



MINISTRY OF EDUCATION AND TRAINING

TRƯỜNG ĐẠI HỌC FPT

2012

FPT UNIVERSITY

Capstone Project Document

Furniture repair and maintenance service

GFA22SE01	
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Capstone Project code	FA22SE58

- Ho Chi Minh, December/2022 -

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Acknowledgement

The team would like to express the individuals and groups who have always accompanied and helped our team to complete the product.

We would like to express our supervisor, Mr. Tran Thanh Nguyen. He is the venerable teacher in FPT University. Without his instruction and guidance through the project development process, we thought this project would never have turned out as it did.

We would like to say thanks to FPT University, teachers and friends who have always dedicated and helped us to achieve the best result.

Definition and Acronyms

Acronym	Definition
PWM	Psychology website
BA	Business Analysis
BR	Business Rule
ERD	Entity Relationship Diagram
GUI	Graphical User Interface
PM	Project Manager
SDD	Software Design Description
SPMP	Software Project Management Plan
SRS	Software Requirement Specification
UAT	User Acceptance Test
UC	Use Case
API	Application Program Interface

I. Project Introduction

1. Overview

1.1 Project Information

- Project name: Furniture repair and maintenance service
- Project code: FMS
- Group name: Furniture services team
- Software type: Website & Android Application

1.2 Project Team

a. Supervisor

Full Name	Email	Phone Number	Title
Trần Thanh Nguyên	nguyentt15@fe.edu.vn	0967863063	Lecturer

Table 2. Supervisor

b. Team member

Full Name	Email	Mobile	Role
Nguyễn Tấn Sang	sangntse130221@fpt.edu.vn	0938995710	Leader
Nguyễn Tấn Sang	sangntse140026@fpt.edu.vn	0973457541	Member
Trương Hoàng Huy	huythse140172@fpt.edu.vn	0931415154	Member
Trần Hoàng Nam	namthse130257@fpt.edu.vn	0396258901	Member

Table 3. Team members

2. Product Background

Today, with the hectic pace of life in big cities, equipping a spacious house with interior equipment to ensure sufficient use is what most families are interested in. However, in the process of using these devices, if they are degraded or damaged and need to be maintained and repaired, it is a difficult problem for every family. How to find a reputable unit, skilled experts in this field and make sure to keep the equipment with high aesthetics. Furthermore, people are at high risk of getting unreasonable prices for materials, replacement parts and labour cost for their furniture service.

3. Existing Systems

3.1 CÔNG TY TNHH VĨNH SANG

Vinh Sang is a company that provides furniture repair services with its own website. The company provides a full range of services related to furniture repair. This company allows customers to book appointments.

Link website: <http://suanoithat.com/>

Main features: book appointment, pricing, news, online chat

System actors: admin, guest, customer

Pros: Provide a good interface that is easy to create sympathy for users. The components related to furniture repair services such as service quotes, appointment booking are easy to access and easy to

use. Appointment booking is done quickly, no login required. When completing the booking procedure, there will be an SMS confirming the booking is successful.

Cons: There is no notification that the time slot has been set, which can lead to multiple customers booking the same time slot. The pricing action directs the user to the service price articles or the product page. This system doesn't allow customers to make purchases and make payments through the website.

3.2 Tan Tam

Tan Tam Center is a system that provides home appliance and furniture repair services with its own website and mobile application. The system provides repair services at home.

Link website: <https://www.dichvutantam.com/>

Mobile application: Thợ Tận Tâm

Main features: book appointment, pricing, online chat, news

System actors: admin, staff, guest, customer

Pros: Provide home repair services. Eye-catching and easy-to-use interface. Users are not required to log in to book an appointment.

Cons: Offer a very short range of furniture services. Can not prevent customers from getting high prices for material from staff.

4. Business Opportunity

This offers the opportunity to build a system where a customer can track the status, manage the details of invoices, as well as track the number of orders, services, staff, and manager responsibility in one receipt. Furthermore, customers can view the exact price of the receipt after the staff conducts a survey. This system can protect the customer's benefit about the trustworthy price when using repairing or maintenance service. Prevent staff with bad intentions. Provide the possibility of cost savings through discount vouchers.

5. Software Product Vision

The Furniture Repair and Maintenance Service System was born to support and serve to meet the diverse requirements of users. Focusing on giving reasonable service prices and quality-assured materials. Unlike the current telephone and manual service ordering processes, customers who use the Furniture Repair and Maintenance Service System will not have to worry about price reasonableness of their order and could easily be provided with after-sales service.

6. Project Scope & Limitations

Project scope:

- Support company manage their staff, services and booking with web app
- Allow staff assign their day-off schedule
- Customer can use mobile app for booking services from company

Limitations:

- The system does not support multiple languages
- The system hasn't supported online payment now. We will develop it in the future
- The system hasn't supported multiple brands of company. We will develop it in future
- The system hasn't supported map for customer and staff for searching
- The system hasn't supported OTP verify

II. Project Management Plan

1. Overview

1.1 Scope & Estimation

#	WBS Item	Complexity	Est. Effort (man-day s)
1	<i>Initiation</i>		10
1.1	Prepare Report 1 – Project Introduction	Complex	10
1.2	Deliver Report 1	Simple	0
2	<i>Planning & Requirement</i>		45
2.1	Prepare Report 2 – Project Management Plan	Complex	10
2.2	Deliver Report 2	Simple	0
2.3	Requirement analysing	Complex	10
2.4	Design User Interfaces (UI) prototypes	Complex	15
2.5	Write SRS (Software Requirements Specification)	Complex	10
2.6	Deliver Report 3	Simple	0
3	<i>Software Designing</i>		35
3.1	Write SDD (Software Design Document)	Complex	10
3.2	Deliver Report 4 – Software Design Document	Simple	0

3.3	Prepare Test Report	Complex	10
3.4	Deliver Report 5 – Software Testing Document	Medium	5
3.5	Deliver Report 6 – User Guides	Medium	5
3.6	Deliver Report 7 – Final Project Report	Simple	5
4	<i>Database</i>		31
4.1	Design ERD	Complex	10
4.2	Implement database	Complex	10
4.3	Authorization and Authentication	Medium	5
4.3.1	Login for all role	Medium	5
4.3.2	Logout	Simple	1
5	<i>Implement</i>		
5.1	<i>Customer application</i>		46
5.1.1	Login	Medium	5
5.1.2	Register	Medium	6
5.1.3	Add new address	Medium	5
5.1.4	Update address	Simple	3
5.1.5	View home page	Simple	3
5.1.5	View history	Medium	5
5.1.6	View profile screen	Simple	3
5.1.7	View date and time screen	Simple	3
5.1.8	Create booking	Medium	5

5.1.9	Change password	Simple	2
5.1.10	View payment methods	Simple	2
5.1.11	Choose address	Simple	1
5.1.12	View list category	Simple	3
5.1.13	Delete the address	Simple	2
5.2	<i>Staff Application</i>		19
5.2.1	Login	Simple	1
5.2.2	Logout	Simple	1
5.2.3	Change password	Medium	2
5.2.4	View booking list	Simple	1
5.2.5	View history	Simple	1
5.2.6	View profile screen	Simple	1
5.2.7	Send day-off request	Medium	2
5.2.8	View day-off request status	Simple	1
5.2.9	Send detailed report	Simple	1
5.2.10	View booking details	Simple	1
5.2.11	Add services into a booking	Medium	2
5.2.12	Delete services of a booking	Complex	5
5.3	<i>Manager Web Application</i>		52
5.3.1	Login	Simple	3
5.3.2	View Order page	Simple	3

5.3.3	View List Order	Simple	1
5.3.4	View Order Status	Simple	3
5.3.5	Assign Work	Complex	7
5.3.6	View Staff Page	Simple	3
5.3.7	View List Staff	Simple	3
5.3.8	View Staff DayOff	Simple	3
5.3.9	Approve Staff DayOff	Medium	5
5.3.10	Deny Staff DayOff	Medium	5
5.3.11	View Customer Page	Simple	3
5.3.12	View List Customer	Simple	3
5.3.13	View Customer Detail	Medium	5
5.3.14	View Customer Order history	Medium	5

Total Estimated Effort (man-days) **240**

1.2 Project Objectives

- Timelines: 90%
- Allocated Effort: $4(\text{member}) * 4(\text{months}) * 20(\text{days/month}) = 320 \text{ man-days}$.
- Estimated total cost: N/A

1.3 Project Risks

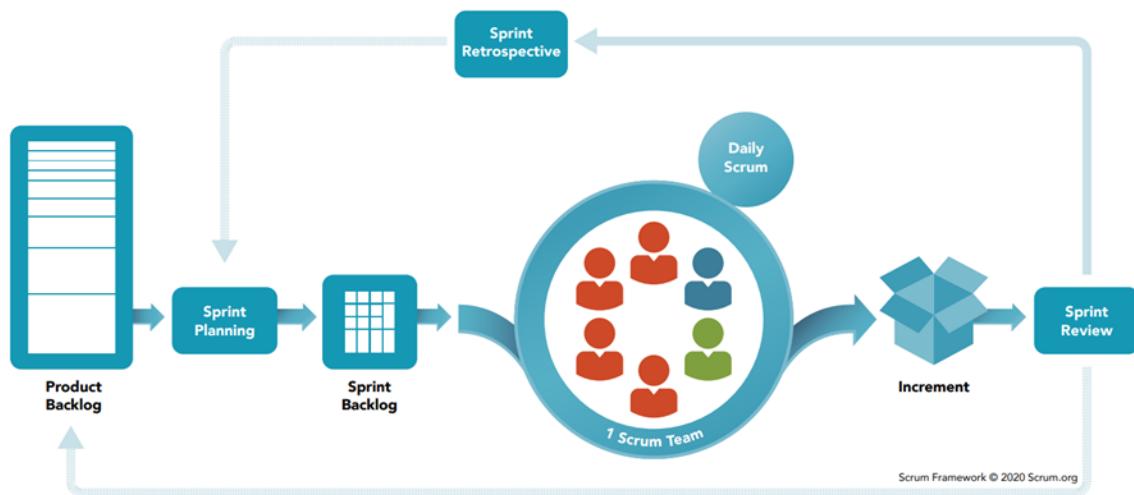
#	Risk Description	Impact	Possibility	Response Plans
1	Team member drop out	Critical	Low	Reduce scope.
2	Server issue	Medium	Low	Change the other server.

3	Requirements change, requirements unexpected changes	Critical	Medium	Make some solution to resolve them.
4	Technology risk	High	Medium	Research or some help from a mentor.

2. Management Approach

2.1 Project Process

SCRUM FRAMEWORK



The project is developed using the Scrum model which is an agile framework for developing, delivering and maintaining products. Our team chooses this model for the following reasons:

- Because Scrum is suitable for small and medium-sized projects, it fits our team which consists of 4 members well.
- For this project, each sprint spans 1 week and the duration of our product backlog is 12 sprints because we need to deliver the product quickly and the customer wants to review the product every week.
- Flexible to requirement changes.

References: <https://www.scrum.org/resources/what-is-scrum>

2.2 Quality Management

To improve project quality, team will follow these approaches:

- One member will be responsible for writing API Testing on Postman.
- Making and following the coding rules, coding convention.
- Code review before code is merged, deployed.
- Holding daily meetings to follow project's tasks and support each other.

