65 |
| 6.6   | Conclusion                | 69 |

## **CHAPTER 7 PROJECT CONCLUSION**

|       |   |    |
|-------|---|----|
| 7.1   | Observation on Weaknesses and Strengths | 70 |
| 7.1.1 | System Strength                         | 70 |
| 7.1.2 | System Weakness                         | 71 |
| 7.2   | Propositions for Improvement            | 71 |
| 7.3   | Contribution                            | 71 |
| 7.4   | Conclusion                              | 72 |

|                   |    |
|-------------------|----|
| <b>REFERENCES</b> | 73 |
|-------------------|----|

|                     |    |
|---------------------|----|
| <b>BIBLIOGRAPHY</b> | 74 |
|---------------------|----|

|                   |    |
|-------------------|----|
| <b>APPENDIXES</b> | 75 |
|-------------------|----|

## LIST OF TABLES

| <b>TABLE</b> | <b>TITLE</b>                                 | <b>PAGE</b> |
|--------------|--|-------------|
| Table 2.1    | Software Requirement                         | 10          |
| Table 2.2    | Hardware Requirement                         | 11          |
| Table 2.3    | Project Schedule                             | 11          |
| Table 4.1    | Data Dictionary for table ACCOUNTS           | 33          |
| Table 4.2    | Data Dictionary for table POSTS              | 34          |
| Table 4.3    | Data Dictionary for table CLOUD              | 34          |
| Table 4.4    | Data Dictionary for table FOLDER             | 35          |
| Table 5.1    | List of procedure and control versions       | 42          |
| Table 5.2    | Implementation Status                        | 43          |
| Table 6.1    | Test Environment                             | 50          |
| Table 6.2    | Test schedule for Cloud Storage Subsystems   | 51          |
| Table 6.3    | Register Component Test Case Table           | 56          |
| Table 6.4    | Login Component Test Case Table              | 57          |
| Table 6.5    | User Data Component Test Case Table          | 57          |
| Table 6.6    | Test Case (Main Page)                        | 58          |
| Table 6.7    | Test Case (Upload Function)                  | 59          |
| Table 6.8    | Test Case (Database Connectivity)            | 60          |
| Table 6.9    | Test Case (User Privacy)                     | 61          |
| Table 6.10   | Test Case (File View/Download and Player)    | 62          |
| Table 6.11   | Test Data_01-1 information description table | 63          |
| Table 6.12   | Test Data_01-2 information description table | 63          |
| Table 6.13   | Test Data_01-3 information description table | 63          |
| Table 6.14   | Test Data_01-4 information description table | 63          |
| Table 6.15   | Test Data_01-5 information description table | 63          |
| Table 6.16   | Test Data_01-6 information description table | 64          |

|            |  |    |
|------------|--|----|
| Table 6.17 | Test Data_01-7 information description table               | 64 |
| Table 6.18 | Test Data_01-8 information description table               | 64 |
| Table 6.19 | Test Data_01-9 information description table               | 64 |
| Table 6.20 | Test Data_01-10 information description table              | 64 |
| Table 6.21 | Test Data_01-11 information description table              | 64 |
| Table 6.22 | Test Data_01-12 information description table              | 65 |
| Table 6.23 | Test Data_01-13 information description table              | 65 |
| Table 6.24 | Test Data_01-14 information description table              | 65 |
| Table 6.25 | Test Data_02-1 information description table               | 65 |
| Table 6.26 | Test Data_02-2 information description table               | 65 |
| Table 6.27 | Test Data_02-3 information description table               | 65 |
| Table 6.28 | Test Data_02-4 information description table               | 66 |
| Table 6.29 | Test Data_03-1 information description table               | 66 |
| Table 6.30 | Test Data_03-2 information description table               | 66 |
| Table 6.31 | Test Results and Analysis (Test Case: TC_01)               | 66 |
| Table 6.32 | Test Results and Analysis (Test Case: TC_02)               | 67 |
| Table 6.33 | 33 Test Results and Analysis (Test Case:<br>TC_03)         | 67 |
| Table 6.34 | Table 6.34 Test Results and Analysis (Test<br>Case: Txxxa) | 67 |
| Table 6.35 | Table 6.35 Test Results and Analysis (Test<br>Case: Txxxb) | 68 |
| Table 6.36 | Table 6.36 Test Results and Analysis (Test<br>Case: Txxxc) | 68 |
| Table 6.37 | Table 6.37 Test Results and Analysis (Test<br>Case: Txxxd) | 68 |
| Table 6.38 | Table 6.38 Test Results and Analysis (Test<br>Case: Txxxe) | 69 |

