CHAPTER 1

INTRODUCTION

1.1 PROJECT OVERVIEW

Nowadays, Technology is growing up and the internet is global, come to play a role in and influence people in daily life. These innovations have helped people to understand more about technology. An organization can help the work of the staff that agency easier and more convenient to work in both the public sector and private. It makes this service more popular and accessible to the public. It has been transformed into a web application and connected to the internet where everyone can be able to access as well. Because of this reason, we will present by developing inform repairing online. (Bill Gates, 2011)

Houseware repairing is a one web application to use for repairing home equipment, and communication between technicians and customers. This web application service for people in three southern border provinces area. This web application used to inform repair when a customer has some devices broken and can be entered online to the repair service. Especially, customers can track their repair inform. Then technicians will come home to the customer to fix about home equipment. This web app has three users to use: admin, technicians, and customers. Admin is who manages all information can add delete and update. Technicians those who want to be a member, they have to percentage deduction first. Then admin will allow them to be members. The last, customer can inform repairing and tracking their inform. There are provide four types of Technicians. There are four types of the technician. The first is an electrician. They will repair such a broken bulb, fan or air conditioner. The second is IT technicians. They will repair such a broken computer, printer or CPU. Third is Home renovated. They will repair such a plaster, fix

roof leaks or build a fence. The last is a general technician. They will repair such a sync leak, broken pipe or broken tap.

Conclusion, the purpose of this Project develops a web application, which is the name of the project is Housewares Repairing Center. This project will solve the problem of home equipment by informing repairing form this web application to convenient for users. Therefore, with this web application the administrator, technician and customer will get the opportunity to inform repairing.

1.2 PROBLEM STATEMENT

Three southern border provinces (Yala, Pattani and Narathiwat) are place that has a very beautiful and wide area. There are many tourist attractions such as sea, hiking, and waterfalls. There are a lot of people living both in the area and outside the area. Especially, most people in the city usually do not know much with people around their place because some people are not even people in the area. In other words, they will be more centralized than in the other, because most of them will work as government fees go to the morning and back again in the evening. So, they do not know each other and have limited time. When it had some devices broken, usually they will search about fixing shop around because devices need frequent checks, and it may need some maintenance for them but it’s hard to find kind technicians or good shop. Therefore, we are interested to create this web application. For this research, I would like to the city of Three southern border provinces whether it is an agency, know and have access to the online repair web application to be as real as possible.

1.3 PROJECT OBJECTIVES

- To develop housewares repairing web application.
- To conveniently for people in town (Yala, Pattani and Narathiwat) to find technician.
- To comfortable for users inform repairing on site.
- To customers able to track their report.

1.4 SCOPE OF STUDY

The scope of Housewares Repairing: we create for those who live in Three southern border provinces (Yala, Pattani and Narathiwat). The system able users to track repairs and allow users to repair inform such as bulb, fan, air conditioning, door, broken pipe, computers, printer or renovate. There are provided four types of Technicians: Electricians, IT technicians, Home renovate and general technicians. The system will use with Thai language for users easy to understand.

Admin

- Registration - this allows the customer and technicians to register for Getting the account to access the web application.
- Login - this provides authentication to admin, technicians, the customer that it will be secure and reliable.
- View history of the inform - This will show the history of the repair inform to all of the customers.

- Manage information - This admin can delete, update and view all of the info about customers and technicians: the profile, history of the inform, damage report and review.

Technicians

- View report - This will show of customer inform.
- Selected inform- This will show technicians select accepted or rejected.
- Request (check and Evaluate the price) - This will show after technicians accept the inform of a customer claim.

Customer

- Inform Repair- This customer can claim when some devices are broken and customers can choose technicians.

1.5 SIGNIFICANT OF STUDY

Users

- To conveniently for people in town (Three southern border provinces) to find technicians.
- To inform repairing in a short time on site.
- To tracking users inform.

Develop

- It can provide quality services and use it as a tool to solve problems for users.
- Be able to use knowledge to solve problems effectively. And more convenient to work.
- It can develop knowledge and the ability to write programs better.
- It can use the program to develop to make the program more capable and able.
- It can solve problems for organizations that have problems with IT systems.

1.6 ORGANIZATION REPORT

The proposal consists of five chapters organization as follows:

Chapter 1: Introduction

The introduction about the project overview, problem statement, project objectives, project scope, expected benefits, and organization of the document.

Chapter 2: Literature Review

This chapter is mentioned about the definition and reviews the literature that will be the support reference of our projects in many views which concerned about business in Thailand or others related to our project.

Chapter 3: Methodology

This chapter is described Methodology which to study that users to develop Warehouses Repairing Web Application and describe in each phase.

Chapter 4: Implementation

This chapter expresses the hardware and software environment that used to develop Houseware Repairing Web Application.

Chapter 5: Conclusion

This chapter describes how the system is a benefit for the users or organization and recommendations for future work.

CHAPTER 2

LITERATURE REVIEW

RELATED WORK

2.1.1 REPAIR SYSTEM

According to Urai Noosundod (2010), Study and develop a Repair system and solve problems, the system supports the department of Ban Software Co., Ltd by developing a system in the form of web applications to assist in the organization to keep the data in the form of a database. The repair system will cover the work of two departments, there are the support department and the development system department, which will have a step of work from problem notification to the final step. The last step is to create a program for solving problems, with details of each step being stored in the data storage system and can report the work in various steps of the system to help increase the work efficiently of the support department and the development department of Ban Software Co. Ltd to be a step-by-step operation. In conclusion, this system is developed in the form of a web application and a database system.

According to Tarathip veerarakdecha (2015), The operation of the online repair system in the Sonic Group companies will have the main function: users send information in the repair notification. Via the online system, once the data has been submitted, the system will save the data into the database and display the information that the user has repaired via the website of the system by

the administrator, The system will be able to recognize immediately when there is a repair notification via the system. Due to notification via email system Enabling the system administrator to help or fix the deficiencies as reported To users quickly and when there is a defect, the system administrator can enter the system to record the changes in each task.

In addition, the online repair system can also issue reports according to the date specified to present to the company as supplementary information in considering purchasing or replacing new equipment as well.

According to Chatree Kongsomboon (2008), studied and developed a web-based computer repair system for the Department of Mathematics and Computer Science, Faculty of Science and Technology, Prince of Songkla University, Pattani Campus, which is a web application system that makes it convenient and flexible to perform. Work because the system is running on the internet network. If the staff that works can connect Can use the internet system to be able to operate immediately and the system can store the history of access to the system or the data of the computer device, allowing it to be analyzed later on the problem of computer equipment and can Implementing employee performance data to evaluate the performance of employees. In conclusion, this system has been developed. The system in the form of web applications and has a database system to store data, but still lacking in the ability to choose the date and time needed to repair the estimated time of repairing and selecting a technician to match the symptoms from The system to check the status of the job.

2.2 DEFINITION

REPORT

Report means to write about something. The report is the use of giving information to others often after some investigation has been done, Such as having some devices in the house damage, then report to the repair service center, to wait for a repair. (Jon Gambrell and BostonGlobe, 2019)

SERVICE

A service is an organizational unit which provides a specific service or product, it is convenient to the customer, To report something have been damaged, the service will be a connection with technicians to comfortable for the customer(Christine Siu, 2017)

REPAIRMENT

According to Margaret Rouse (2015), In general, a framework is a real or conceptual structure intended to serve as a support or guide for the building of something that expands the structure into something useful.

WEB APPLICATION

According to Shahul Ahamad (2017), A Web Application is a software that runs on a Web Server. Unlike traditional desktop applications, which are launched by a Web Browser. To access any Software Application Operating System is required.

TECHNICIAN

The technician is responsible for conducting general maintenance and repairs on facility equipment and property structures. They ensure that heating and plumbing systems perform at optimum functionality and the upkeep of the landscape. Essentially, the goal of a maintenance technician is to maintain the facilities and common areas in the best possible condition. Maintenance technicians can work in a variety of settings including commercial and residential buildings.Generally, maintenance technicians have a high school diploma or with a certification in HVAC or building maintenance technology. Successful maintenance technicians are detail oriented with strong manual dexterity and problem-solving skills.(Glassdoor, 2018)

2.4 TOOL USED

SQL

SQL is used to communicate with a database. According to ANSI (American National Standards Institute), it is the standard language for relational database management systems. SQL statements are used to perform tasks such as updating data on a database or retrieve data from a database.

XAMPP

XAMPP is the virtual open-source cross-platform web server solution stack package developed by Apache Friends, consisting mainly of the Apache HTTP Server, SQL database.

VISUAL STUDIO CODE

Visual Studio Code is a source code editor that runs on desktop and is available for Windows, macOS and Linux. It comes with built-in support for JavaScript, TypeScript, and Node.js and has a rich ecosystem of extensions for other languages such as PHP and runtimes such as .NET and Unity. The Visual Studio Code is the tool used to develop in this Project by using PHP language.

DROW.IO

draw.io is free online diagram software for making flowcharts, process diagrams, org charts, UML, ER, and network diagrams. This website online, we used to create a use case diagram to make an operate of web application easy to understand.

PHOTOSHOP

Adobe Photoshop is known as a raster graphics editor, which is a computer program that lets users create and edit images and then save them in one of many formats.

ADOBE ILLUSTRATOR

Illustrator is a vector drawing program. It is often used to draw illustrations, cartoons, diagrams, charts, and logos. Unlike bitmap images that store information in a grid of dots, Illustrator uses mathematical equations to draw out the shapes. This makes vector graphics scalable without the loss of resolution.

2.5 Computer Language

PHP

PHP is a widely-used open source general-purpose scripting language that is especially suited for web development and can be embedded into HTML.PHP is used to add functionality to a website that HTML alone cannot achieve. PHP is mostly used for server-side programming in web applications. PHP is a server-side scripting language and uses for communication with the MYSQL database.

HTML

This software is used to create an electronic document (called page) that is displayed on the world wide web. Each page contains a series of connections to other paged call hyperlinks.

CSS

CSS is great for creating text styles, it is helpful for formatting other aspects of Web page layout as well. For example, CSS can be used to define the cell padding of table cells, the style, thickness, and color of a table's border, and the padding around images or other objects. CSS gives Web developers more exact control over how Web pages will look than HTML does. This is why most Web pages today incorporate cascading style sheets.

CHAPTER 3

METHODOLOGY

This chapter will describe details about methodology we use to create a project, it is a part important in each phase for detail, we will focus it on the process of project development, which using Software development life cycle (SDLC). it is shown and explain processing.