2.3 Training Plan

Training Area	Participants	When, Duration	Waiver Criteria
Git, Github	All member	Week 1, 2 days	Mandatory
Trello	All member	Week 2, 1 days	Mandatory
Figma Tool	All member	Week 2, 1 days	Mandatory
StarUml, Draw IO	All member	Week 2, 2 days	Mandatory
C#	Nguyễn Tân Sang	Week 2-3, 5 days	Mandatory
ReactJS	Trần Hoàng Nam	Week 2-3, 5 days	Mandatory
Flutter	Nguyễn Tân Sang, Trương Hoàng Huy	Week 2-3, 7 days	Mandatory

3. Project Deliverables

#	Deliverable	Due Date	Notes
1	Project Plan document	05/09/2022	Overall project plan
2	SRS documents	26/09/2022	Software requirement specification
3	Design documents	10/10/2022	Architecture Design, Detailed design, Database, UI design
4	Software Testing Document	24/10/2022	Testing Reports
5	Guides documents	07/11/2022	Architecture Design, Detailed design, Database, UI design
6	Customer application, Staff application	21/11/2022	Code, System test case
7	Web manager application	28/11/2022	Code, System test case
8	Web admin application	05/12/2022	Code, System test case

4. Responsibility Assignments

Responsibility	SangNTSE1302 21	SangNTSE1400 26	Huythse140 172	NamTHSE1302 57
Project Planning & Tracking	D	D	R	R
Prepare Project Introduction Document	D	D	D	D
Prepare SRS Document (Overview Part)	D	D	S	S
Prepare SRS Document (User Requirements)	D	R	S	S

5. Project Communications

Communication Item	Who/ Target	Purpose	When, Frequency	Type, Tool, Method(s)

Daily Meeting	Team Member	<ul style="list-style-type: none"> Report task progress Plan tasks for the day Discuss and solve problems 	Every working day	Google Meet
Sprint planning	Team Member	<ul style="list-style-type: none"> Define what can be delivered in the sprint Determine how that work will be achieved 	The fine day of a new sprint: Monday morning	Google Meet, Offline
Sprint review	Supervisor and Team Member	<ul style="list-style-type: none"> Demo function completed in sprint Describe the work they've done 	At the end of the sprint: Saturday afternoon	Offline

6. Configuration Management

6.1 Document Management

Google Drive is used to manage project's documents.

6.2 Source Code Management

GitHub is used to manage project's source code.

6.3 Tools & Infrastructures

Category	Tools / Infrastructure
Technology	ReactJS (Front-end), C# (Back-end), Flutter (Mobile).
Database	SQL Server
IDEs/Editors	Visual Studio Code, Android studio, Visual Studio.

Diagramming	StarUML, DrawIO
Documentation	Ms Office, Google Docs/Sheets/Slides
Version Control	GitHub (Source Codes), Google Drive (Documents)
Deployment server	Smarter net
Project management	Trello

III. Software Requirement Specification

1. Product Overview

The product aims to connect Furniture repair and maintenance service with users. We do not advocate directly competing with the chain stores that have developed but mainly targeting small stores with the customer segment more suitable for our system.

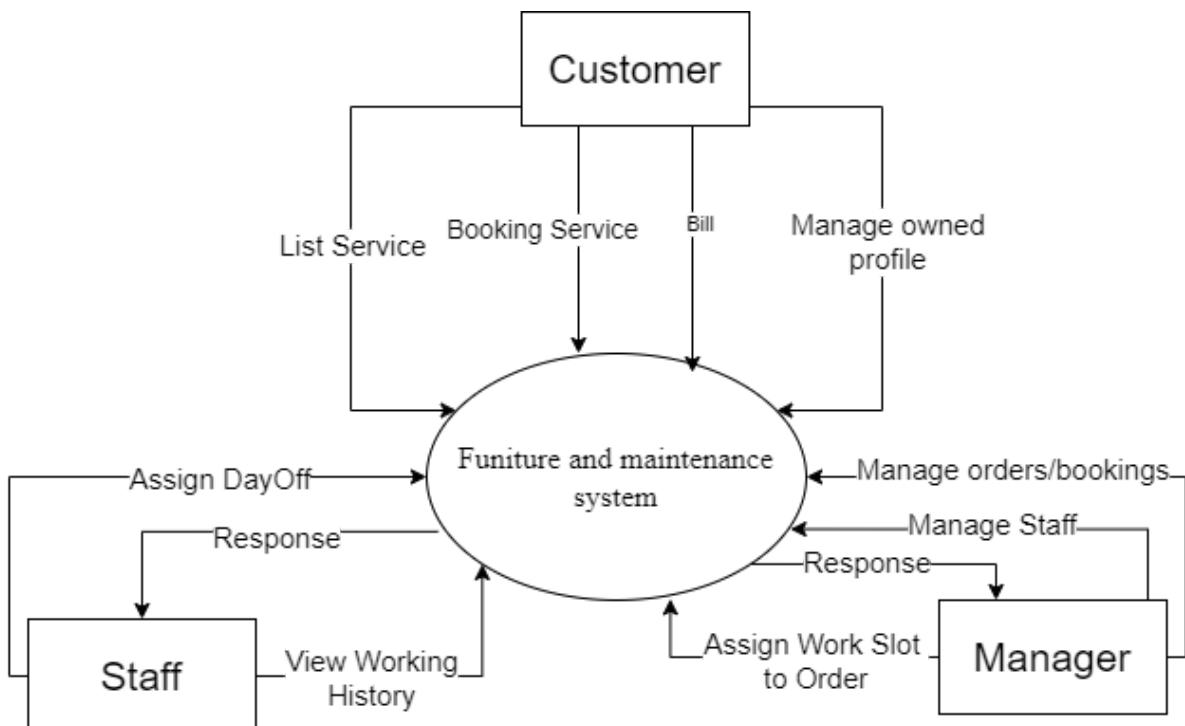


Figure 7. Product overview

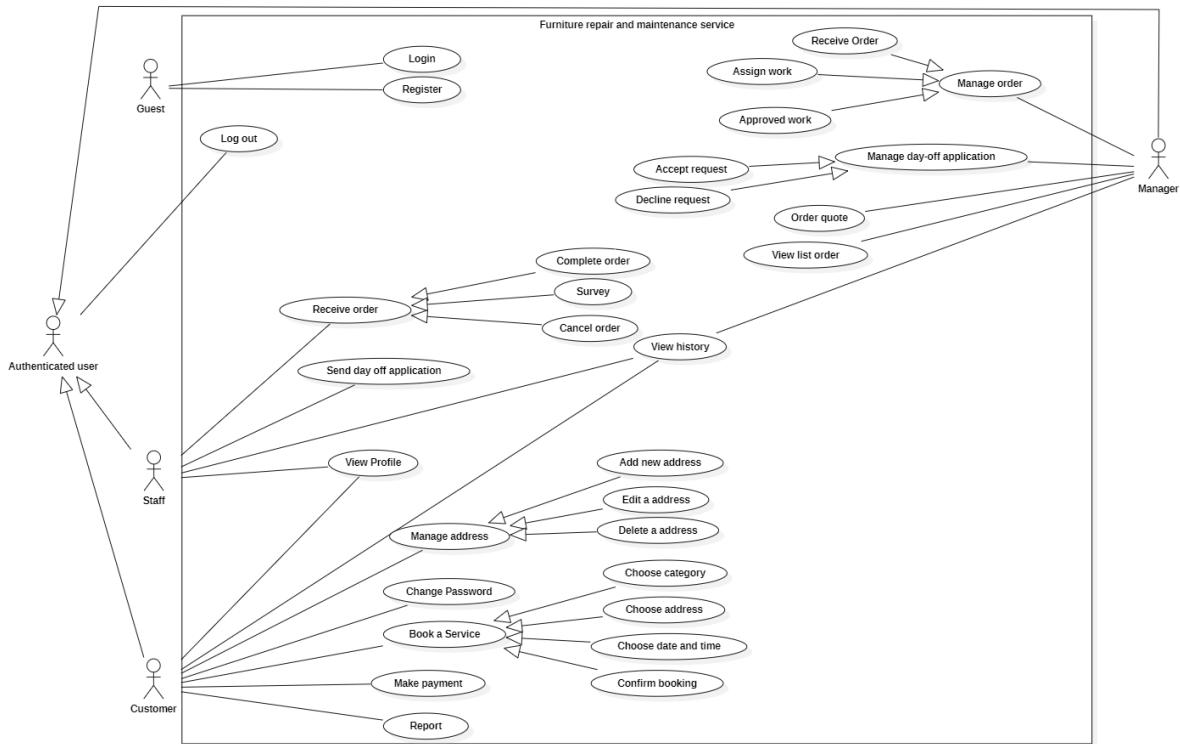
2. User Requirements

2.1 Actors

#	Actor	Description
1	Guest	Users use FMS to log in or register.
2	Customer	The guest has been authenticated successfully.
3	Staff	receive assigned booking and also send detailed reports to manager
4	Manager	Manage the whole system.

2.2 User Case

2.2.1 Diagram(s)



2.2.2 Descriptions

#	User Case	Actors	Use Case Description
01	Login	Manager,, Customer, Staff.	Users will login in to the system. At this time, the system will assign permissions to each role.
02	Register	Guest	Guests can create a new account.
03	Logout	Manager,, Customer, Staff.	Users logout of the system.
04	View profile	Manager,, Customer, Staff.	Users view detailed information of their personal profile.
05	Book a service	Customer	Customers make a service booking after viewing the service.
06	View service	Customer	View all service details.

07	Make payment	Customer	Make payment for service used directly on smart mobile through QR code payment method of Momo.
08	View list booking	Manager, Customer, Staff.	View all booking information.
09	Cancel booking from customer's request.	Manager, Staff.	Make cancel booking when requested by the customer.
10	View list service booked	Manager, Customer, Staff.	View list service requests of customers.
11	Add new address	Customer	For some reason customers want to have a new address, the customer is allowed to add a new address.
12	Edit a address	Customer	For some reason customers want to edit an address, the customer is allowed to edit it.
13	Delete a address	Customer	For some reason customers don't want to use the address, so customers can delete it.
14	Change password	Customer	Customers can change passwords.
15	Choose category	Customer	A list of categories for the customer to choose to create a booking.
16	Choose address	Customer	A list of address of customer to choose for creating a booking
17	Choose date and time	Customer	Customers can freely choose the date and time for creating a booking
18	Select completed service	Staff	Confirmation of completion when the service has been completed for the customer.
19	View account	Manager	View list account information.
20	Assign work	Manager	Manager assigns staff into booking according to the staff's profession.
21	Receive order	Staff	Staff receive a new assigned order from the manager.
22	Send day off request	Staff	When it is necessary to take a day off, staff can send requests to the manager.
23	Report	Customer	The Customer can send a report ticket if having an issue happen.

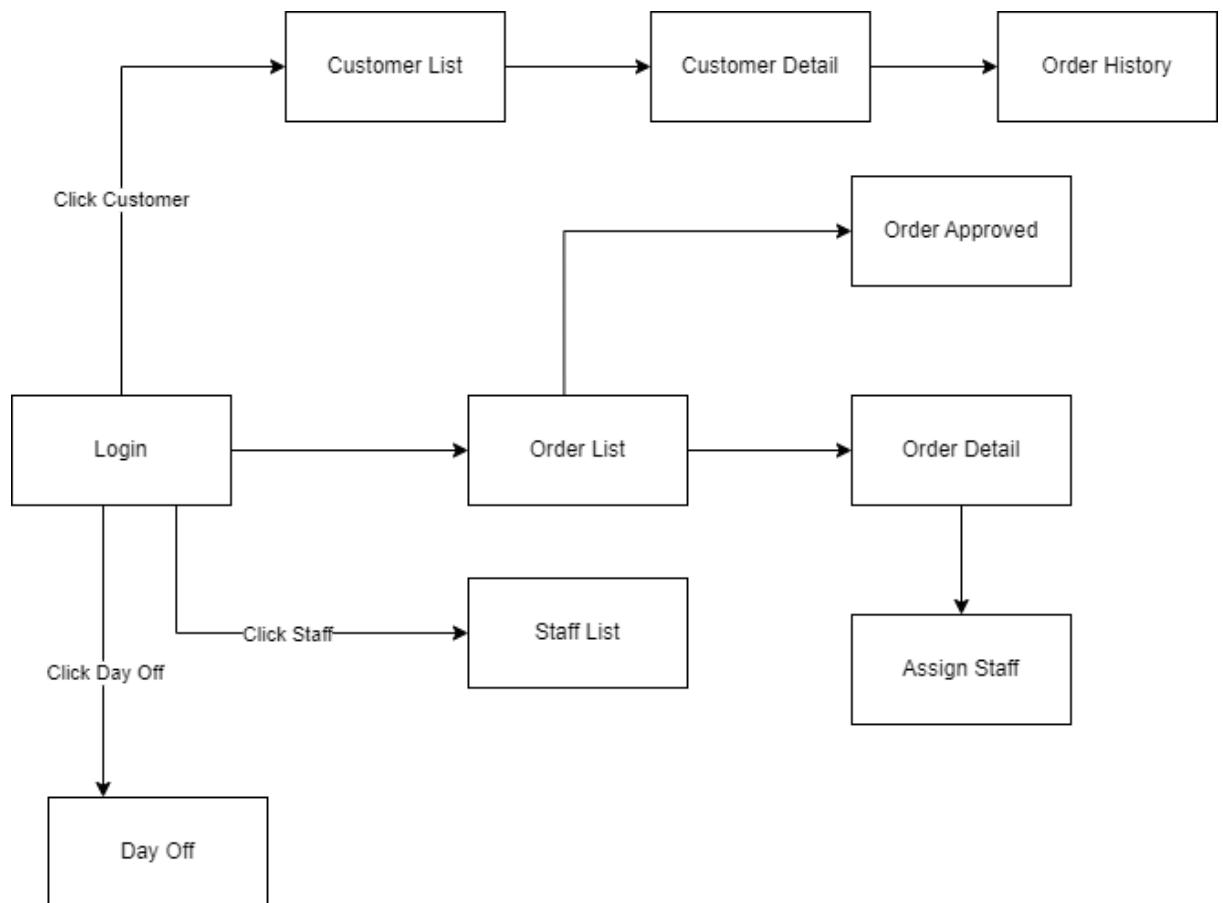
24	Approve day off application	Manager	Manager approves after considering the staff' request.
25	Make field survey	Staff	Staff edit details of order after a field survey at customer location.
26	Decline day off application	Manager	Manager declines after considering the staff' day off request.
27	Confirm day off application	Manager	Manager confirm after considering the staff' day off request.