## LIST OF FIGURE

| <b>FIGURE</b> | <b>TITLE</b>                         | <b>PAGE</b> |
|---------------|--------------------------------------|-------------|
| Figure 2.1    | Software Development Model           | 9           |
| Figure 2.2    | Gantt chart                          | 12          |
| Figure 3.1    | Context Diagram (Current Business)   | 14          |
| Figure 3.2    | Data Flow Diagram (Current Business) | 14          |
| Figure 3.3    | Context Diagram                      | 15          |
| Figure 3.4    | Data Flow Diagram                    | 16          |
| Figure 4.1    | System Architecture                  | 18          |
| Figure 4.2    | Navigation design                    | 21          |
| Figure 4.3    | Input and output Design              | 32          |
| Figure 4.4    | Entity Relationship Diagram          | 89          |
| Figure 5.1    | Environment Architecture             | 39          |
| Figure 5.2    | Versioning References List           | 52          |

**LIST OF APPENDIXES**

| <b>APPENDIX</b> | <b>TITLE</b>              | <b>PAGE</b> |
|-----------------|---------------------------|-------------|
| A               | XAMPP Configuration       | 75          |
| B               | Class Source Code         | 82          |
| C               | Entity Relational Diagram | 88          |
| D               | User Manual               | 90          |

**LIST OF ABBREVIATIONS**

| <b>SHORTFORM</b> | <b>DESCRIPTION</b>          |
|------------------|-----------------------------|
| FTP              | File Transfer Protocol      |
| DBLC             | Database Life Cycle         |
| ERD              | Entity Relationship Diagram |
| DBMS             | Database Management Systems |
| LAN              | Local Area Network          |
| WAN              | Wide Area Network           |



**LIST OF ATTACHMENT**

| <b>ATTACHMENT</b> | <b>TITLE</b>  | <b>PAGE</b> |
|-------------------|---------------|-------------|
| A                 | Proposal Form | 100         |

# CHAPTER I

## INTRODUCTION

### 1.1 INTRODUCTION

Cloud storage is a model of networked enterprise storage where data is stored not only in the user's computer, but in virtualized pools of storage which are generally hosted by third parties, too. Hosting companies operate large data centers, and people who require their data to be hosted buy or lease storage capacity from them. The data center operators, in the background, virtualize the resources according to the requirements of the customer and expose them as storage pools, which the customers can themselves use to store files or data objects. Physically, the resource may span across multiple servers. The safety of the files depends upon the hosting websites.

Cloud storage services may be accessed through a web service application programming interface (API), a cloud storage gateway or through a Web-based user interface.

As the increasing of technology, a new application is developed to manage cloud storage for Pin-It Social Network users. Cloud storage may be cost-efficient for many users and for everyday use, but for the average user of the computer and internet, the costs of cloud storage may outweigh its benefits. Thus, I develop a cloud storage system for Pin-In especially, and give them an amount of 200MB of free cloud spaces

for them to use. In addition, I provide extra cloud spaces for my premium user. Premium user means a user that pay for the cloud space.

## **1.2 PROBLEM STATEMENT**

As cloud storage systems become the tool of choice for increasingly more web applications and services' data storage solutions, the number of cloud solutions in the market also increases, pointing towards a dominant design yet to be seen. The relaxation of consistency guarantees opened the road to scalability and spawned several new ways of storing and handling data, which resulted in several existing cloud storage systems nowadays. The "X is better than Y" type comparisons can't yet be made, due to the lack of proper testing and benchmarking tools. As in the cloud storage market, the cloud storage testing and benchmarking market is also a growth market.

Previously, many users are using traditional storage like CD-ROM and Hard-disk to store data. They need to bring them anywhere when they need to access the data. Some people do not like to bring along their storage disk or maybe they will forgot to bring it but somehow there are certain files or data that are important to access.

## **1.3 OBJECTIVES**

The objectives of the study is to introduce a cloud storage subsystem that is integrated with Pin-It Social Network which is implemented web-based. There are few objectives:

- a) To let users access their data anywhere.

The main advantage of keeping your documents in the cloud is that you can access them virtually anywhere with an internet connection. All cloud storage services have their own apps you can install on your mobile device. Most cloud storage services can also be used via browser, so accessing your files on a laptop or PC should be as fast and convenient as with your mobile device. Browser access can also be great for situations where you need to access your files using a device other than your own.