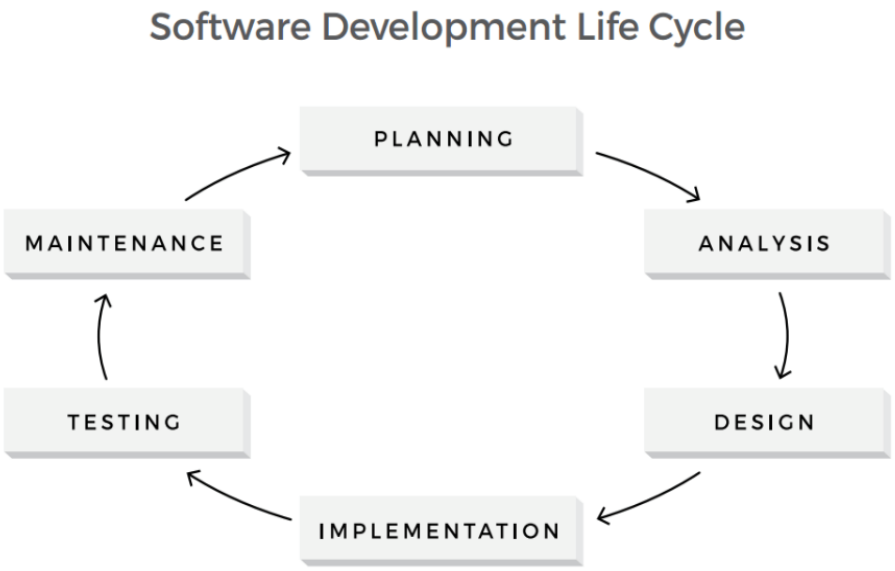


Figure 3.1: SDLC Model

3.1 Software Development Life Cycle (SDLC)

The software development life cycle (SDLC) is a framework defining tasks performed at each step in the software development process. SDLC is a structure followed by a development team within

the software organization. It consists of a detailed plan describing how to develop, maintain and replace specific software. The life cycle defines a methodology for improving the quality of software and the overall development process. Standard that defines all the tasks required for developing and maintaining software. SDLC is a process followed for a software project, within a software organization. It consists of a detailed plan describing how to develop, maintain, replace and alter or enhance specific software. The life cycle defines a methodology for improving the quality of software and the overall development process. This SDLC has six consists of the following activities: Planning, Requirement Analysis, Design, Implement, Testing and Maintenance.

3.2 PLANNING

Systems Planning is the first phase of SDLC. During the planning phase, the objective of the project is determined and the requirements of the system are considered. Meeting with managers or stakeholders are held to determine the exact requirements of the project. The purpose of this planning, Green Garden Construction & Service Company wants to developer make this project saw the problem and survey to find guesthouses do not know the place for repair service. therefore, this is the reason to do this project.

The developer gets the requirement for planning this project, the topic with involves this company is Warehouses Repairing Web Application: Green Garden Construction & Service Company. developer try to identify in which situation that developer can improve the way of repair after that developer summarize which had been obtained to estimate the concept of this project, in summary, developer document the result to have feasibility report which is the problem, objective, concept and alternative constraints in Houseware Repairing Project.

3.3 ANALYSIS

An analysis is the second phase of the Software Development Life Cycle (SDLC) that collecting the related to data and requirement about web application of Green Garden Construction & Service Company Before start the software project, the developer needs a good idea and ensures that the objectives are going in the right way.

SYSTEM ARCHITECTURE OVERVIEW

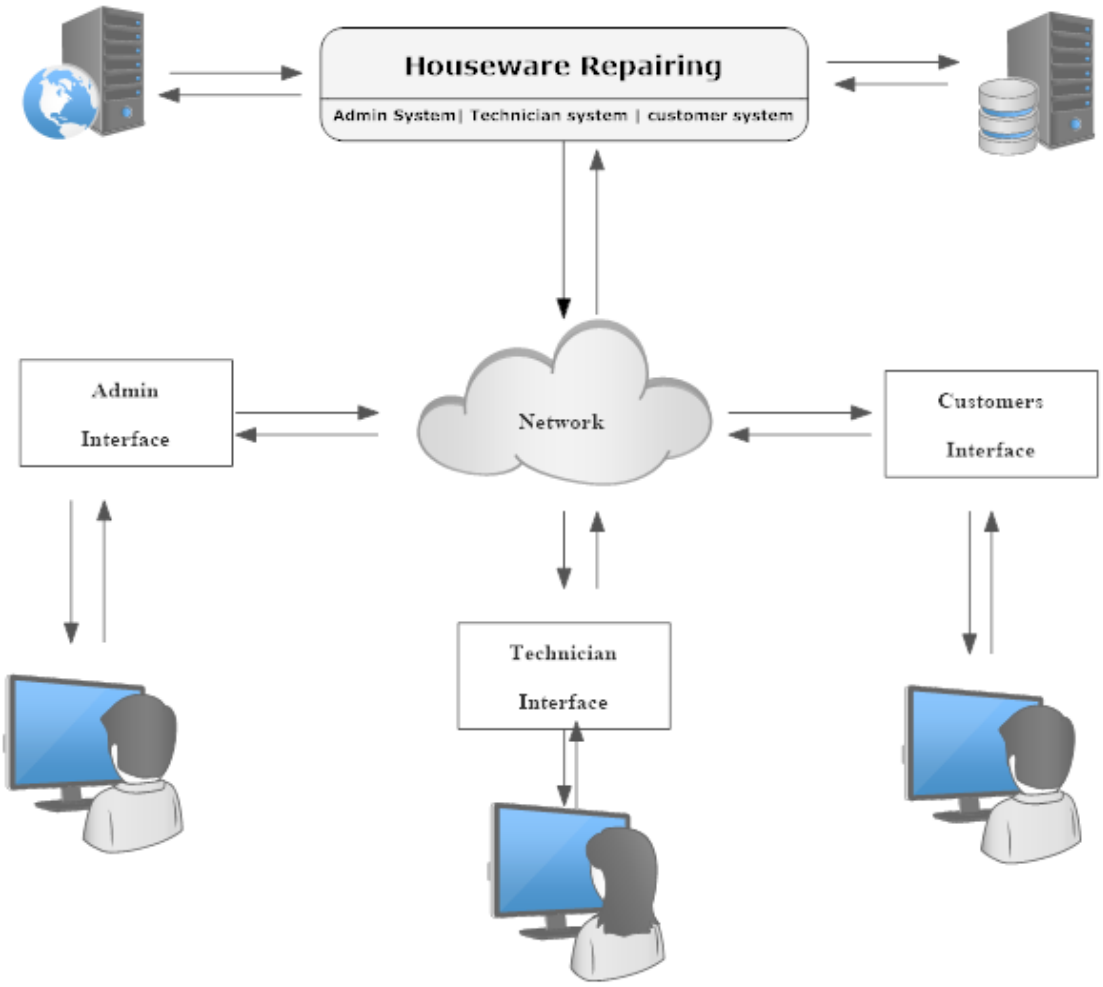


Figure 3.1 System Architecture Overview

SYSTEM STRUCTURE CHART

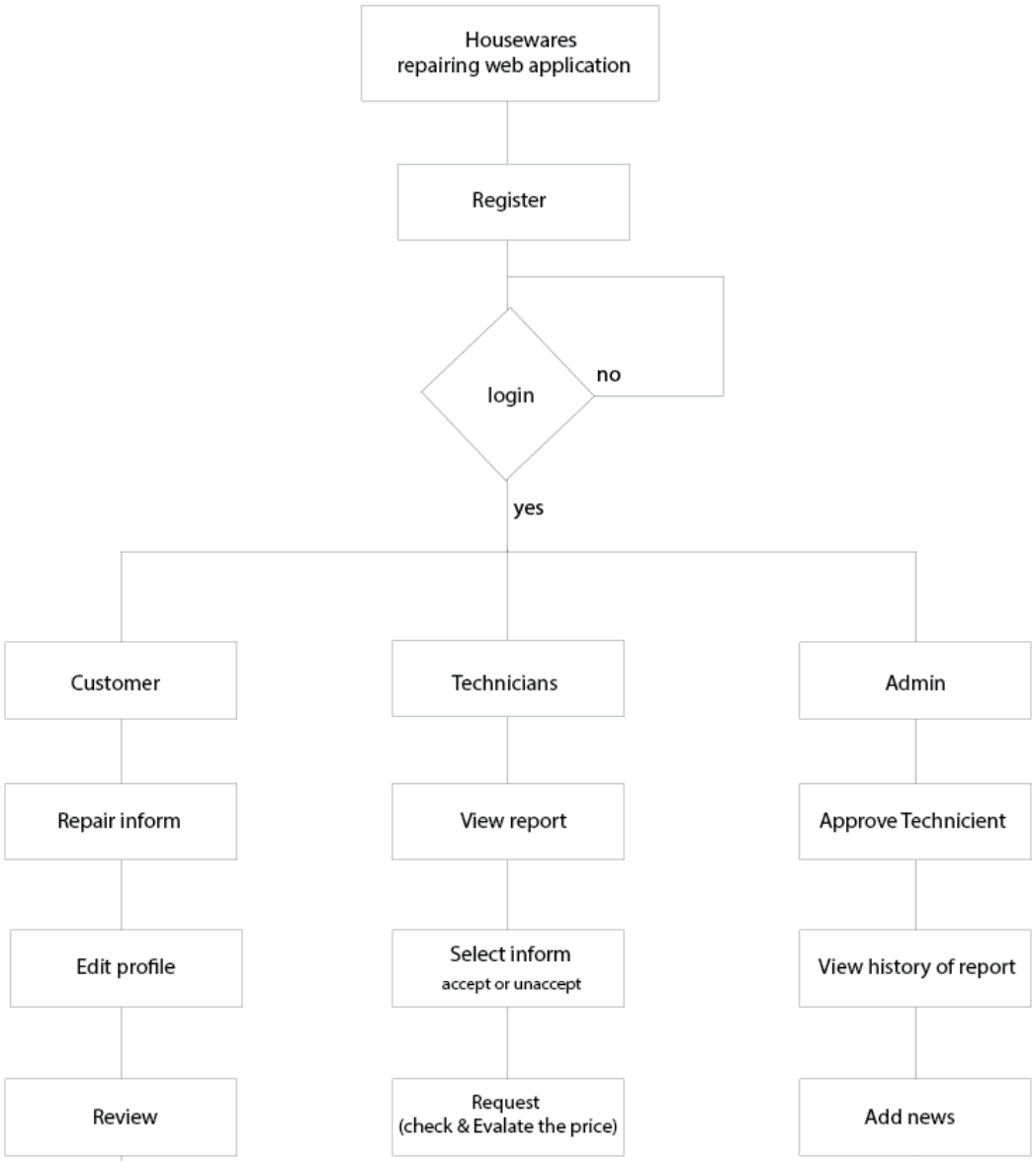


Figure 3.2 System Structure Chart

3.2.1 ADMIN

- Registration - this process allows the customer and technicians to register for Getting the account to access the web application.
- Login - this process provide authentication to admin, technicians , the customer that it will be secure and reliable.
- Add technical - This process will be able to add register by Admin.
- View history of the report - This process will show the history of inform repair to all of the customers.
- Manage information - This process admin can add, delete, update and view all of the info about customers and technicians: the profile, history of the report, damage report and review.

3.2.2 TECHNICIANS

- View report - This process will show of customer report.
- Selected Report - This process will show to technicians select accepted or rejected.
- Request (check and Evaluate the price) - This process will show after technicians accept inform of a customer claim.

3.2.3 CUSTOMERS

- Repair report - This process customer can claim when some devices are broken.
- Edit profile - This process customers can edit profile.
- Review - This process customers can review about satisfaction after service.