3. Functional Requirements

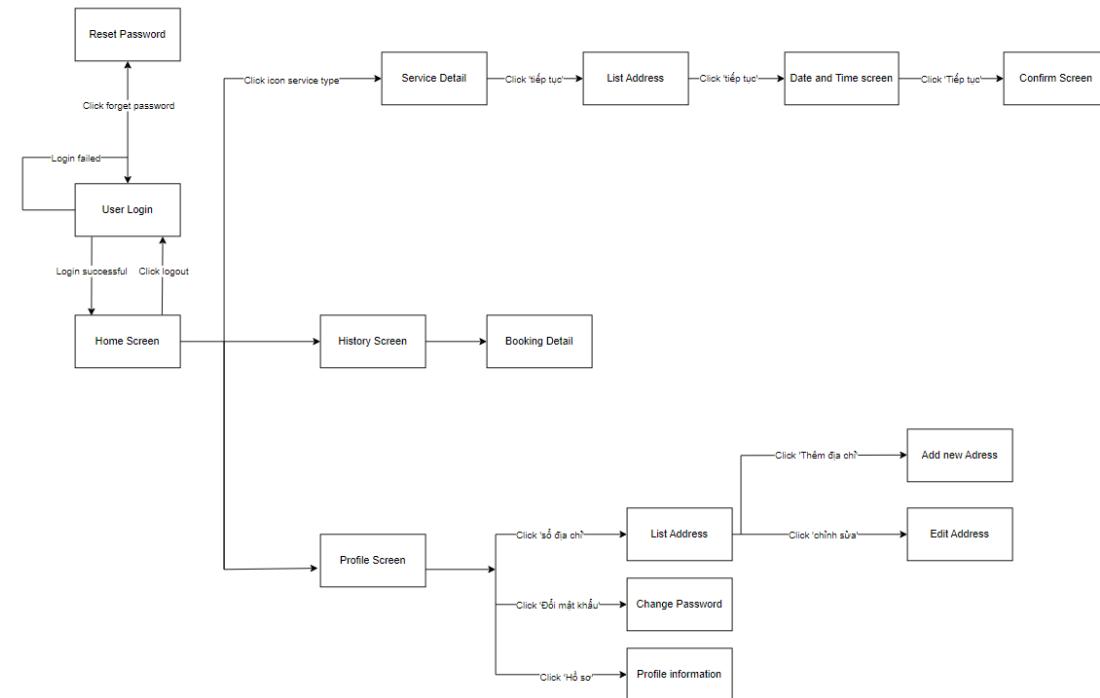
3.1 System Functional Overview

3.1.1 Screen flow

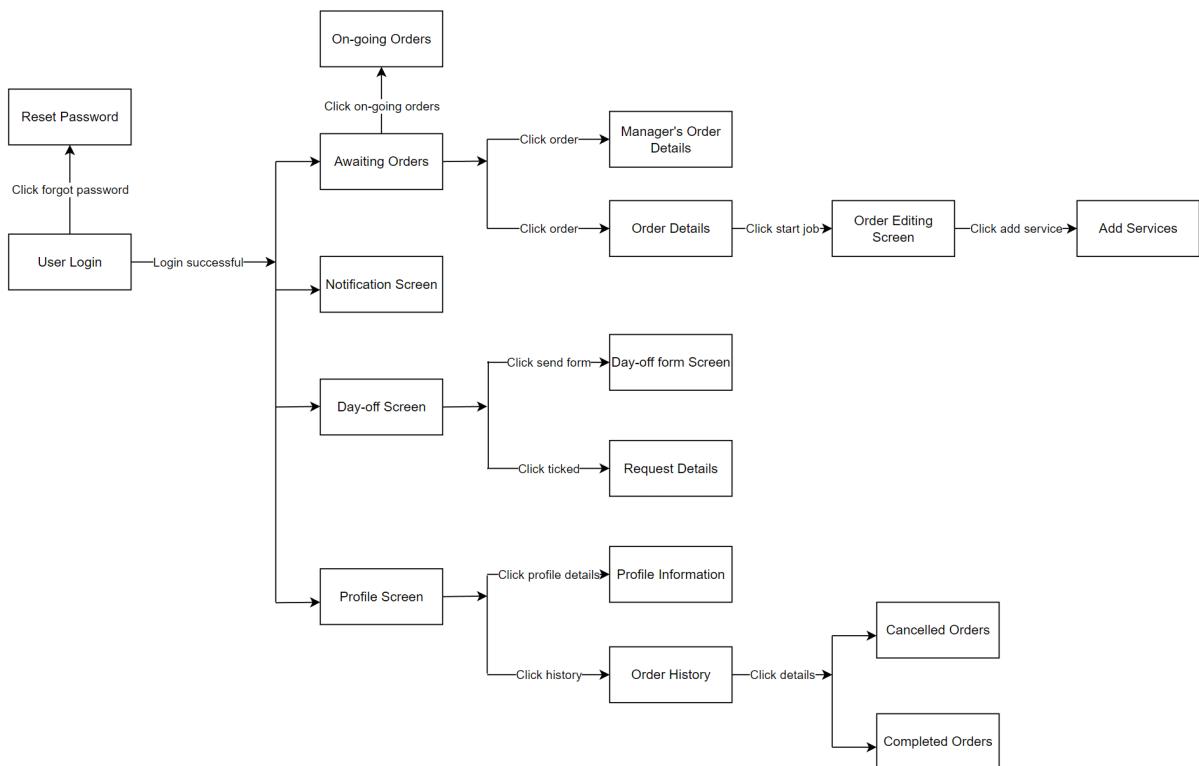
- Manager role



- Customer role



● Staff role



3.1.2 Screen Description

- Manager role

#	Feature	Screen	Description
1	Order list	Order screen	The screen will get list order when manager check in
2	Display order by status	Order screen	The screen will get list order by status when manager select status
3	Search order	Order screen	The screen will show order search by name when manager search
4	Sort order from old to new	Order screen	The screen will get list order from old to new when manager select
5	Sort order from new to old	Order screen	The screen will get list order from new to old when manager select
6	View order detail	Order detail screen	The screen will get detail information of order when manager click view detail button
7	Assign staff	Assign staff screen	The screen will get list staff to assign
8	Confirm assign staff	Assign staff screen	After choosing staff manager will able to assign staff to order
9	Approved order	Approved order screen	Approved the order for the customer
10	Staff list	Staff screen	The screen will get staff list when manager check in
11	Customer list	Customer screen	The screen will get customer list when manager check in
12	Customer detail	Customer detail screen	The screen will show detail information of customer
13	Order history	Order history screen	The screen will show order detail when manager select order in customer detail
14	Day off	Day off screen	The screen will show list of staff day off
15	Confirm day off	Day off screen	Make day off confirm at the request of the staff
16	Cancel day off	Day off screen	Make day off cancel at the request of the staff

- Staff role

#	Feature	Screen	Description
1	Login	Login Screen	Allow users to login with username and password.
2	View profile	Profile Screen	View profile information.
3	View account information	Profile Information	View account detailed information.
4	Reset password	Reset Password	Allow users to reset with a new password.
5	View awaiting orders	Awaiting Orders	The screen will get a list order of scheduled orders received from manager.
6	View order detail	Order detail screen	The screen will get detailed information of order when staff click on the order ticket.
7	View on-going orders	On-going Orders	The screen will get a list order that is currently in progress.
8	Edit order details	Order Editing Screen	Allow staff to edit, add, delete services accordingly to real situations as well as take pictures.
9	View manager proposed order details	Manager' Order Details	The screen will get detailed information of the order sent by the manager when staff click on the order ticket.
10	Add service to order	Add Services	The screen will get a list of services and allow staff to add into order.
11	Day off	Day-off Screen	The screen will show a list of staff days off.
12	Send day off request	Day-off Form Screen	Allow staff to fill in a day off request form and send it to the manager.
13	View day off request status	Request Details	The screen will show detailed information of sent quests and manager status on it.
14	View order history	Order History	The screen will show a list of orders in the history of staff.
15	View completed history	Completed Orders	The screen will show a list of completed orders of staff.
16	View cancelled history	Cancelled Orders	The screen will show a list of cancelled orders of staff.

17	View notifications	Notification Screen	The screen will show a list of received notifications.
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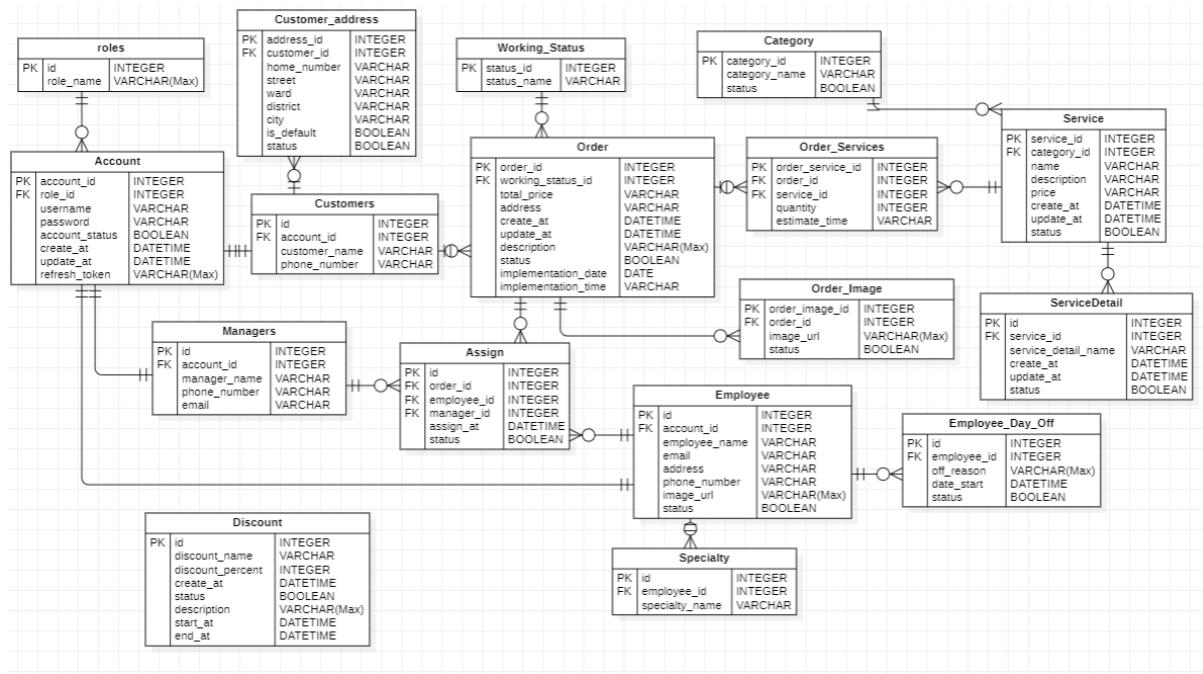
- Customer role