- b) To let users share their data easily.

In addition to being able to access your documents anywhere, sharing is another important reason to use a cloud service. Usually, the person you decide to share a file or a folder with needs to be a user of that same cloud storage service. Whether its lecture materials or work documents, sharing in the cloud is super easy.

- c) Deliver the needs of online social storage in forms of social network.

## 1.4 SCOPES

### 1.4.1 User Target

#### Registered User

- Only the registered user can access the system. They must have their own account to use the subsystem.

#### Premium User

- User's that paid for extra cloud space in the subsystem.

### Unregistered User

- Unregistered users can access the cloud data only when registered user share the data.

## 1.4.2 Location

This system can be access anytime and anywhere as long as there is an internet connection and a web browser in a personal computer.

## 1.5 PROJECT SIGNIFICANCE

This system help to reduce the human effort to bring their physical storage anywhere they go.

## 1.6 CONCLUSION

In order to get a better solution, this system is very effective in reducing the human managing their documents and files. With this subsystem, users can complete their managing files and documents task anywhere they want. This system is also will be ease for them to share with their friends.

## **CHAPTER II**

### **LITERATURE REVIEW AND PROJECT METHODOLOGY**

#### **2.1 INTRODUCTION**

The purpose of a literature review is to describe the work that has been reported on a subject or field. It demonstrates an individual's ability to identify the significant information and sketch existing knowledge. It helps fill in the gap in the research that the work will address, and generates rationale or justification for the study. In other words the main purpose of a literature review is to demonstrate the scholarly capacity, identify information, and outline the presented knowledge.

It places each work in the context of its role to the understanding of the topic under review. It explains how the information in the report will be used to supplement the original purpose statement. The review is also useful in describing the relationships of each work to the others under consideration.

The process of drawing conclusions from individual study is frequently obscure, and the methodology often not effectively described to enable a replicating process. It has an explicit enclosure and exclusion criteria for studies, and illustrates evidence of appropriate search for unpublished material.

## 2.2 Fact and finding (based on topic)

Pin-It cloud system basically is developing to be used by the users for the managing and storing data such as files, pictures and videos into the system. Through informing there are some information that being a must for the cloud to be. For examples:

### a. File type

File type might be supported or not. Basically all file type are supported. But there are some file type that cannot be uploaded. To ensure server are always healthy, users may upload up to 20MB in a time. Furthermore, there are file type that is not allowed because of the probability of virus infection or malware. This subsystem should protect their user from affected by such virus.

### b. File privacy

This must be important for a user that do not want to expose their file to others. By using this cloud system, user may set their privacy to ensure that their file in secure.

### c. Location

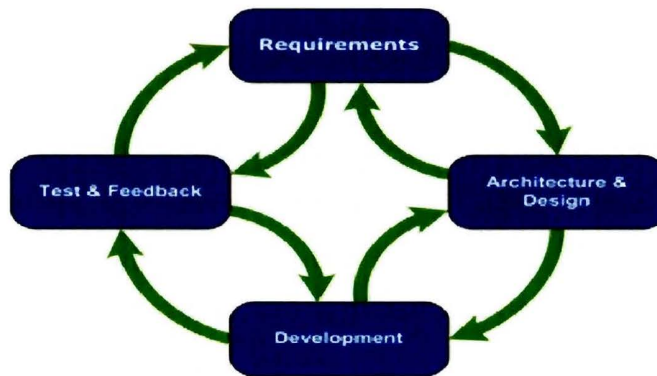
Most uploaded file will store their geo-location. However users may turn of this option for their privacy.

## 2.3 Project Methodology

In developing a new system, methodology phase plays an important role where the system developer will be able to identify the methodology that they are going to use in the system. This is very important because it determine the successfulness of the whole system. Therefore we must identify the correct methodology that will match perfectly with the system development in terms of all aspects without any limitation or constraints.

The design for the interfaces must be considered in details and precisely as to make sure all the functions work properly. This is to ensure that the user requirements are fulfilled perfectly. This system is developed based on the technique of Software structured architecture and design (SSADM). The type of phase we use is Agile System Development Life Cycle (SDLC).

### Software Development Approach: Agile Model



**Figure 2.1: Agile Model**

The system development model that I would prefer to choose is the Agile Model. It is because it can change or modify the user requirements without any hesitation at any time that the user want to change it. Moreover, I have the opportunity to communicate face to face with the user regarding the system requirements, the output of the system and about the whole system.