LIST OF REQUIREMENTS

M - Mandatory requirements (something the system must do)

D - Desirable requirement (something the system preferably should do)

O - Optional requirement (something the system may do)

No	Requirement ID	Requirement Description	Priority
	Req_01	Manage Registration	
1	Req_01.1	Technicians have to register	M
2	Req_01.2	A customer has to register	M
	Req_02	Manage Login	
3	Req_02.1	Admin have to login	M
4	Req_02.2	Customers have to register	M
5	Req_02.3	Technicians have to login	M
	Req_03	Manage Profile	
6	Req_03.1	Admin can add Technicians profile	M

7	Req_03.2	Admin can view, add, delete and update Technicians and Customer profile	M
8	Req_03.3	Customer and Technical can edit profile	M
	Req_04	Manage Inform	
9	Req_04.1	Admin can view all inform details	M
10	Req_04.2	Technicians can view the details of the inform their only	M
11	Req_04.3	Customer can add repair inform	M
	Req_05	Manage list/history	
12	Req_05.1	Admin can view and delete booking list	M
13	Req_05.2	Technicians can view list of all customer	M
14	Req_05.3	Customers can view own list only	M
	Req_06	Manage request(check and Evaluate the price)	
15	Req_06.1	Technicians can submit check and evaluate the price of damage before inform	M

16	Req_06.2	Customer can analysis and decision from this inform from technicians	M
	Req_07	Manage review	
17	Req_07.1	Customer can add review	D
18	Req_07.2	Technicians can view review	D
19	Req_07.3	Admin can view review	D
	Req_08	Manage tracking	
20	Req_08.1	Customer can view tracking of repair	M
21	Req_08.2	Technician can view tracking	M
22	Req_08.3	Admin can view tracking	M
	Req_09	Add technician	
23	Req_09.1	Admin can allow technicians	M

USE CASE DIAGRAM

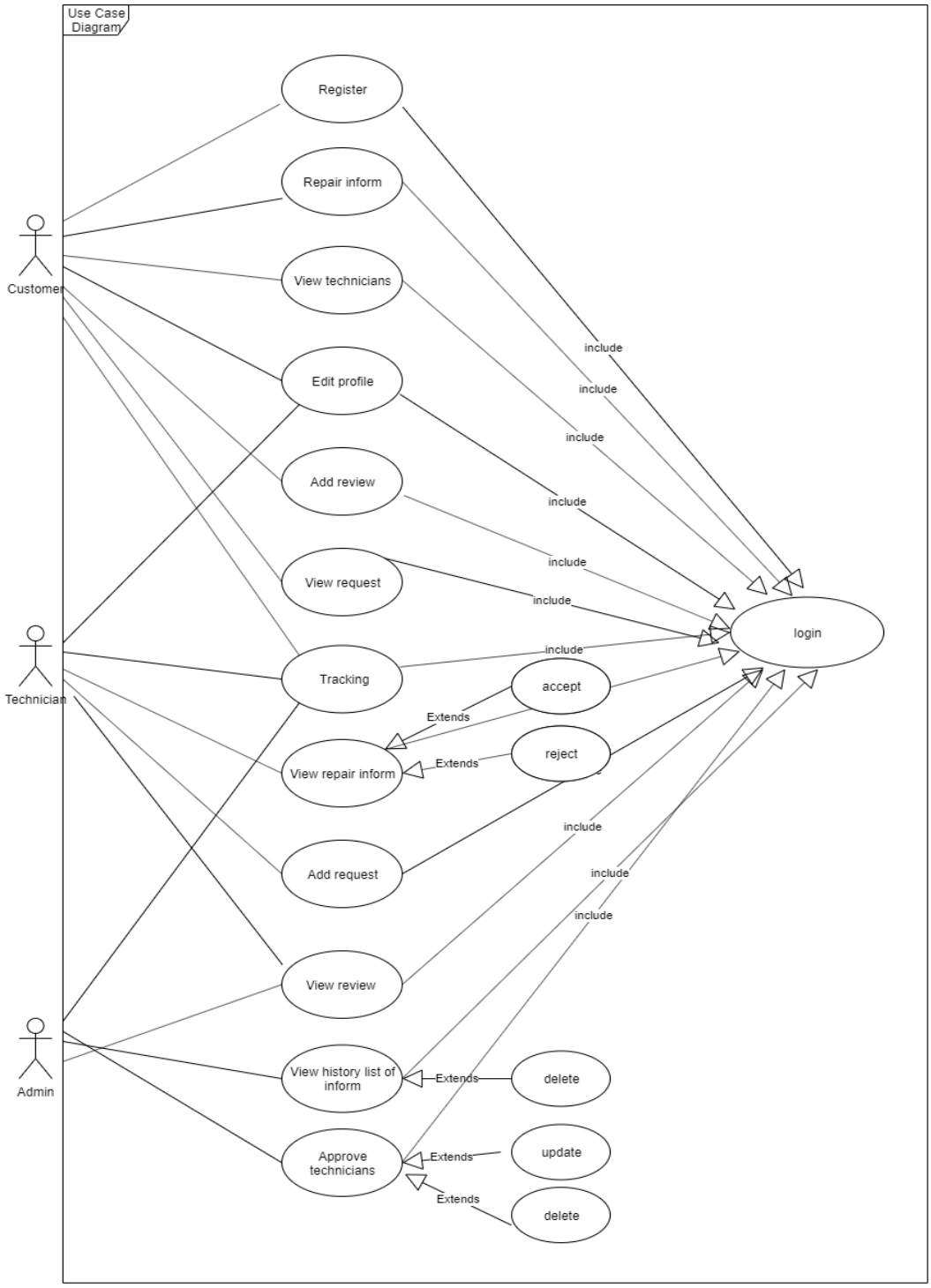


Figure 3.3 Use case diagram

Figure 3.3 Using Case Diagram is to show the operation of web application. There are three actors to use web application : Customer, Technician and Admin.

Customer: this use case diagram shows the operation of customer. Customer can repair report, add review and view own history or list. But customers have to register and login first.

Technician: this use case diagram shows the operation of technician. Technician can view report of customer and select option to accept or reject. If technician select accept, technician have to request (check and evaluate the price) submit to customer to decision be continue or cancel to claim. Then technician go to repair.

Admin: this use case diagram shows the operation of admin. Technician register have to add by admin. Admin can view, add, delete and update or manage all of the information about customer and technician on web application.

USE CASE SPECIFICATION

Repair inform

Use case name: Repair inform
Actor(s): Customer
Brief Description: This use case will be used to allow the customer can report for repair
Trigger: The customer wants to report **Type: External:** External
Relationship: Association: Customer Include: None Extend: Submit, Cancel Generalization: None
The flow of events: 1. The web application will allow customer to report
Sub Flow: None
Alternative/Exception Flows: E-1: Report The system will be able customer to report

Review

Use case name: Customer**,** Technicians, Admin
Actor(s): User
Brief Description: This use case will be used to allow the user to show information about Technicians
Trigger: The user view information Technicians **Type: External:** External
Relationship: Association: User, Technicians include: None Extend: None Generalization: None
The flow of events: 1. The system will allow users to view information about the flow Technicians
Sub Flow: None
Alternative/Exception Flows:

Edit profile

Use case name: Edit profile
Actor(s): Technicians
Brief Description: This use case will be used to allow the technicians to view and update profile
Trigger: technicians will allow manage own profile **Type: External:** External
Relationship: Association: technicians Include: None Extend: None Generalization: None
The flow of events: 1. The web application will allow technicians view and update profile
Sub Flow: None
Alternative/Exception Flows:

Request(Check & Evaluate the price)

Use case name: Request
Actor(s): Technician
Brief Description: This use case will be used to allow the Technician to check & evaluate the price
Trigger: It will allow to technician to check and evaluate the price of damage **Type: External:** External
Relationship: Association: Technician Include: None Extend: None Generalization: None
The flow of events: 1. The web application will allow Technician to add request
Sub Flow: None
Alternative/Exception Flows:

View inform

Use case name: View inform
Actor(s): Technical
Brief Description: This use case will be used to allow the Technicians select accept or reject to repair
Trigger: Technicians will allow inform **Type: External:** External
Relationship: Association: Technicians Include: Accept ,Reject Extend: None Generalization: None
The flow of events: 1. The web application will be used to allow the Technicians select accept or reject to inform
Sub Flow: None
Alternative/Exception Flows: E-2: View report The system view be an able Technicians decision to repair

Approve Technicians

Use case name: Technicians
Actor(s): User
Brief Description: This use case will be used to allow the Admin approve Technicians, after they registered
Trigger: The admin view information Technicians **Type: External:** External
Relationship: Association: Technicians include: None Extend: None Generalization: None
The flow of events: 1. The system will allow admin to view information about the Technicians
Sub Flow: None
Alternative/Exception Flows:

SEQUENCE DIAGRAM

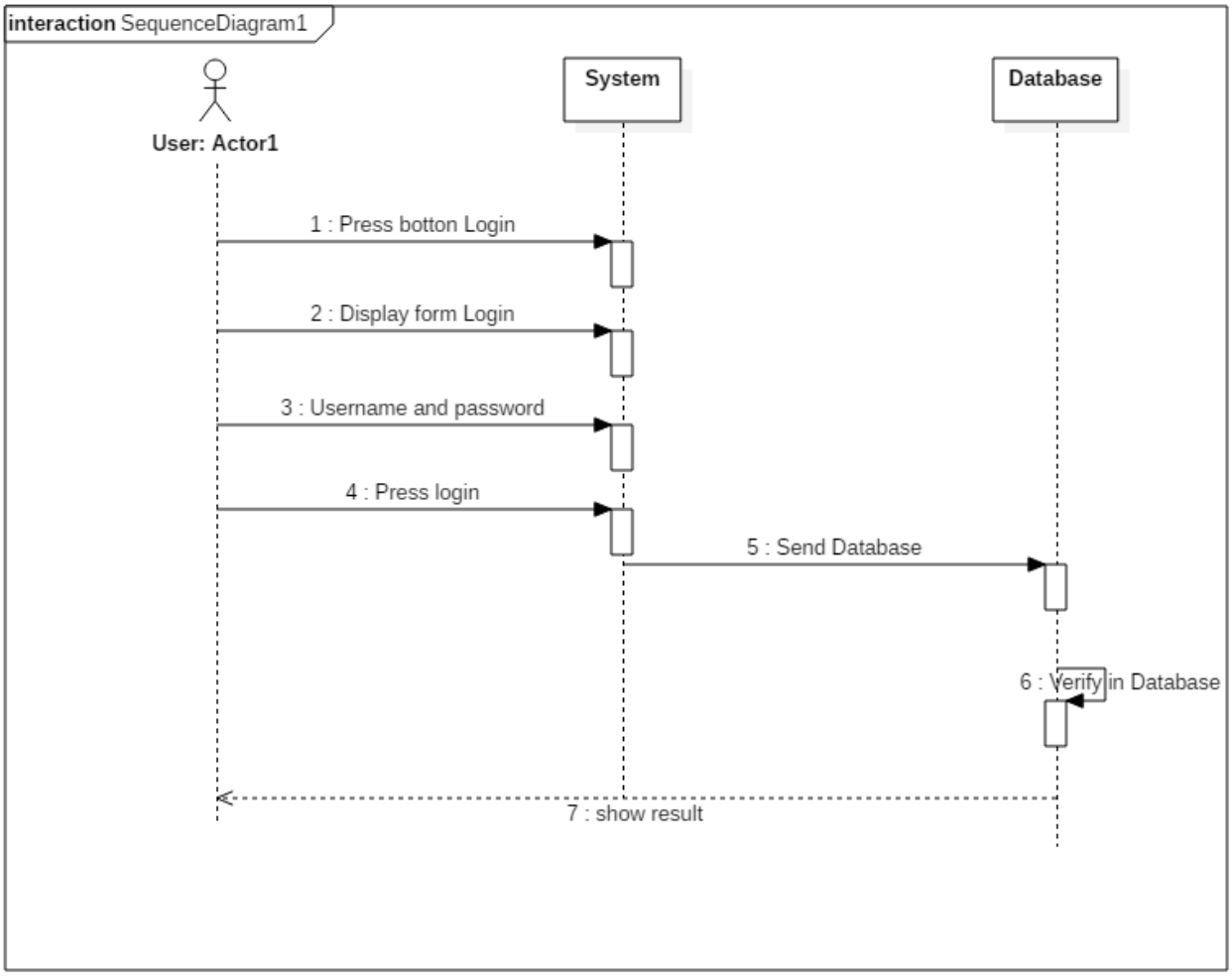


Figure 3.4 Sequence diagram of users (Admin, Technician, and Customer) login

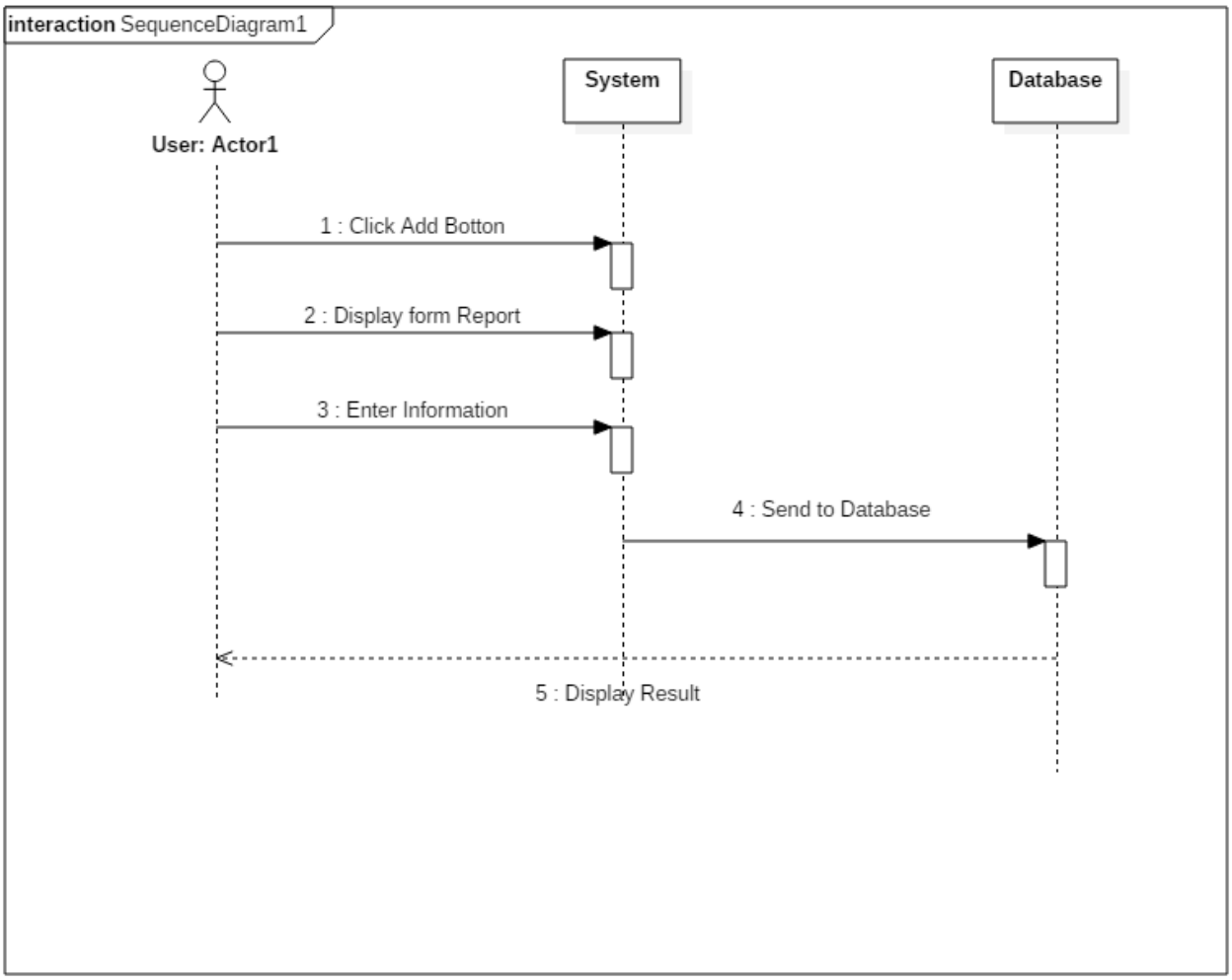


Figure 3.5 Sequence diagram of Customer to repair report

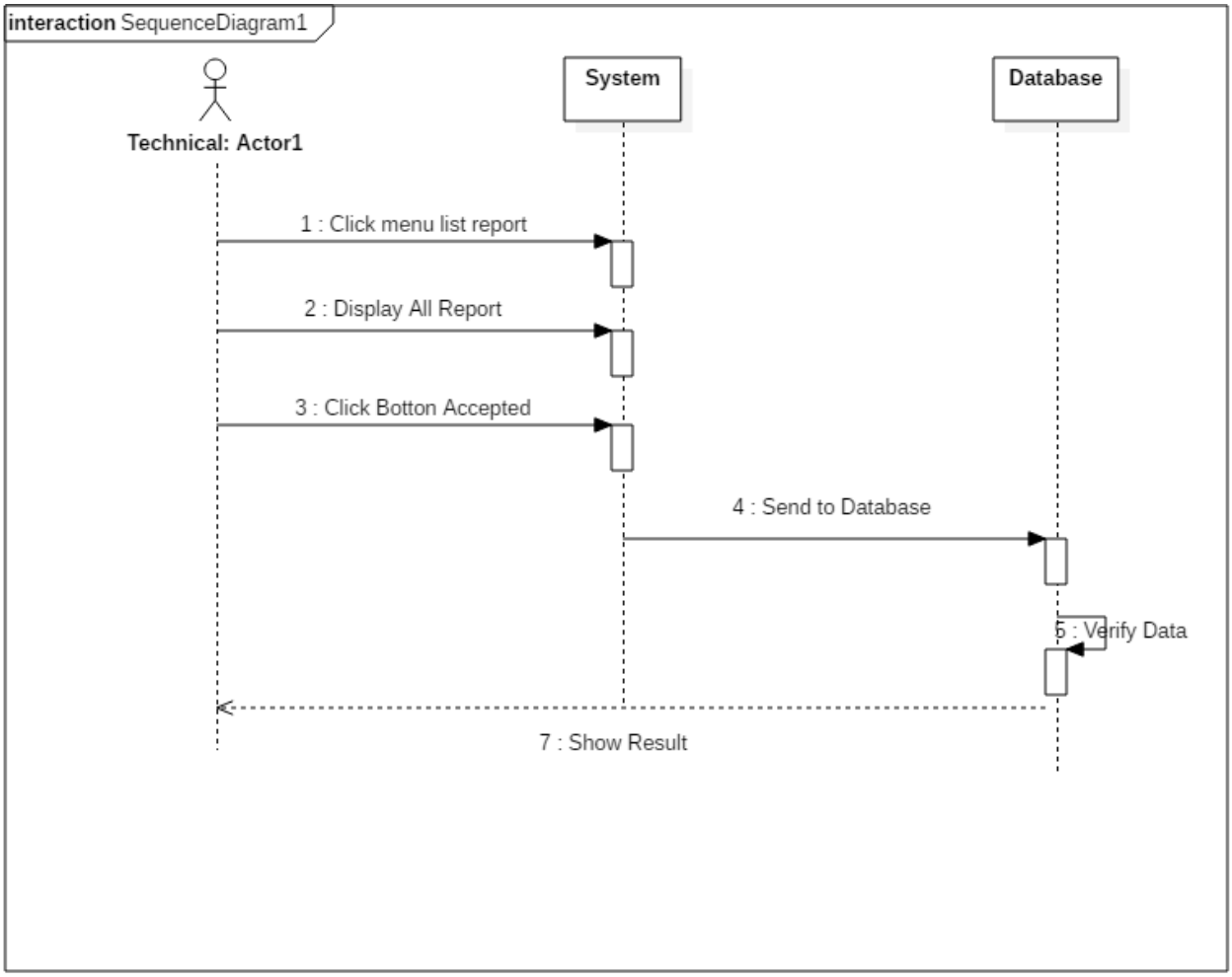


Figure 3.6 Sequence diagram of Technician to select (accept or reject) report from customer