#	Feature	Screen	Description
1	Login	Login Screen	Allow users to login with username and password.
2	View profile	Profile Screen	View profile information.
3	View account information	Profile Information	View account detailed information.
4	Reset password	Reset Password	Allow users to reset with a new password.
5	Change password	Change Password Screen	Allow user to change to the new password.
6	Create Booking	Service Detail	Allow user create a booking
7	Choose address	List Address	The screen will show a list of addresses, and the user chooses one address.
8	Choose Date and Time	Date and Time screen	Allow user to choose date and time
9	Confirm Booking	Confirm Booking screen	Allow user to view the sum of the bill and confirm that
10	View History	View History screen	The screen will show all the booking include processing, done, cancelling order
11	View Address	List Address Screen	Allow user to view list of address
12	Add new Address	Add new Address Screen	The screen will show a form for the user to fill in to create a new address.
13	Edit address	Edit Address Screen	Allow user to Edit an Address

3.1.3 Screen Authorization

Screen	Staff	Customer	Manager
Order screen	x	x	X
Order detail screen	x	x	X
Assign staff screen			X
Approved order screen	x		X
Staff screen	x		X
Customer screen			X
Customer detail screen			X
Order history screen	x	x	X
Day off screen	x		X
Login screen	x	x	X
Reset password screen	x	x	X
Staff detail screen	x		X
Order editing screen	x		X
Add service screen	x		
Day off request detail	x		X
Day off form screen	x		
List Address screen		x	
Add new Address screen		x	
Change Password screen		x	

3.1.4 Entity Relationship Diagram



Entity Description

#	Entity	Description

3.2 Order

3.2.1 Order Screen

- *Function trigger*: The manager logged in
- *Actor*: manager
- *Function description*: Manager see the list of orders
- *Function detail*: List of order, manager can choose to go to other pages from this screen
- *Business rule*: BR-009, BR-025
- *Screen layout*:

Danh sách đơn

Tìm kiếm theo tên:

Thứ tự: Cũ đến mới

Trang Thái: Tài lại dữ liệu

#	Mã đơn	Tên khách hàng	Số điện thoại	Trạng thái đơn	Thời gian tạo	Thay đổi trạng thái	Hành động
1	1003	Nguyen Van Tuan	0975556789	Đã tiếp nhận	11/12/2022	<input type="button" value="Đổi trạng thái đơn"/>	<input type="button" value="L"/>
2	3003	Nguyen Van Tuan	0975556789	Đã tiếp nhận	01/01/0001	<input type="button" value="Đổi trạng thái đơn"/>	<input type="button" value="L"/>
3	3004	Nguyen Van Tuan	0975556789	Đã tiếp nhận	12/15/2022	<input type="button" value="Đổi trạng thái đơn"/>	<input type="button" value="L"/>
4	3005	Nguyen Van Tuan	0975556789	Đã tiếp nhận	12/15/2022	<input type="button" value="Đổi trạng thái đơn"/>	<input type="button" value="L"/>
5	3006	Nguyen Thanh Long	0973666888	Đã tiếp nhận	12/16/2022	<input type="button" value="Đổi trạng thái đơn"/>	<input type="button" value="L"/>

«First 2 3 ...More »Last

Trần Hoàng Nam
Hóa đơn
Khách Hàng
Nhân viên
Ngày nghỉ nhân viên
Đăng xuất

3.2.2 Order detail screen

- *Function trigger:* Manager want to see order detail
- *Actor:* manager
- *Function description:* Manager see the detail of the select order
- *Function detail:* Manager can see customer information, service, staff in order and assign staff
- *Business rule:* BR-056, BR-057
- *Screen layout:*

← Thông tin đơn hàng

Mã đơn: 3020 Họ và tên: Nguyen Van Tuan Ánh đại diện:

Số điện thoại: 0975556789 Số địa chỉ: Ngày hẹn: 01/29/2023 Giờ hẹn: 23:25

Dịch vụ

Trạng Thái:

#	Loại dịch vụ
1	Vệ sinh
2	Sửa chữa

Nhân viên

#	Tên nhân viên	Chuyên môn	Loại bỏ
1	Nguyễn Hải Nam		<input type="button" value="X"/>

Trần Hoàng Nam
Hóa đơn
Khách Hàng
Nhân viên
Ngày nghỉ nhân viên
Đăng xuất

3.2.2 Assign staff

- *Function trigger:* Manager want to assign staff into order
- *Actor:* manager
- *Function description:* Manager see list of staff to assign to order
- *Function detail:* Manager can see list of staff with specialty, search staff by name
- *Business rule:* N/A
- *Screen layout:*

Danh sách nhân viên

Tìm kiếm theo tên:

Chuyên môn: Thợ Gỗ

Trạng Thái của thợ: Trống đơn

Tài liệu C

#	Tên nhân viên	Số điện thoại	Chuyên môn	Hành động
0	John	098555899	Thợ Gỗ	
1	Nguyễn Hải Nam	097366688	Thợ Gỗ	

Xác nhận

Trần Hoàng Nam
Hóa đơn
Khách Hàng
Nhân viên
Ngày nghỉ nhân viên
Đăng xuất

3.2.3 Approved order

- **Function trigger:** Manager want to approved the order with status “Đang thực hiện”
- **Actor:** manager
- **Function description:** Manager want to approved order
- **Function detail:** Manager can see detail of the order to approve, list of sever, price, staff, image, and confirm approve
- **Business rule:** BR-059
- **Screen layout:**

← Thông tin đơn

Khách hàng: Nguyễn Văn A Số điện thoại: 0955591968 Ngày hẹn: 01/04/2023 Giờ hẹn: 00:00

Trần Hoàng Nam
Hóa đơn
Khách Hàng
Nhân viên
Ngày nghỉ nhân viên
Đăng xuất

Loại đơn: Sửa chữa đồ gỗ

Danh sách dịch vụ khách hàng đặt:

#	Tên dịch vụ	Số lượng dịch vụ	Giá tiền một dịch vụ	Tổng giá tiền
0	Khu khan Sofa	1	350000	350000
1	Khử khuẩn ghế vải da	1	250000	250000
2	Bọc mới da ghế sofa	2	900000	1800000
3	Làm liền vết nứt trên salon gỗ	3	400000	1200000

Danh sách dịch vụ khách hàng đặt:

#	Tên Nhân viên	Chuyên Môn
0	John	
1	Nguyễn Hải Nam	

Thêm nhân viên
Hình ảnh thực tế (nhấn vào ảnh để phóng lớn):

3.3 Customer

3.3.1 Customer screen

- **Function trigger:** Manager want to see list of customer
- **Actor:** manager
- **Function description:** Manager want to see list of customer
- **Function detail:** Manager can see list of customer with name, phone number, sort, search
- **Business rule:** BR-035
- **Screen layout:**

Danh sách khách hàng

Tìm kiếm theo tên khách hàng:

Thứ tự: Mới đến cũ

Tìm kiếm

Tải lại dữ liệu

Trần Hoàng Nam

Hóa đơn

Khách Hàng

Nhân viên

Ngày nghỉ nhân viên

Đăng xuất

First | 1 | 2 | 3 | Last

#	Mã số khách hàng	Tên Khách hàng	Số điện thoại	Hành động
1	1003	Huy Tran	0399390110	
2	1002	Nguyễn Minh Long	0973585898	
3	3	Nguyen Thanh Long	0973666888	
4	2	Nguyen Van Tuan	0975556789	
5	1	Nguyen Van A	0955591968	

3.3.2 Customer detail screen

- **Function trigger:** Manager want to see customer details
- **Actor:** manager
- **Function description:** Manager want to see customer detail of selected customer
- **Function detail:** Manager can see customer phone, customer name, customer order
- **Business rule:** BR-060
- **Screen layout:**

← Thông tin khách hàng

Họ và tên: Nguyen Van A Số điện thoại: 0955591968 Ảnh đại diện:

Lịch sử dịch vụ

Trang Thủ: Thứ tự: Tìm kiếm theo tên:

#	Mã đơn	Tên khách hàng	Số điện thoại	Thời gian tạo	Chi tiết
1	3015	Nguyen Van A	0955591968	12/16/2022	
2	3014	Nguyen Van A	0955591968	12/16/2022	

«First | 1 | 2 | 3 | »Last

3.3.3 Order history screen

- **Function trigger:** Manager want to see order detail of customer
- **Actor:** manager
- **Function description:** Manager want to see order detail select in customer screen
- **Function detail:** Manager can see customer phone, customer name, order id, list services, price
- **Business rule:** BR-052
- **Screen layout:**

← Thông tin đơn hàng

Mã đơn:

3028

Họ và tên:

Huy Tran

Ảnh đại diện:



Số điện thoại:

0399390110

Số địa chỉ:

Ngày hẹn:

01/29/2023

Giờ hẹn:

23:53

Dịch vụ

Trạng Thái

Đang xử lý

#	Loại dịch vụ	Số lượng dịch vụ	Giá tiền một dịch vụ	Tổng giá tiền
1	Sửa chữa	3	400000	1200000
2	Vệ sinh	25	350000	8750000

3.4 Staff

3.4.1 Staff screen

- *Function trigger:* Manager want to see list of staff
- *Actor:* manager
- *Function description:* Manager want to see list of staff
- *Function detail:* Manager can see staff name, staff phone and staff working status
- *Business rule:* BR-036, BR-062
- *Screen layout:*

Danh sách nhân viên

Tìm kiếm theo tên nhân viên:

Tìm kiếm		Thứ tự:	Tải lại dữ liệu C
#	Tên nhân viên	Số điện thoại	Trạng thái
1	Nguyễn Hải Nam	097366688	Đang làm việc
2	John	098555899	Đang làm việc

3.4.1 Staff day off screen

- *Function trigger:* Manager want to staff day off
- *Actor:* manager
- *Function description:* Manager want to see list of staff day off
- *Function detail:* Manager can see staff name, staff phone and day off reason, confirm or cancel
- *Business rule:* N/A
- *Screen layout:*

Danh sách nhân viên

Tìm kiếm theo tên:

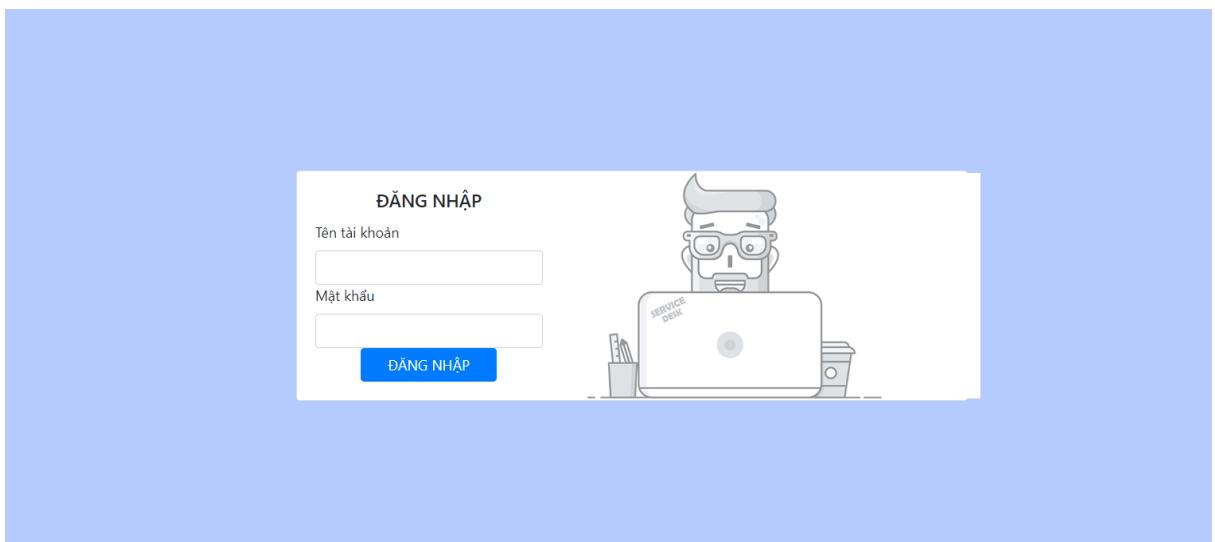
Trạng Thái:

#	Id nhân viên	Ngày nghỉ	Lý Do	Trạng thái đơn xin nghỉ	Đồng ý	Từ chối
1	2	12/17/2022	Có kèo coffee với bạn gái ở Phần Lan			
2	1002	12/17/2022	Đi du lịch Bắc Âu			
3	1004	12/24/2022	nghi om			
4	1005	12/24/2022	nghi om			
5	1006	12/24/2022	nghi om			

«First **1** 2 3 ...More »Last

3.5 Login screen

- *Function trigger:* Manager want to login the system
- *Actor:* manager
- *Function description:* Manager use username and password to be able to login
- *Function detail:* Manager logs into the system by entering username and password. The system verifies the user's identity and confirms whether they are allowed to access or not.
- *Business rule:* BR-009
- *Screen layout:*



3.6 Logout screen

- *Function trigger:* Manager want to logout of the system
- *Actor:* manager
- *Function description:* Manager want to see list of staff day off
- *Function detail:* Manager click logout and logout of the system
- *Business rule:* N/A
- *Screen layout:*

The screenshot shows a mobile application interface. On the left, there's a sidebar with a user icon and the name "Trần Hoàng Nam". Below the name are buttons for "Hóa đơn", "Khách Hàng", and "Nhân viên". At the bottom of the sidebar are buttons for "Ngày nghỉ nhân viên" and "Đăng xuất". The main area is titled "Danh sách đơn" and contains a table with columns: #, Mã đơn, Tên khách hàng, Số điện thoại, Trạng thái đơn, Thời gian tạo, Thay đổi trạng thái, and Hành động. The table has 5 rows of data, each with a "Đổi trạng thái đơn" button and a blue edit icon.

4. Non-Functional Requirements

4.1 External Interfaces

UI-1: The user interfaces must be simple, friendly.

UI-2: Icons used must be easy to recognize.

UI-3: Language used in the web and mobile application is Vietnamese.

4.2.1 Usability

US-1: The mobile application for the customer should be simple and easy to use.

US-1: The mobile application for the staff should be simple and easy to use.

US-2: The web manager for the manager should be easy to use and have an eye-catching user interface.

US-3: The web application for the manager should require no more than one day of training to be used.

US-4: Staff are not required to have technical knowledge before using.

4.2.2 Reliability

RE-1: The system should handle 500 requests per minute.

5. Requirement Appendix

5.1 Business Rules

ID	Rule Definition
BR-001	One phone number can only register one account for customer.
BR-002	Phone number register on account is regarded as username.
BR-003	Account register via register on mobile application has default role is customer.
BR-004	After account created, the customer can use this account to login into the Furniture Repair and Maintenance Service System.
BR-005	Default account include: username ,phone number, password, email, birthday, address.

ID	Rule Definition
BR-001	One phone number can only register one account for customer.
BR-002	Phone number register on account is regarded as username.
BR-003	Account register via register on mobile application has default role is customer.
BR-006	Clear an authorised user session when they log out.
BR-007	The user must have logged in to the Computer Service System.
BR-008	After login mobile app, users will be redirected to a specific view based on their role on the system: <ul style="list-style-type: none"> If the role is “Staff”, the system will display the Staff home screen on a mobile application. If the role is “Customer”, the system will display the customer home screen on a mobile application.
BR-009	After login to the web app, users will be redirected to a specific view based on their role on the system: <ul style="list-style-type: none"> If the role is “Manager”, the system will display the Manager Order on a web application.
BR-010	The User can not change their username once it has been registered.
BR-011	The User can change phone number in profile.
BR-012	Creating booking on mobile applications is for door to door service.
BR-013	The Customer can view order and booking details history.
BR-014	When booking, the customer must choose date time, services and fill in specific information: Required: name, phone number, address. Optional: computer model, computer condition, description.
BR-015	When booking, The customer can only choose one day and one slot.
BR-016	Date created booking must from today to next 7 days.
BR-017	The Customer can not choose slots unavailable for creating booking.
BR-018	Booking have status: <ul style="list-style-type: none"> “Đã tiếp nhận” : When it was first created and not accepted by the manager. “Đang thực hiện”: When it have been accepted by manager. “Hủy”: When it have been denied by manager.
BR-019	When a customer creates a new booking, the customer must wait for the confirmation by Manager.
BR-020	The Customer can edit/cancel their booking.
BR-021	The User can change their password.
BR-022	Customer can only edit/cancel booking when booking’s status is “Đang xử lý” or order status is “Đang chờ”.
BR-023	When booking is accepted, order of booking will be created.
BR-024	Booking can be denied by the manager.

ID	Rule Definition
BR-001	One phone number can only register one account for customer.
BR-002	Phone number register on account is regarded as username.
BR-003	Account register via register on mobile application has default role is customer.
BR-025	<p>Order have status:</p> <ul style="list-style-type: none"> • “Đang chờ”: When order has been created. • “Chờ xác nhận”: When staff update services or accessories to order. • “Đang khảo sát”: When services and accessories are accepted by the manager. • “Chờ thanh toán”: When a customer accepts an order after manager acceptance. • “Hoàn tất đơn”: When staff complete all services in order and The customer pays the bill. • “Hủy”: When staff cannot complete.
BR-026	The Customer can view the staff's name, their computer information, services being added and price in order.
BR-027	Staff can see the list of the order which they are assigned.
BR-028	Staff must assign the customer's computer information in order when order status is “Chờ xác nhận”.
BR-035	Managers can get the customer's account list.
BR-036	Managers can get their staff account list.
BR-037	When a staff member starts to work in the store, his/her information will be added to the system by the Manager.
BR-044	The User can view the services list.
BR-045	The User can view the accessories list.
BR-050	Accessory name is unique.
BR-051	Service name is unique.
BR-052	Manager can view customer bookings history.
BR-054	System report data is weekly, monthly
BR-055	System report data is data of booking, order, and new customer.
BR-056	Manager can only accept order details when the order status is ‘Đang tiến hành’.
BR-057	Manager can accept order details many times.
BR-058	Staff can add new services or accessory when order status is “Đang chờ”, “Chờ xác nhận” or “Quản lý xác nhận”.
BR-059	Manager can only approved order details when the order status is ‘Đang thực hiện’.
BR-060	Manager can view the customer's details.
BR-061	Manager can view schedule details.
BR-062	Manager can view the staff's detailed information.

ID	Rule Definition
BR-001	One phone number can only register one account for customer.
BR-002	Phone number register on account is regarded as username.
BR-003	Account register via register on mobile application has default role is customer.
BR-069	The Customer can accept service that is used in their order.
BR-070	Staff can only start to perform repair work when The customer accepts.
BR-071	Staff must confirm their completion after performing repair successfully.
BR-072	Staff can cancel orders when staff can not have agreement with The customer.

Table 15. Business rules

5.2 Common Requirements

N/A

5.3 Application Messages List

N/A

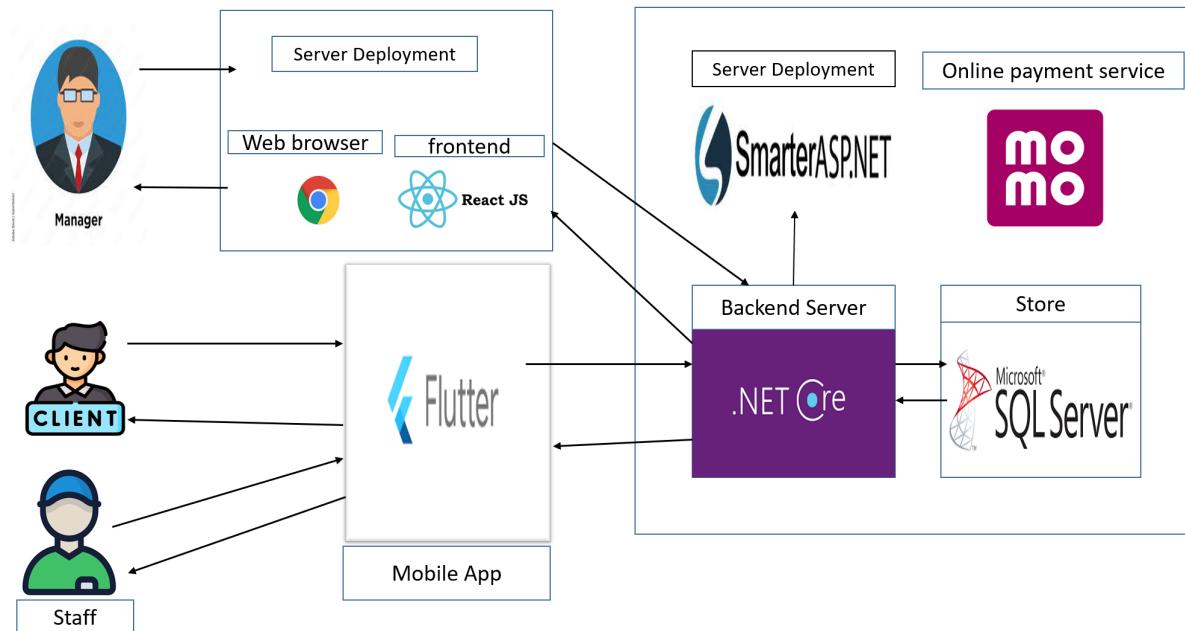
5.4 Other Requirements...