FLOWCHART DIAGRAM

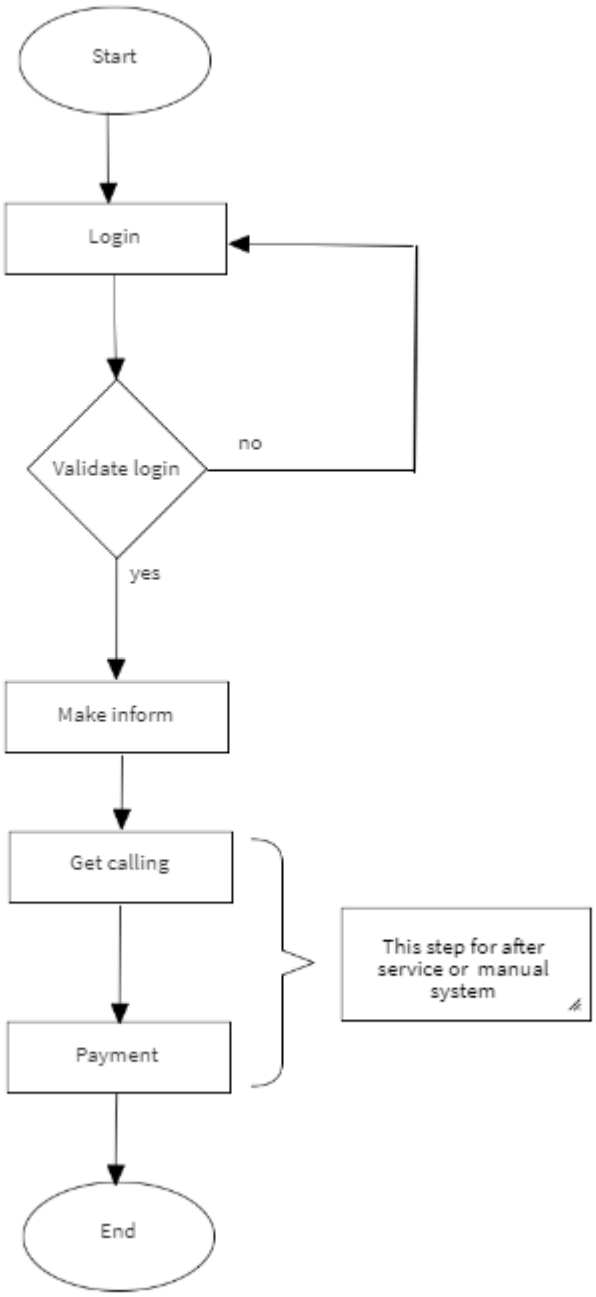


Figure 3.9 Customers Page

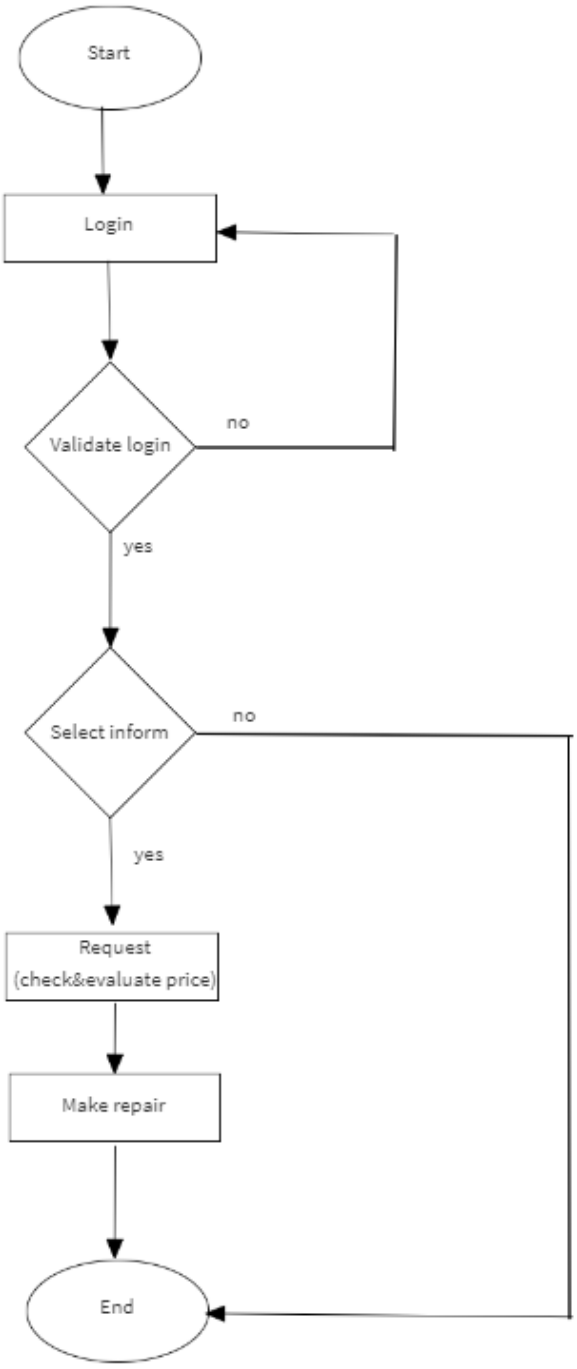


Figure 3.10 Technical Page

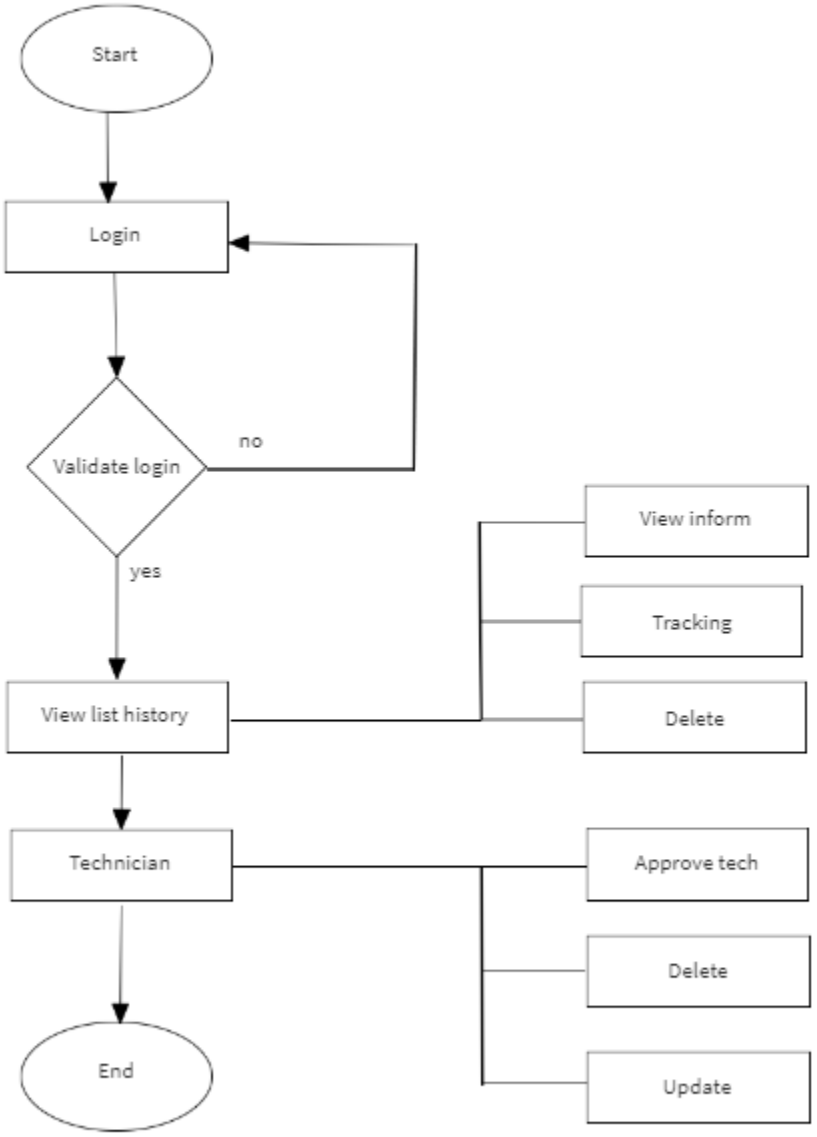


Figure 3.10 Admin Page

3.4 DESIGN

This method we use to build interfaces of web application, we also need the questionnaire to understand people's mind, so this step, we have designed it by having by creating our own questions that could be the great resources to support our project and could be achieved our project goal as much as possible.

3.4.1 File Structure File Structure provides detailed accounting of all tables found within the user designer-created database. It contains all the attribute names and characteristics of each table in the system

DATABASE ANALYSIS AND DESIGN

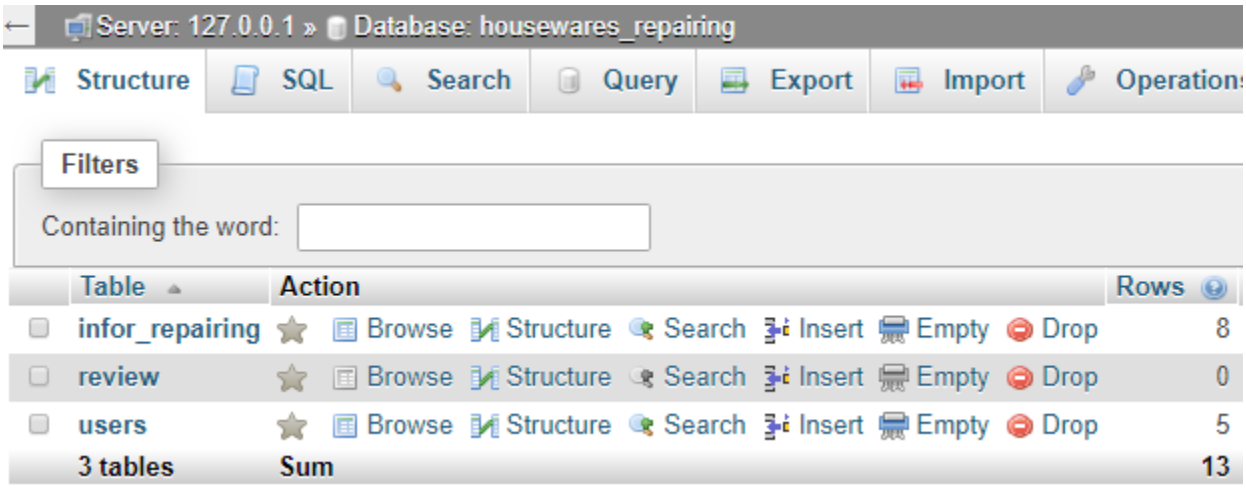
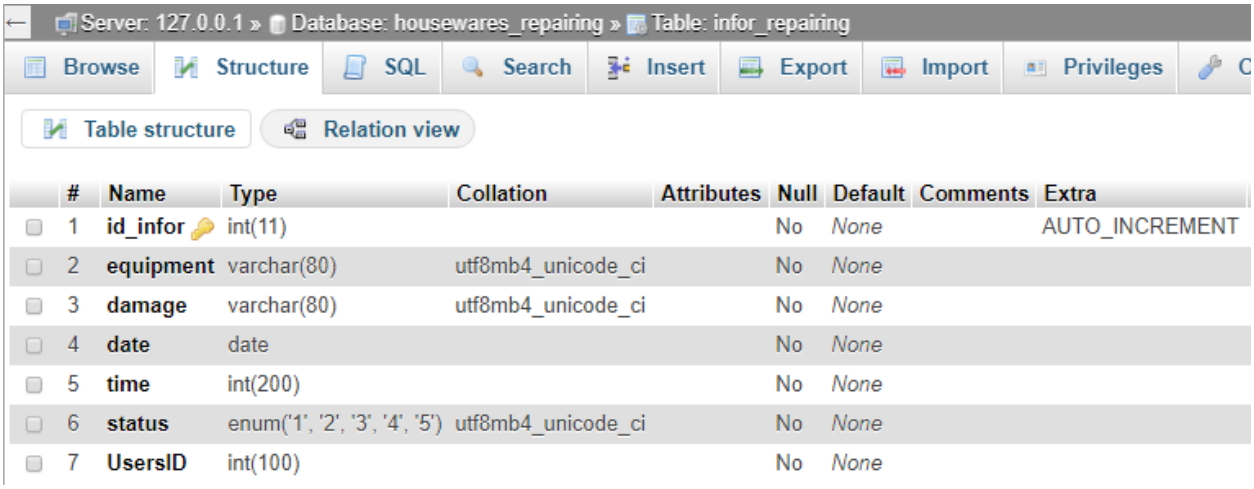
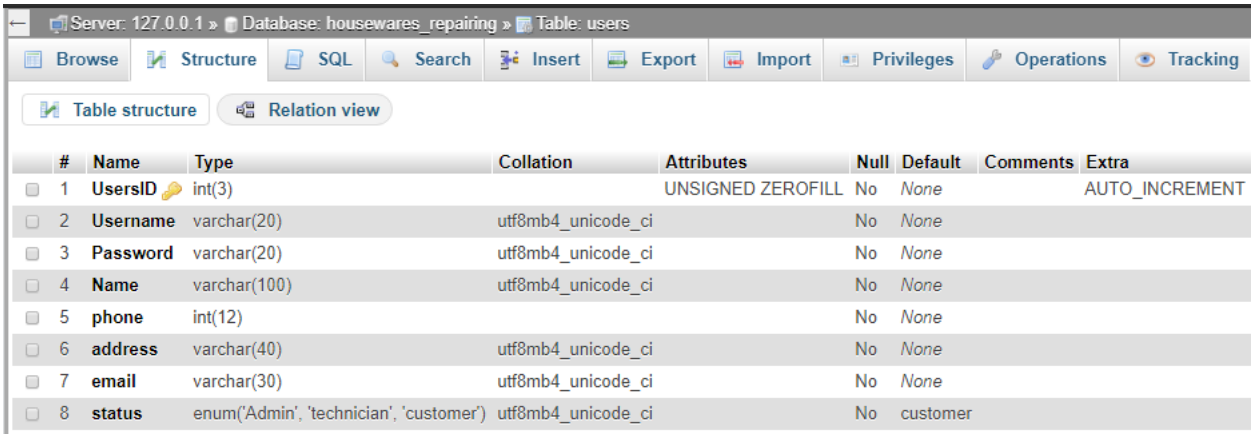