N/A

IV. Software Design Description

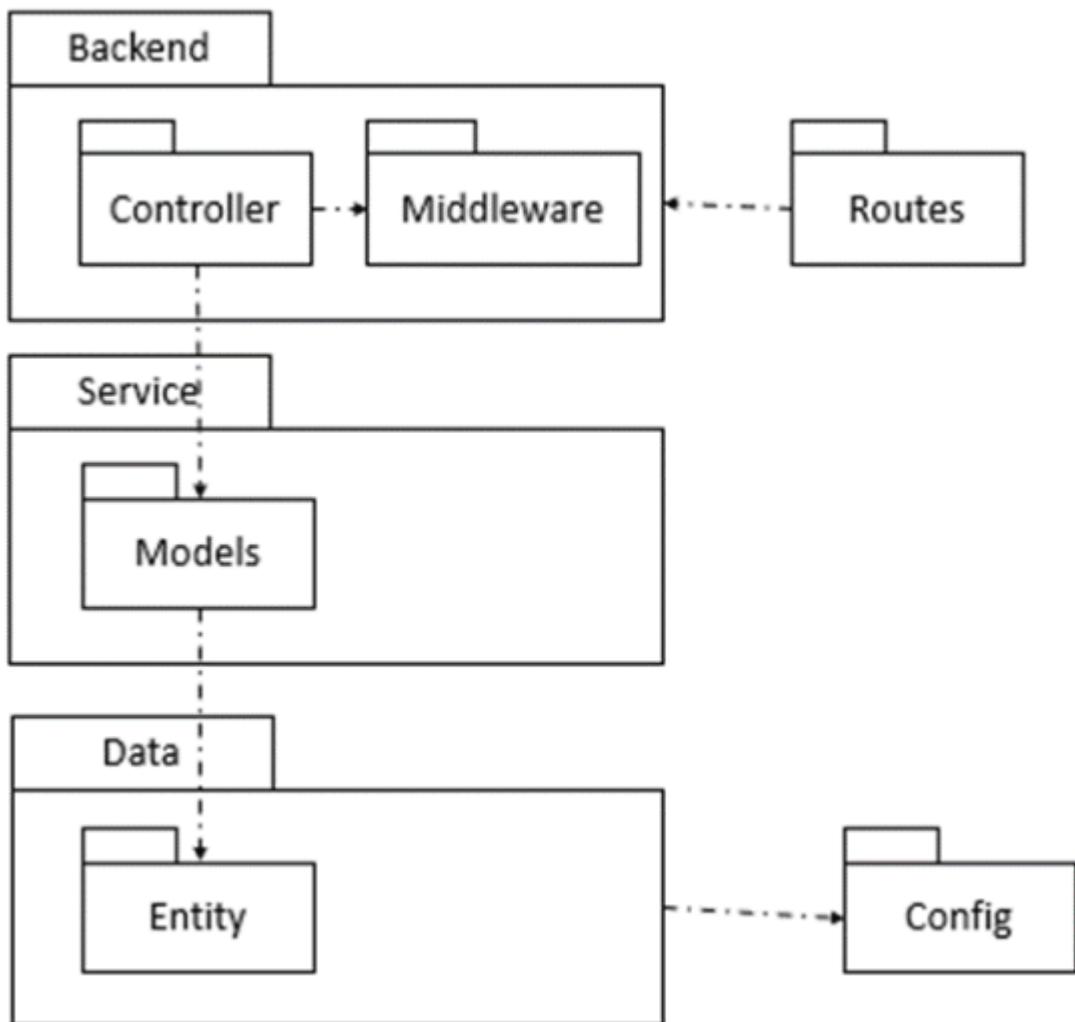
1. System Design

1.1 System Architecture



System Architecture

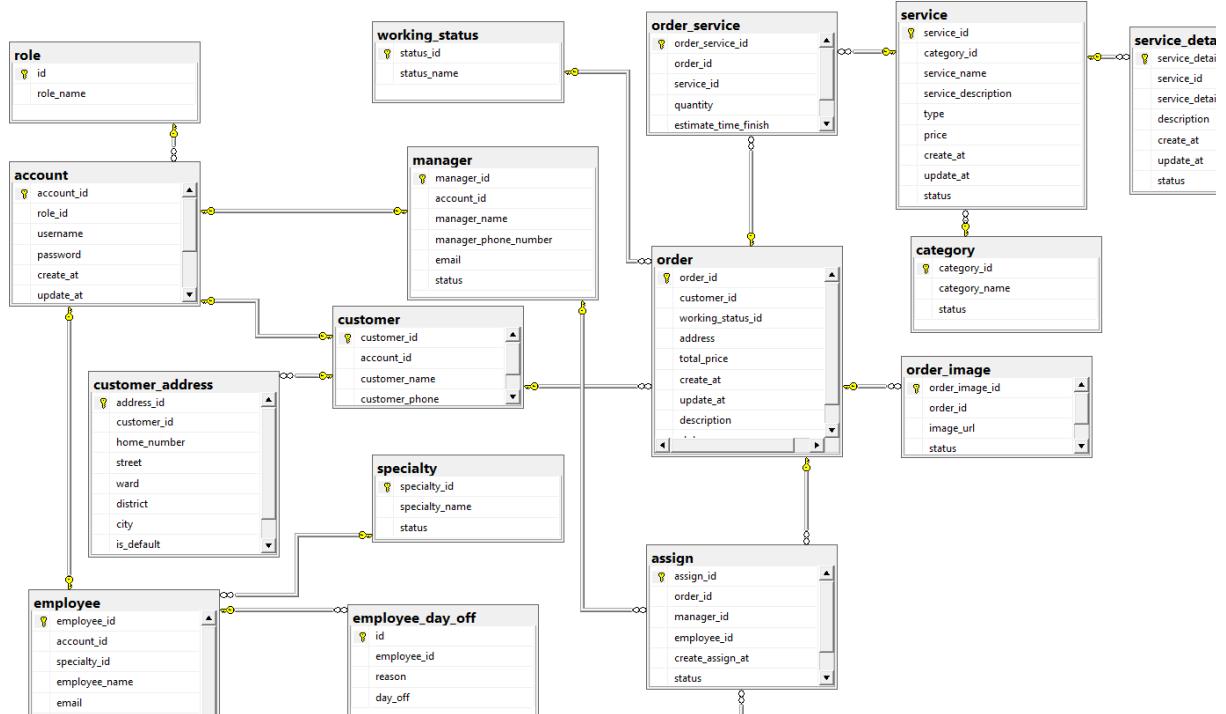
1.2 Package Diagram



No	Package	Description
01	Controller	All controllers classes will define in this folder
02	Routes	All routers classes will define in this folder
03	Models	All classes define here mapped with database collections
04	Middleware	All middleware classes will define in this folder
05	Config	All config classes will define in this folder

Describe backend package diagram

2. Database Design



Database Diagram

2.1. Table Role

Field name	Type	Size	Unique	Not Null	PK/FK	Notes
id	int		yes	yes	PK	
role_name	nvarchar	max				

2.2. Table Account

Field name	Type	Size	Unique	Not Null	PK/FK	Notes
Account_id	int		yes	yes	PK	
Role_id	int			yes	FK	
username	nvarchar	max		Yes		
password	nvarchar	max		Yes		
Account_status	boolean			Yes		
Create_at	datetime			Yes		
Update_at	datetime					
Refresh_token	nvarchar	max				

2.3. Table Manager

Field name	Type	Size	Unique	Not Null	PK/FK	Notes
id	int			yes	PK	
account_id	int		Yes	yes	FK	
manager_name	nvarchar	max		Yes		
phone_number	varchar			Yes		
email	nvarchar	max		Yes		

2.4. Table Customer

Field name	Type	Size	Unique	Not Null	PK/FK	Notes
id	int			yes	PK	
account_id	int		Yes	yes	FK	
customer_name	varchar			Yes		
phone_number	varchar			Yes		
email	varchar			Yes		

2.5. Table Employee

Field name	Type	Size	Unique	Not Null	PK/FK	Notes
id	int			yes	PK	
account_id	int		Yes	yes	FK	
employee_name	nvarchar	max		Yes		
phone_number	varchar			Yes		
Email	nvarchar	max		Yes		
Address	varchar					
Image_url	nvarchar	max				
status	boolean			Yes		

2.6. Table Customer Address

Field name	Type	Size	Unique	Not Null	PK/FK	Notes
address_id	int			yes	PK	
customer_id	int			yes	FK	
home_number	varchar			Yes		
street	varchar			Yes		
ward	varchar			Yes		
district	varchar			Yes		
city	varchar			Yes		
Is_default	boolean			Yes		

2.7. Table Assign

Field name	Type	Size	Unique	Not Null	PK/FK	Notes
id	int			yes	PK	
order_id	int			yes	FK	
employee_id	int			Yes	FK	
manager_id	int			Yes	FK	
assign_at	datetime			Yes		
status	boolean			Yes		

2.8. Table Order

Field name	Type	Size	Unique	Not Null	PK/FK	Notes
order_id	int			yes	PK	
working_status_id	int			yes	FK	
total_price	nvarchar	max		Yes		

address	varchar			Yes		
create_at	datetime			Yes		
update_at	datetime					
description	nvarchar	max				
status	boolean			Yes		

2.9. Table Working Status

Field name	Type	Size	Unique	Not Null	PK/FK	Notes
status_id	int			yes	PK	
status_name	varchar			yes		

2.10. Table Order Service

Field name	Type	Size	Unique	Not Null	PK/FK	Notes
order_service_id	int			yes	PK	
order_id	int			yes	FK	
service_id	int			Yes	FK	
quantity	int			Yes		
estimate_time	varchar					

2.11. Table Order Image

Field name	Type	Size	Unique	Not Null	PK/FK	Notes
order_image_id	int			yes	PK	
order_id	int			yes	FK	
image_url	nvarchar	max		Yes		
status	boolean			Yes		

2.12. Table Specialty

Field name	Type	Size	Unique	Not Null	PK/FK	Notes
id	int			yes	PK	
employee_id	int			yes	FK	
specialty_name	nvarchar	max		Yes		

2.13. Table Service

Field name	Type	Size	Unique	Not Null	PK/FK	Notes
service_id	int			yes	PK	
category_id	int			yes	FK	
name	nvarchar	max		Yes		
description	nvarchar	max				
price	nvarchar	max				
create_at	datetime			yes		
update_at	datetime					
status	boolean			yes		

2.14. Table Service Detail

Field name	Type	Size	Unique	Not Null	PK/FK	Notes
id	int			yes	PK	
service_id	int			yes	FK	
service_detail_name	nvarchar	max		Yes		
create_at	datetime			yes		
update_at	datetime					
status	boolean			yes		

2.15. Table Category

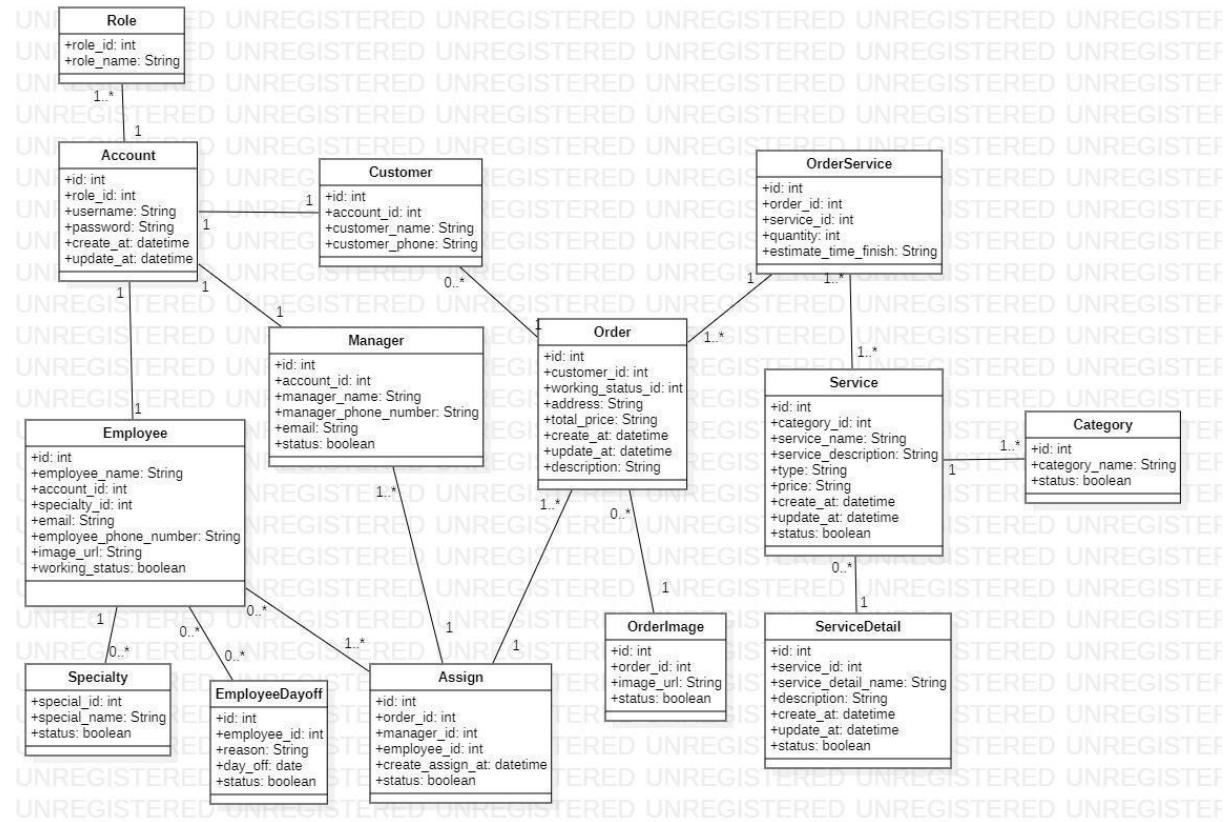
Field name	Type	Size	Unique	Not Null	PK/FK	Notes
category_id	int			yes	PK	
category_name	int			yes		
status	boolean			yes		

2.16. Table Employee Day Off

Field name	Type	Size	Unique	Not Null	PK/FK	Notes
id	int			yes	PK	
employee_id	int			yes	FK	
day_off	date			yes		
reason	nvarchar	max		yes		

3. Detailed Design

3.1.1 Class Diagram



Class Diagram

3.1.2. Account

No	Modifier	Type	Field	Description
01	protected	int	id	Unique key
02	protected	string	username	Username of user
03	protected	string	password	Encode password of user
04	protected	string	status	Status of account
05	protected	int	role_id	Role of account
06	protected	datetime	create_at	Date create account
07	protected	datetime	update_at	Date update account

Account class attribute

No	Modifier	Method	Description
01	public	register()	Register new account into system
02	public	findOne()	function support by entity framework core

03	public	save()	function support by entity framework core
04	public	findById()	function support by entity framework core
05	public	updateOne	function support by entity framework core

Account class method

3.1.3. Customer

No	Modifier	Type	Field	Description
01	protected	int	id	Unique key
02	protected	string	account_id	Account id of customer is unique
03	protected	string	customer_phone	Phone number of customer
04	protected	string	customer_name	Name of customer

Customer class attribute

No	Modifier	Method	Description
01	public	register()	Register new account into system
02	public	findOne()	function support by entity framework core
03	public	save()	function support by entity framework core
04	public	findById()	function support by entity framework core
05	public	updateOne	function support by entity framework core