Figure 3.11 Structure of Database



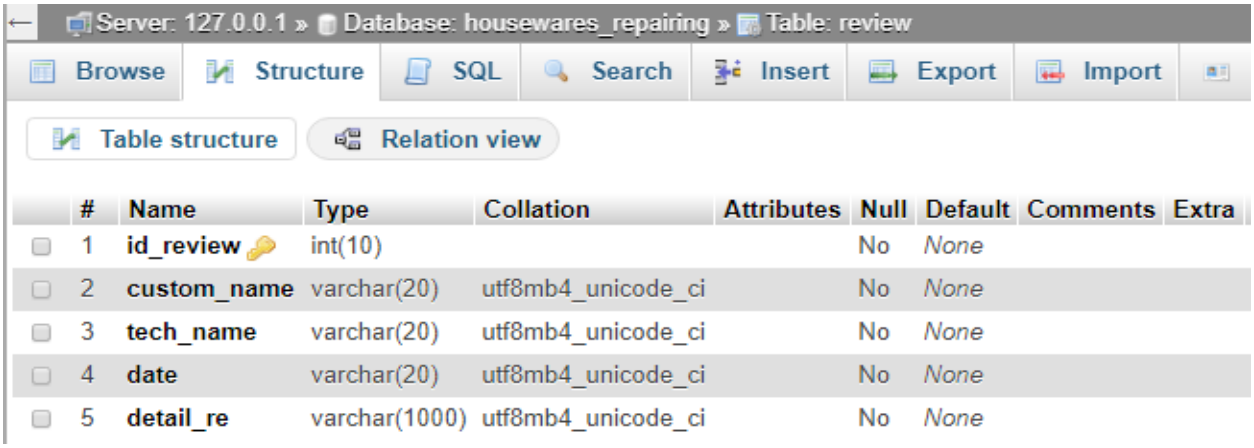
#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra
1	id_infor	int(11)			No	None		AUTO_INCREMENT
2	equipment	varchar(80)	utf8mb4_unicode_ci		No	None		
3	damage	varchar(80)	utf8mb4_unicode_ci		No	None		
4	date	date			No	None		
5	time	int(200)			No	None		
6	status	enum('1', '2', '3', '4', '5')	utf8mb4_unicode_ci		No	None		
7	UsersID	int(100)			No	None		

Figure 3.12 infor_repairing Table



#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra
1	UsersID	int(3)		UNSIGNED ZEROFILL	No	None		AUTO_INCREMENT
2	Username	varchar(20)	utf8mb4_unicode_ci		No	None		
3	Password	varchar(20)	utf8mb4_unicode_ci		No	None		
4	Name	varchar(100)	utf8mb4_unicode_ci		No	None		
5	phone	int(12)			No	None		
6	address	varchar(40)	utf8mb4_unicode_ci		No	None		
7	email	varchar(30)	utf8mb4_unicode_ci		No	None		
8	status	enum('Admin', 'technician', 'customer')	utf8mb4_unicode_ci		No	customer		

Figure 3.13 User Table(Admin, Technician and Customer)



#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra
1	id_review	int(10)			No	None		
2	custom_name	varchar(20)	utf8mb4_unicode_ci		No	None		
3	tech_name	varchar(20)	utf8mb4_unicode_ci		No	None		
4	date	varchar(20)	utf8mb4_unicode_ci		No	None		
5	detail_re	varchar(1000)	utf8mb4_unicode_ci		No	None		

Figure 3.14 Review Table

ER-DIAGRAM

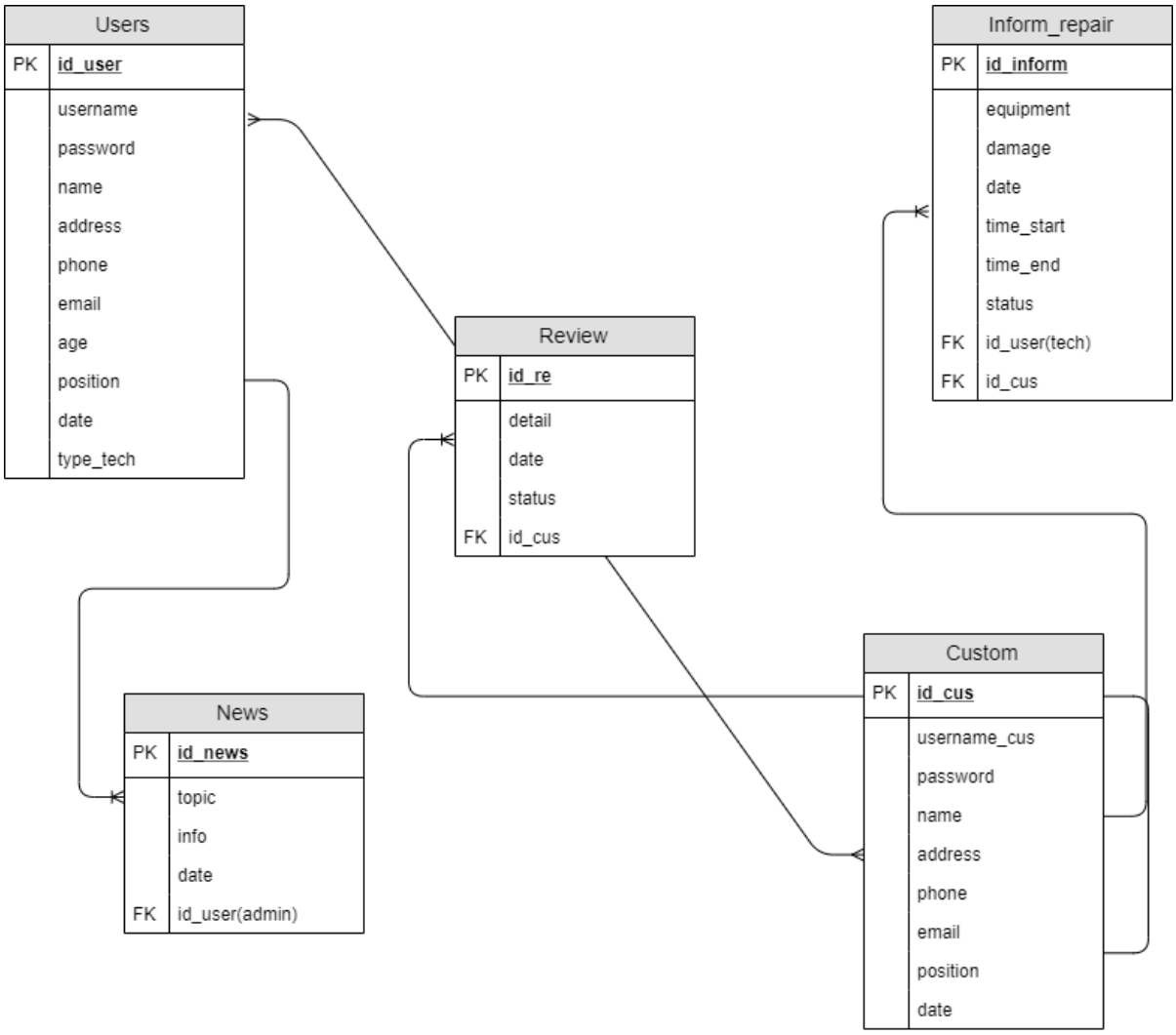


Figure 3.15 Er-diagram page

The ER-diagram use to describe the database simulation of the system and description the data architecture that including entity, attribute, and the relationship between it.

3.4.2 Interfaces Design Before implementing the actual design of the picture, a few interface designs were constructed to visualize the user interaction with the system.

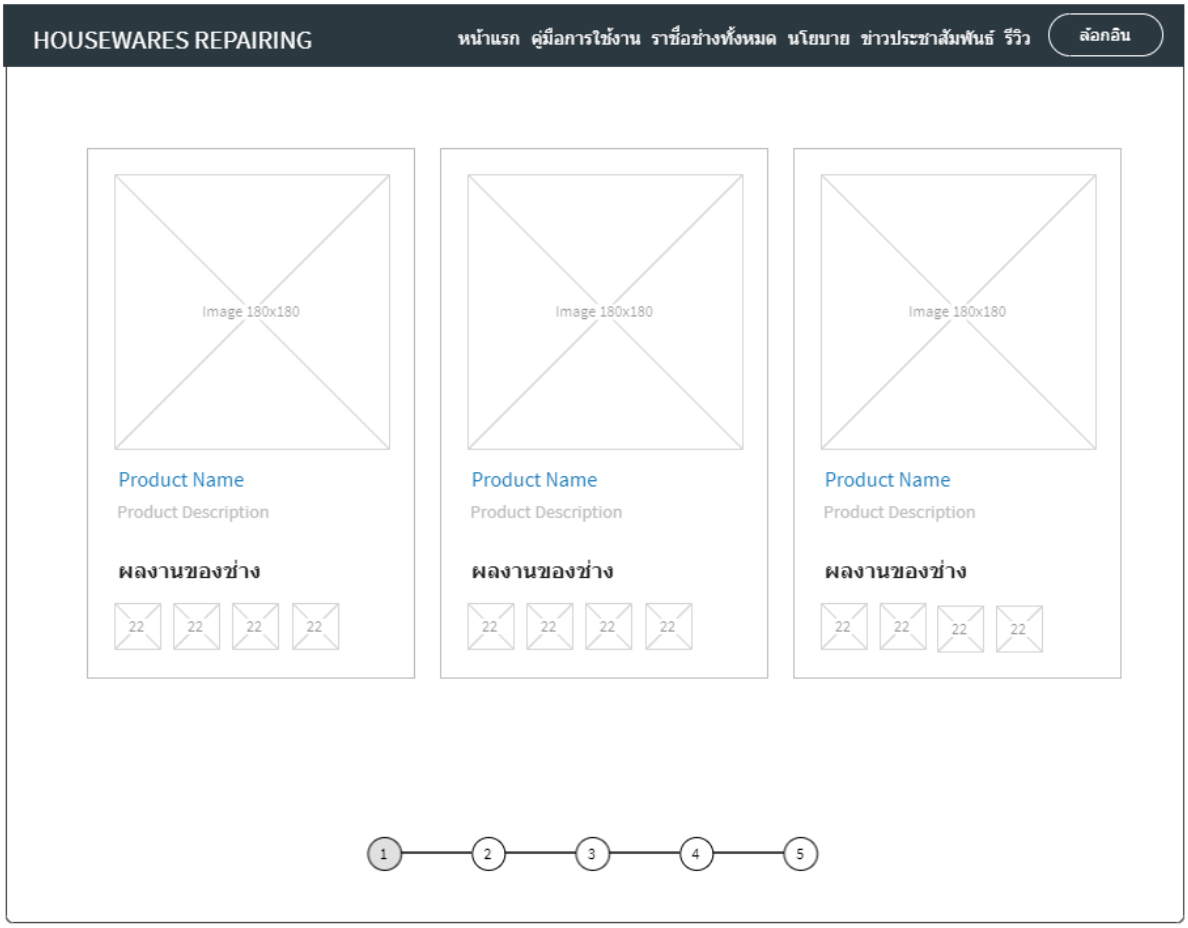


Figure 3.16 Index Page

This page, we use for Admin, Technicians and Customer login and register page. They can view about news of system and any information that related with system.