Customer class method

3.1.4. Order

No	Modifier	Type	Field	Description
01	protected	int	id	Unique key
02	protected	string	customer_id	Username of user
03	protected	string	working_status_id	Encode password of user
04	protected	string	Total price	Status of account
05	protected	int	address	Role of account
06	protected	datetime	create_at	Date create account
07	protected	datetime	update_at	Date update account
08	protected	datetime	description	Employee description

Order class attribute

No	Modifier	Method	Description
01	public	register()	Register new account into system
02	public	findOne()	function support by entity framework core

03	public	save()	function support by entity framework core
04	public	findById()	function support by entity framework core
05	public	updateOne	function support by entity framework core

Order class method

3.1.5. Order Service

No	Modifier	Type	Field	Description
01	protected	int	id	primary key
02	protected	int	order_id	Foreign key of order
03	protected	int	service_id	Foreign key of service
04	protected	int	quantity	Quantity of service
05	protected	String	estimate_time_finish	Time manager assign for employee

OrderService class attribute

No	Modifier	Method	Description
01	public	Create()	Create new orderservice by entity framework core
02	public	findOne()	function support by entity framework core
03	public	save()	function support by entity framework core
04	public	findById()	function support by entity framework core
05	public	updateOne	function support by entity framework core

OrderService class method

3.1.6. Working Status

No	Modifier	Type	Field	Description
01	protected	int	id	primary key
02	protected	int	working_status_name	Name of order working status

WorkingStatus class attribute

No	Modifier	Method	Description
01	public	Create()	Create new orderservice by entity framework core
02	public	findOne()	function support by entity framework core
03	public	save()	function support by entity framework core
04	public	findById()	function support by entity framework core
05	public	updateOne	function support by entity framework core

WorkingStatus class method

3.1.7. Service

No	Modifier	Type	Field	Description
01	protected	int	id	primary key
02	protected	int	category_id	Foreign key of category
03	protected	int	service_name	Name of service
04	protected	int	service_description	Service description
05	protected	String	type	Type of service(wood, metal...)
06	protected	String	price	Price of service
07	protected	datetime	create_at	Date create service
08	protected	datetime	update_at	Date update service
09	protected	Boolean	status	Status of service

Service class attribute

No	Modifier	Method	Description
01	public	Create()	Create new service by entity framework core
02	public	findOne()	function support by entity framework core
03	public	save()	function support by entity framework core
04	public	findById()	function support by entity framework core
05	public	updateOne	function support by entity framework core

Service class method

3.1.8. Category

No	Modifier	Type	Field	Description
01	protected	int	id	primary key
02	protected	int	category_name	Name of category
03	protected	int	status	Status of category

Category class attribute

No	Modifier	Method	Description
01	public	Create()	Create new orderservice by entity framework core
02	public	findOne()	function support by entity framework core
03	public	save()	function support by entity framework core
04	public	findById()	function support by entity framework core
05	public	updateOne	function support by entity framework core

Category class method

3.1.9. Assign

No	Modifier	Type	Field	Description
01	protected	int	id	primary key
02	protected	int	order_id	Foreign key of order
03	protected	int	manager_id	Foreign key of manager
04	Protected	int	employee-id	Foreign key of employee
05	Protected	datetime	create_assign_at	Date time create assign
06	protected	boolean	status	Status of assign

Assign class attribute

No	Modifier	Method	Description
01	public	Create()	Create new Assign by entity framework core
02	public	findOne()	function support by entity framework core
03	public	save()	function support by entity framework core
04	public	findById()	function support by entity framework core
05	public	updateOne	function support by entity framework core

Assign class method

3.1.10. Manager

No	Modifier	Type	Field	Description
01	protected	int	id	primary key
02	protected	int	Account_id	Unique key of account
03	protected	String	Manager_name	Name of manager
04	Protected	String	Manager_phone_number	Phone number of manager
05	Protected	String	Email	Email of manager
06	Protected	boolean	status	Status of manager

Manager class attribute

No	Modifier	Method	Description
01	public	Create()	Create new orderservice by entity framework core
02	public	findOne()	function support by entity framework core
03	public	save()	function support by entity framework core
04	public	findById()	function support by entity framework core
05	public	updateOne	function support by entity framework core

Manager class method

3.1.11. Employee

No	Modifier	Type	Field	Description
01	protected	int	id	primary key
02	protected	int	employee_name	Name of category
03	protected	int	account_id	Status of category
04	protected	Int	specialty_id	Specialty of employee
05	protected	String	email	Email of employee
06	protected	String	employee_phone_number	Employee phone number
07	protected	String	image_url	Image of employee
08	protected	boolean	working_status	Status of employee

Employee class attribute

No	Modifier	Method	Description
01	public	Create()	Create new employee by entity framework core
02	public	findOne()	function support by entity framework core
03	public	save()	function support by entity framework core
04	public	findById()	function support by entity framework core
05	public	updateOne	function support by entity framework core

Employee class method

3.1.12. Order

No	Modifier	Type	Field	Description
01	protected	int	id	Unique key
02	protected	string	customer_id	Username of user
03	protected	string	working_status_id	Encode password of user
04	protected	string	Total price	Status of account
05	protected	int	address	Role of account
06	protected	datetime	create_at	Date create account
07	protected	datetime	update_at	Date update account
08	protected	datetime	description	Employee description

Order class attribute

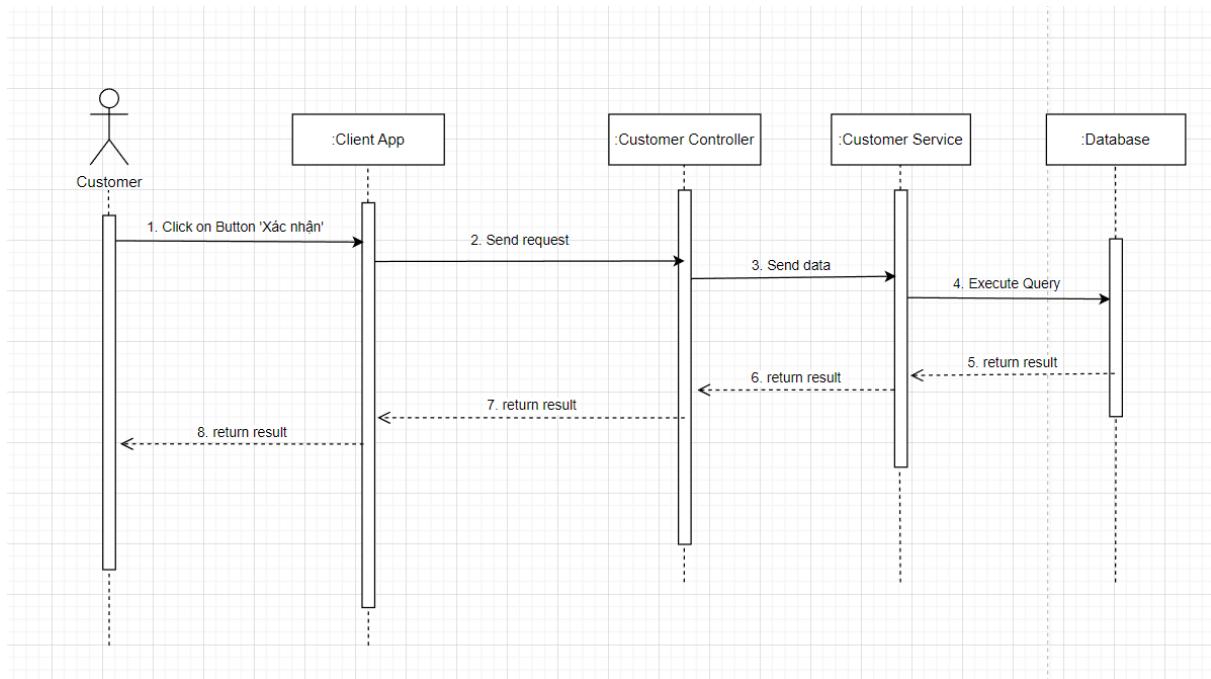
No	Modifier	Method	Description
01	public	register()	Register new account into system
02	public	findOne()	function support by entity framework core

03	public	save()	function support by entity framework core
04	public	findById()	function support by entity framework core
05	public	updateOne	function support by entity framework core