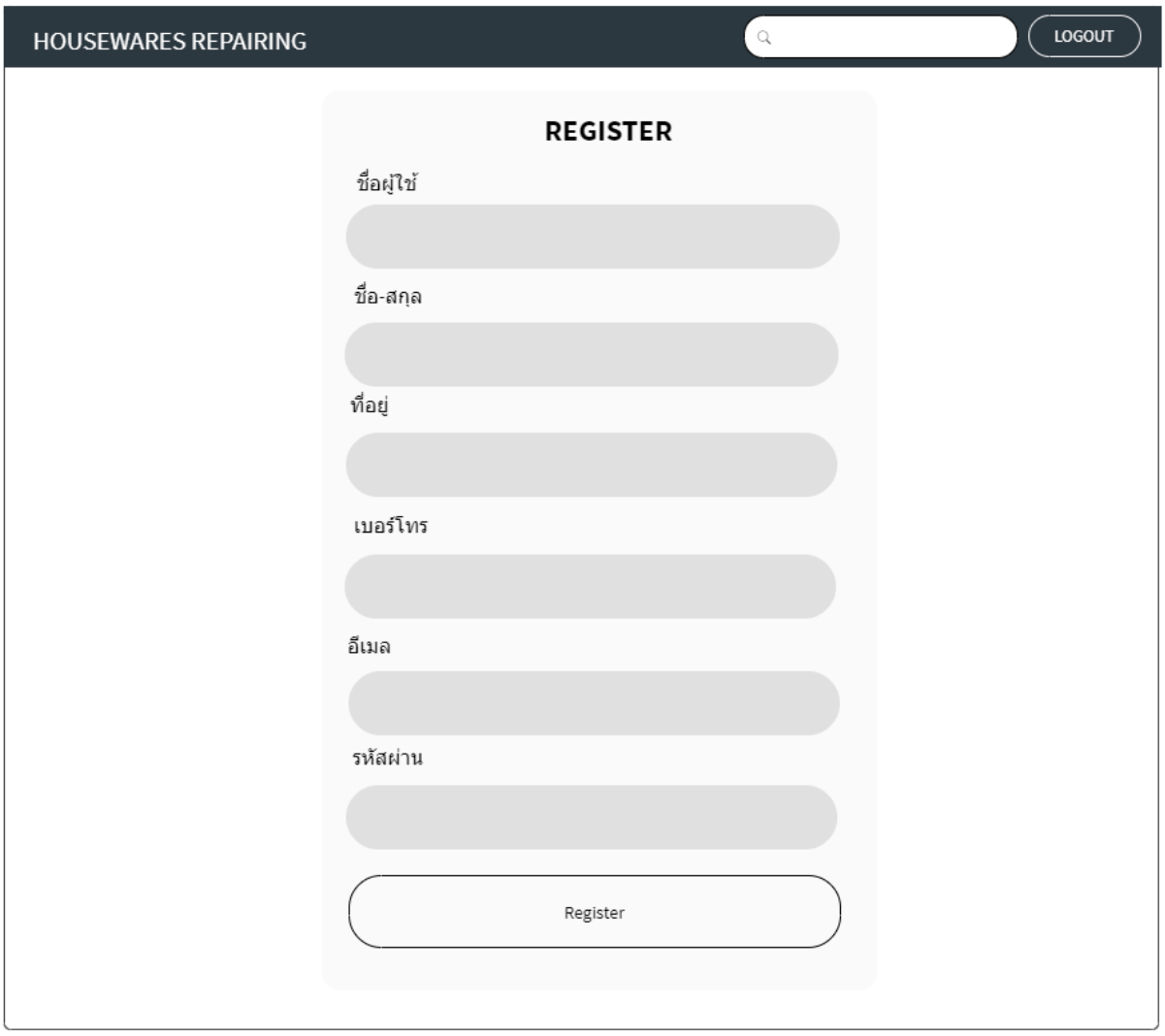


Figure 3.17 Register Page

This page allow for Admin, Technicians and Customer register to get an account.

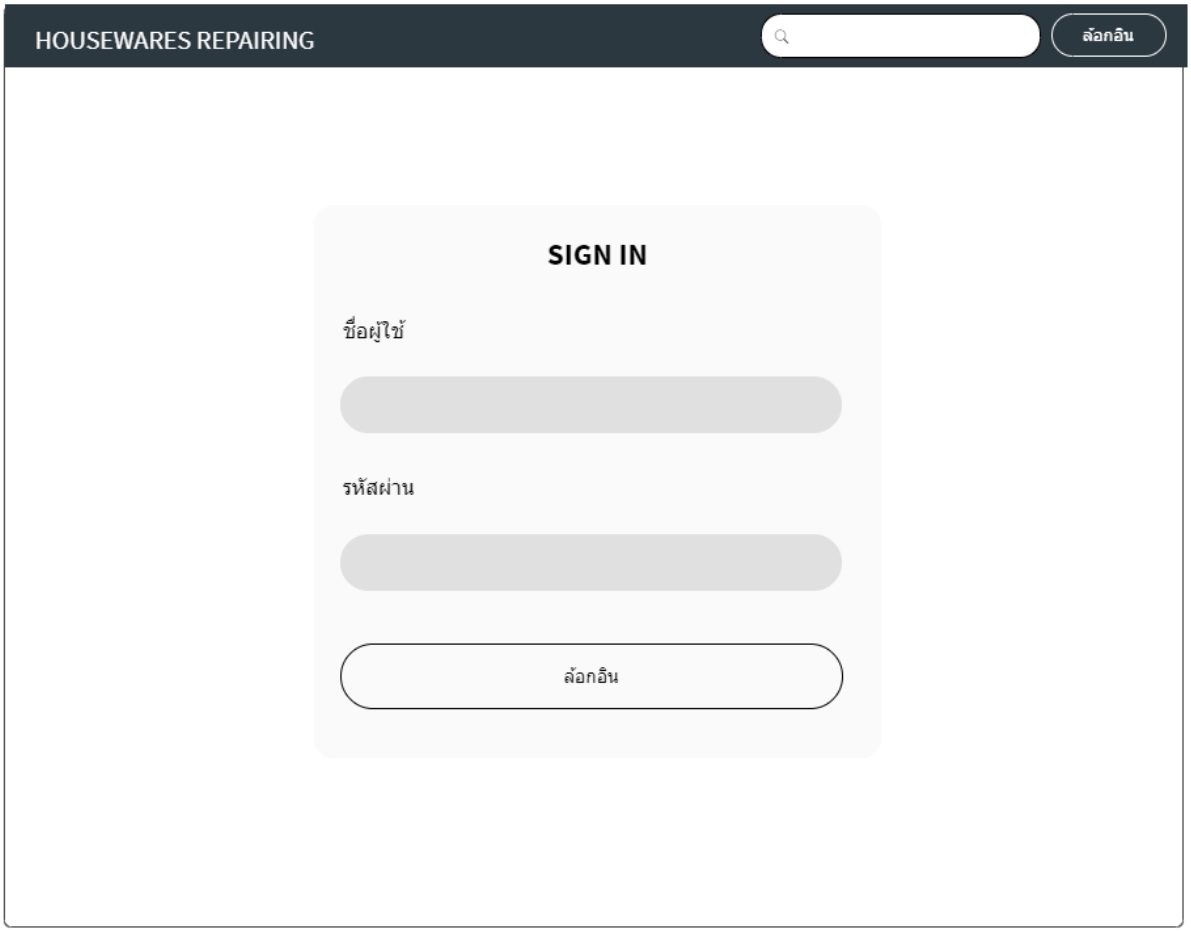


Figure 3.18 Login Page

This page allow for Admin, Technicians and Customer login. They have to login before using the system.

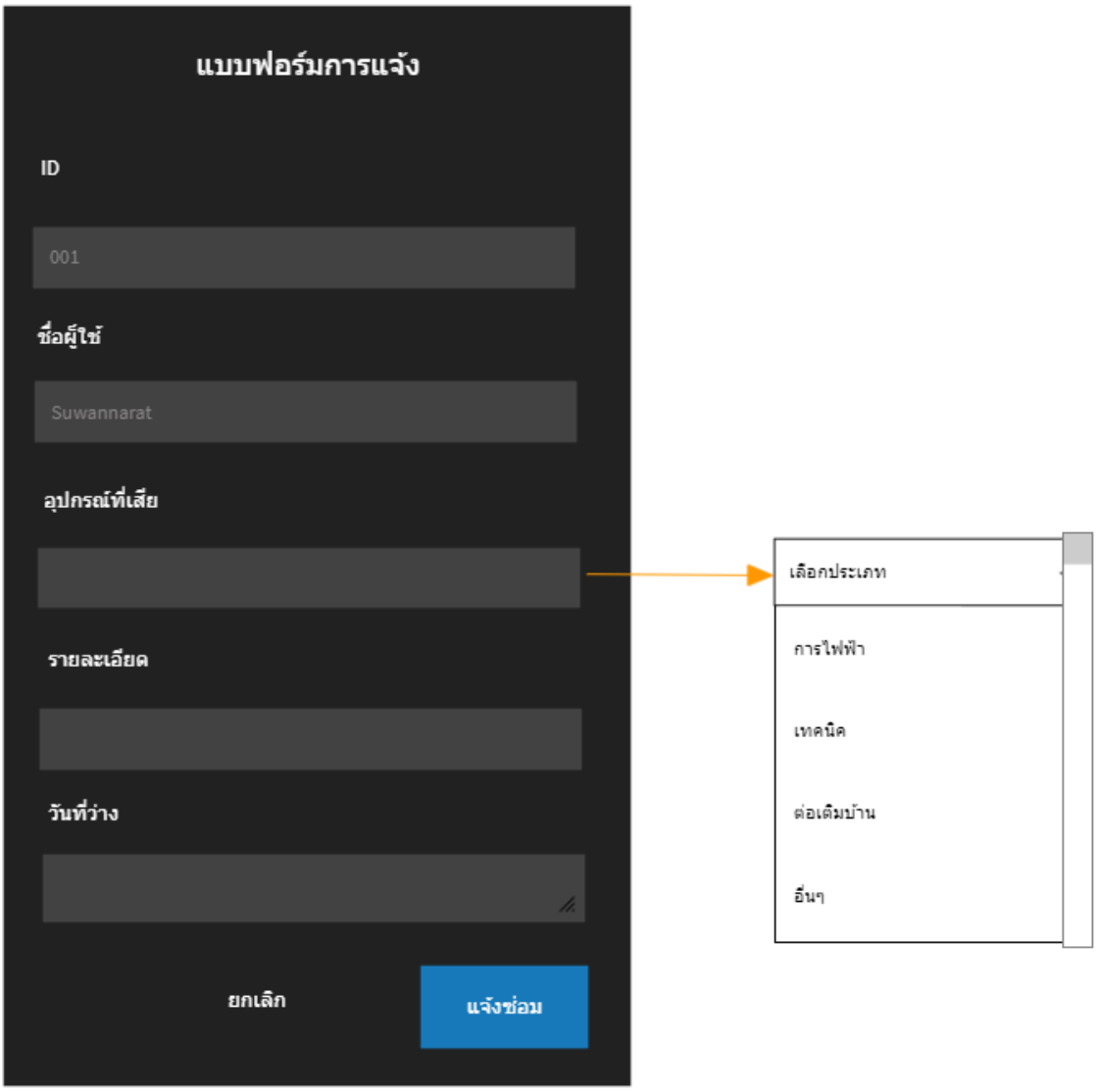


Figure 3.19 Inform Page

This page is a form of inform. The system will allow to Customers inform repairing.

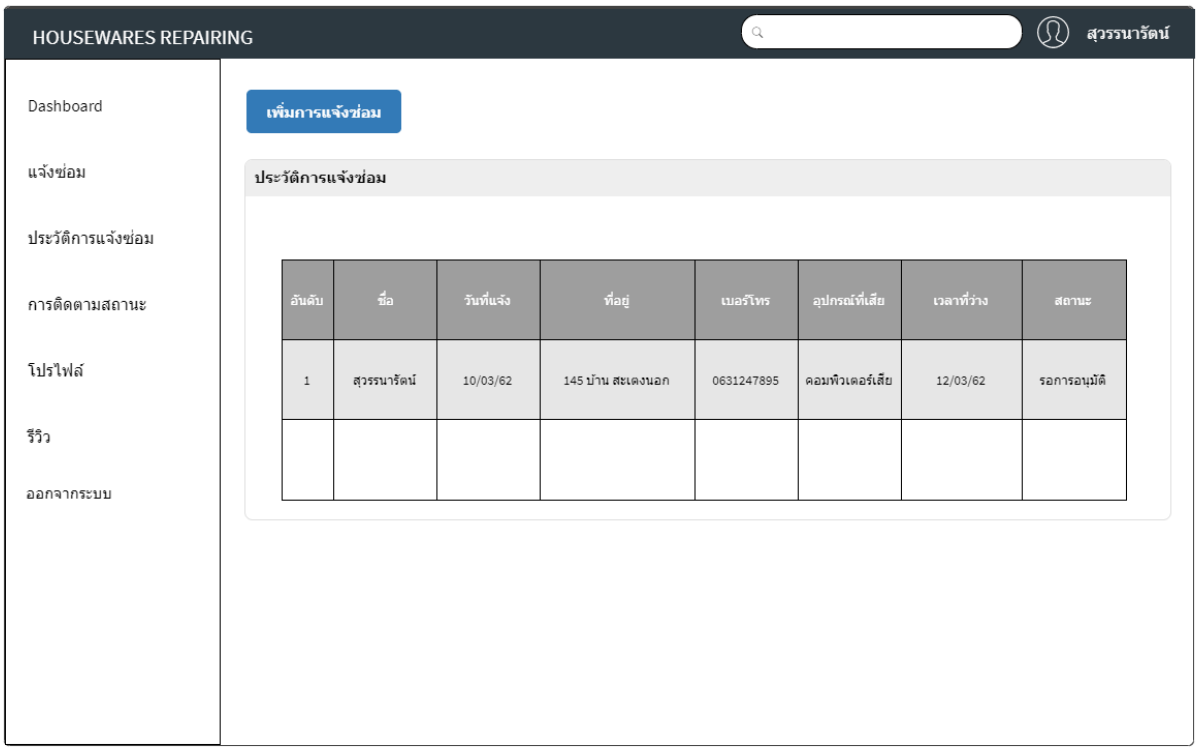


Figure 3.20 Customer Page

This page will show to customers after they inform repair. The customer able to user tracking inform repair and add review after serviced.

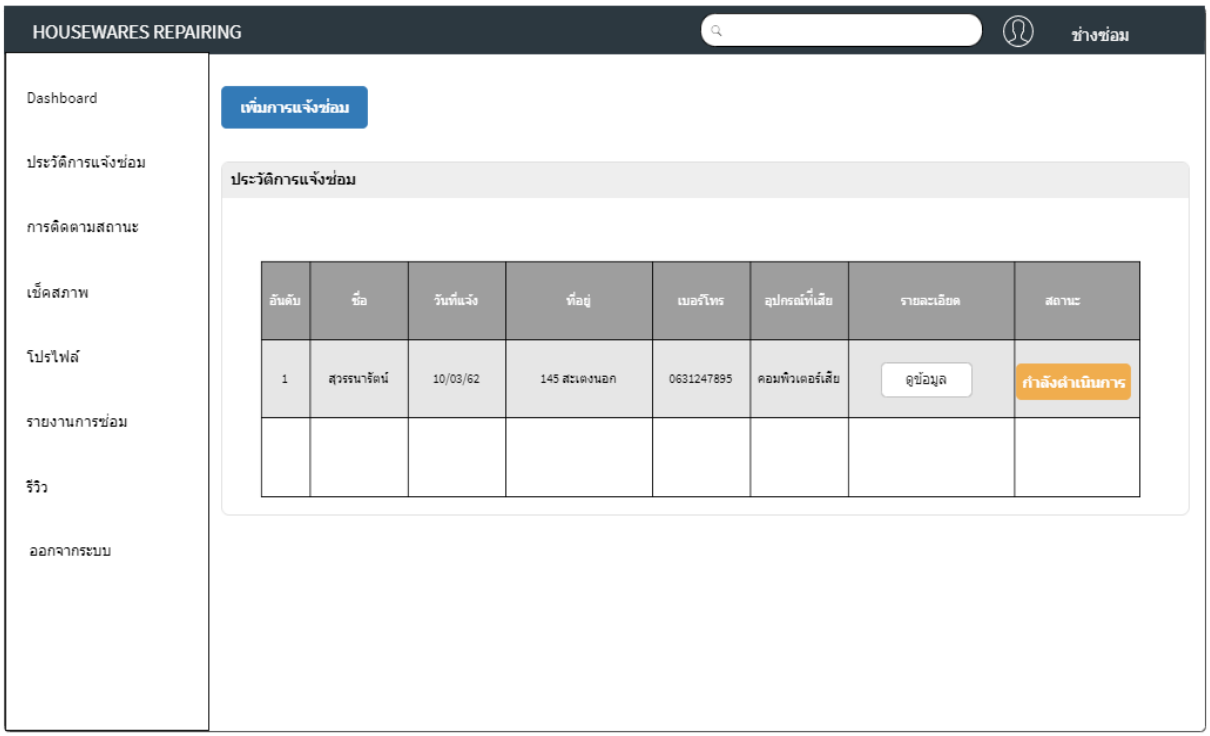


Figure 3.21 Technicians Page

This page will show to technicians after they login. The technicians can view and update their profile. Technicians can view history list inform and view review of customers.

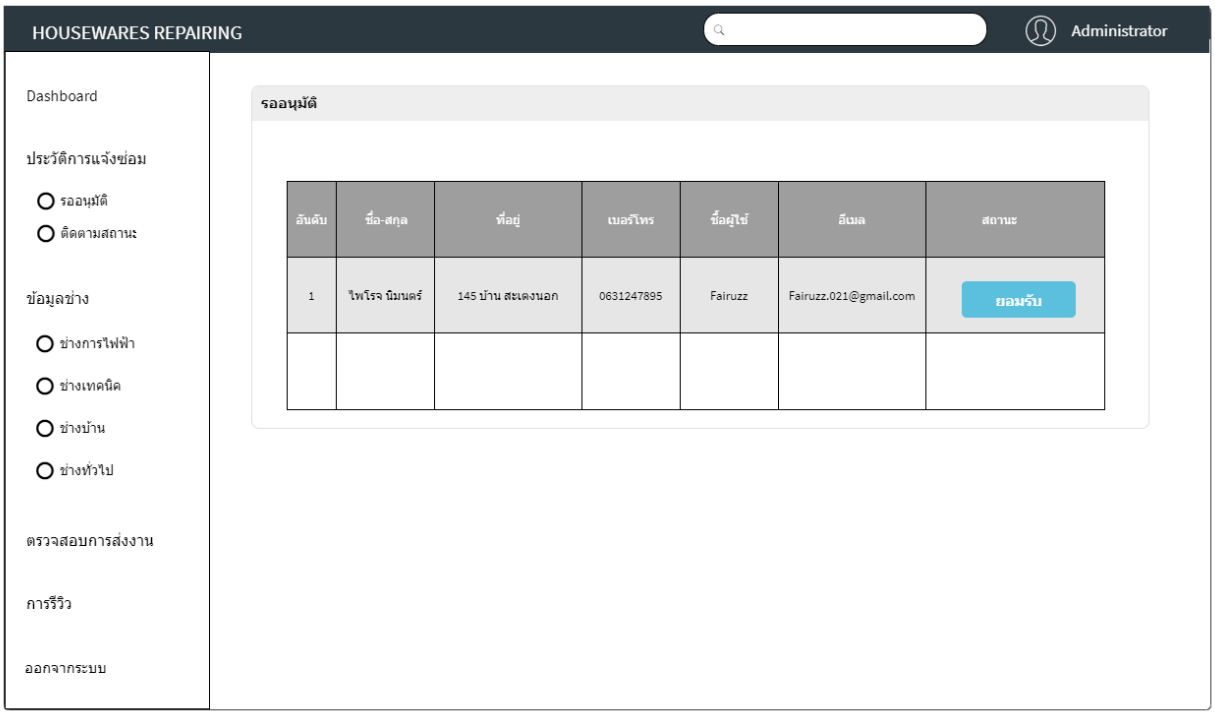


Figure 3.22 Approved Page

This page will show to Admin for allowed technicians to using on system. After technicians registered, they have to wait for admin approve first.