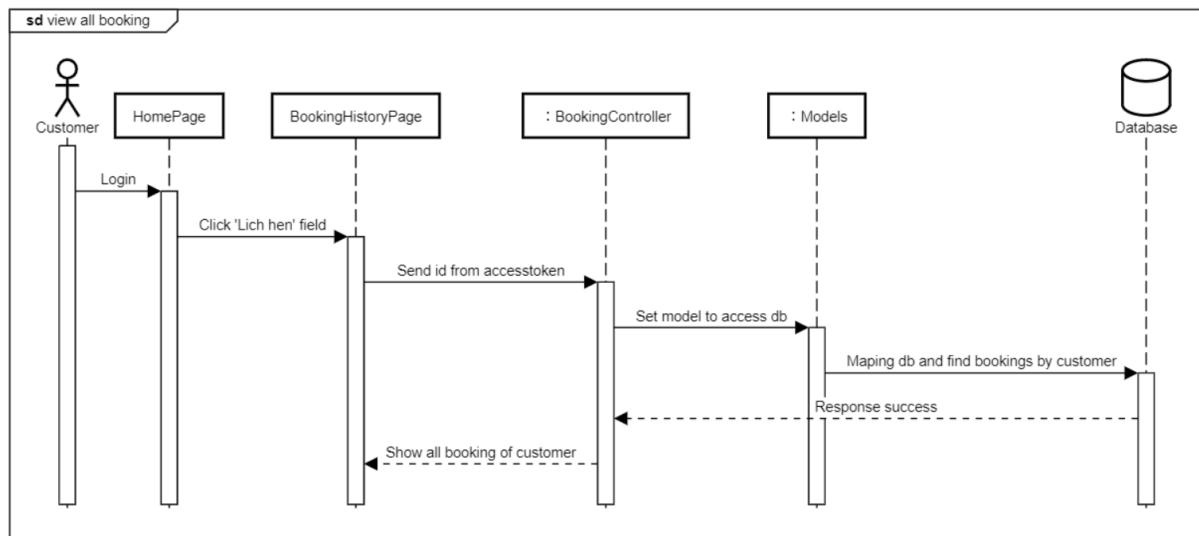
Order class method

3.2 Sequence diagram

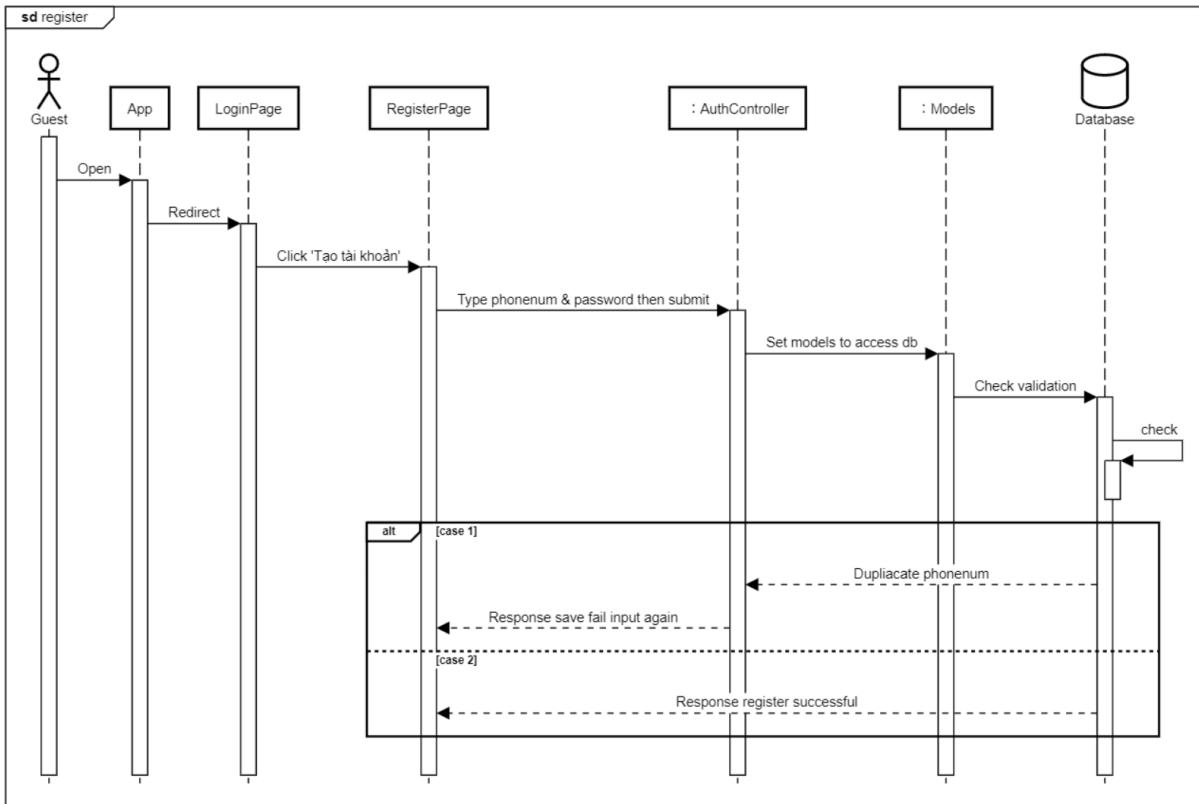
3.2.1 Customer booking service



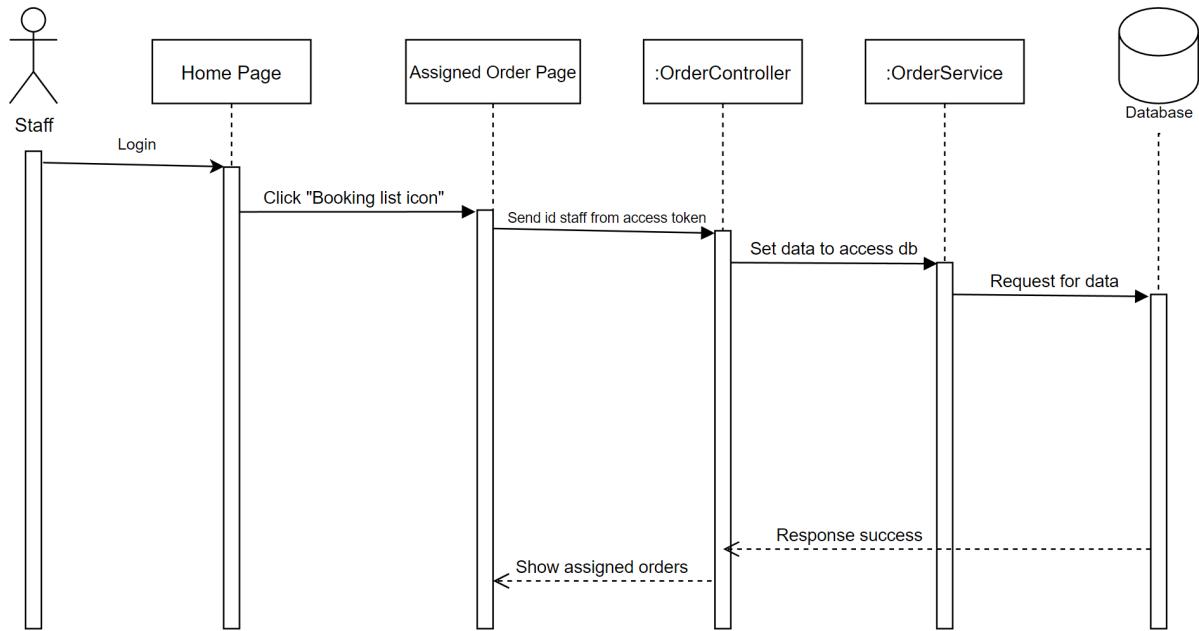
3.2.2 Customer view all booking



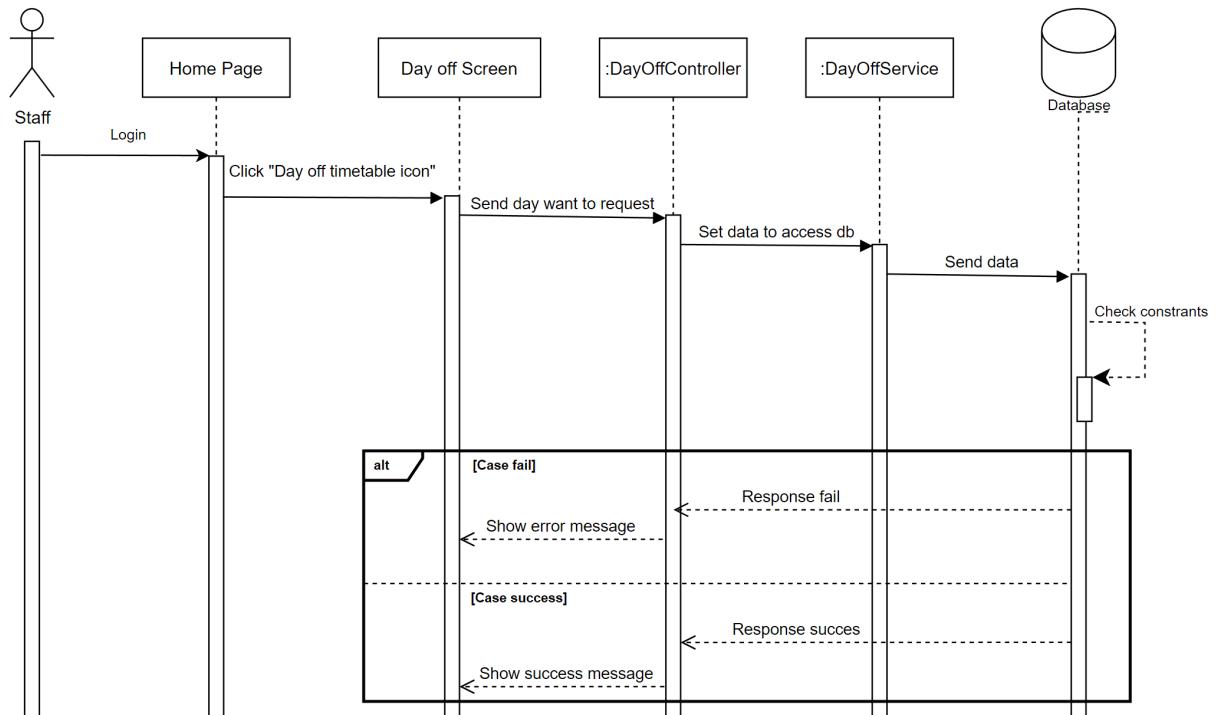
3.2.3 Customer register account



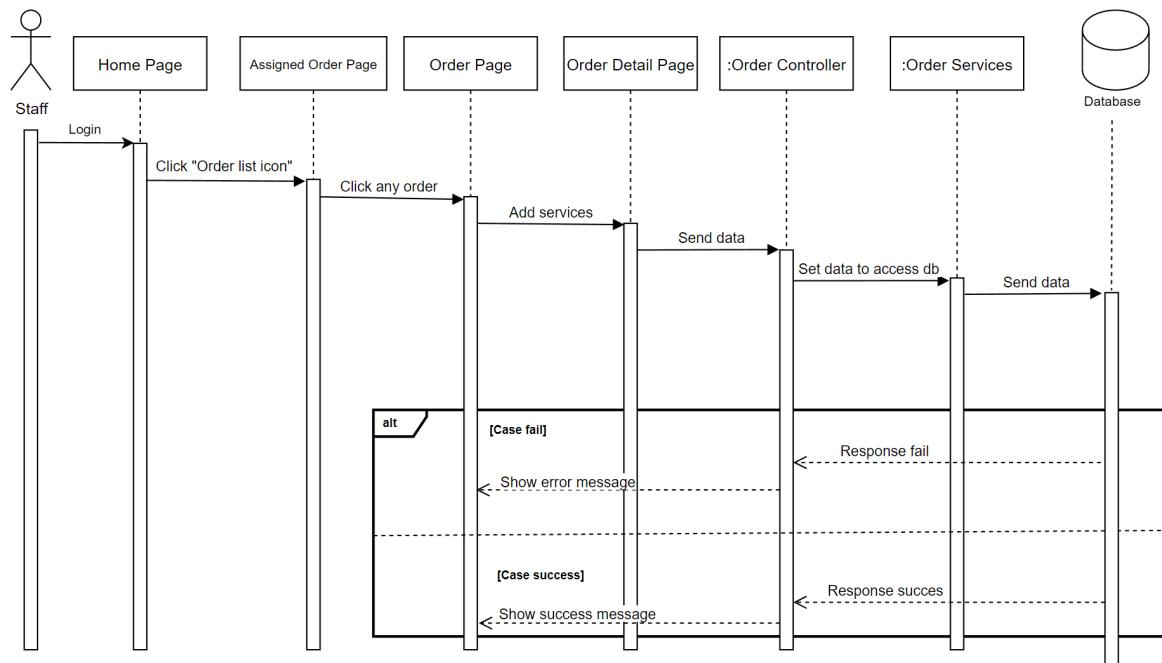
3.2.4 Staff view assigned order



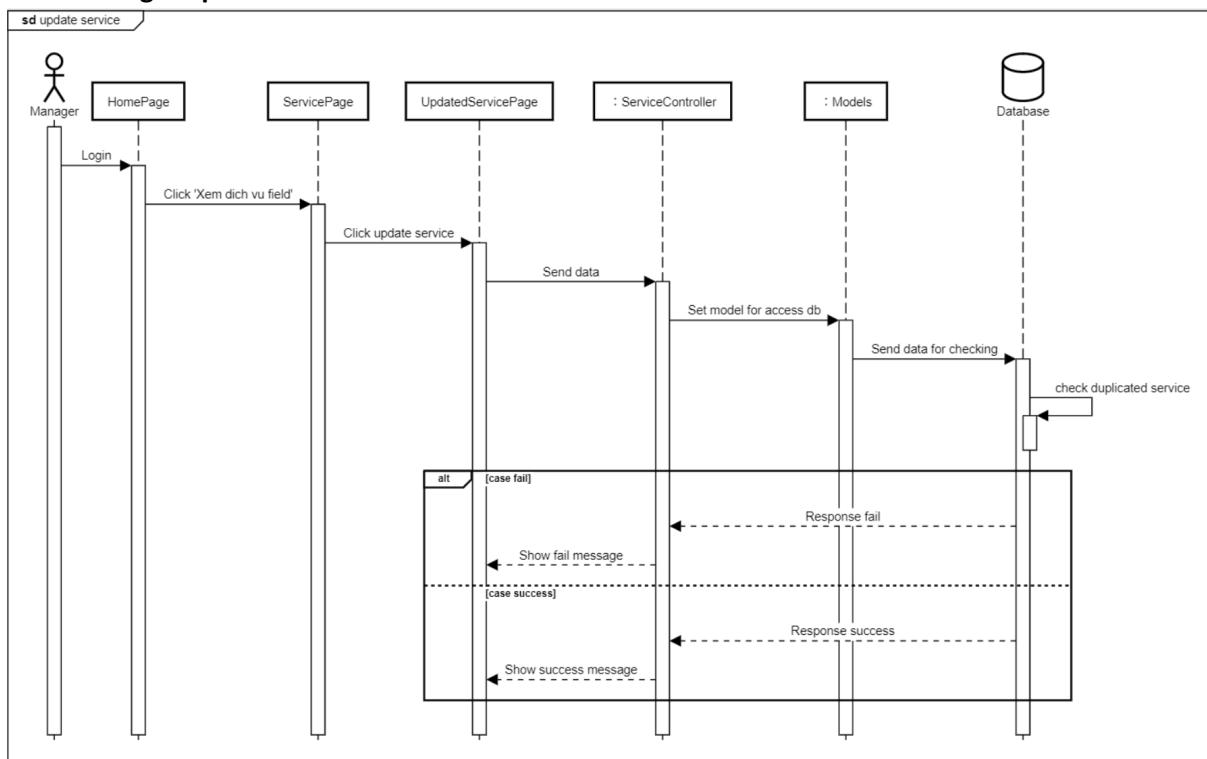
3.2.5 Staff send day off request



3.2.6 Staff add services for assigned order

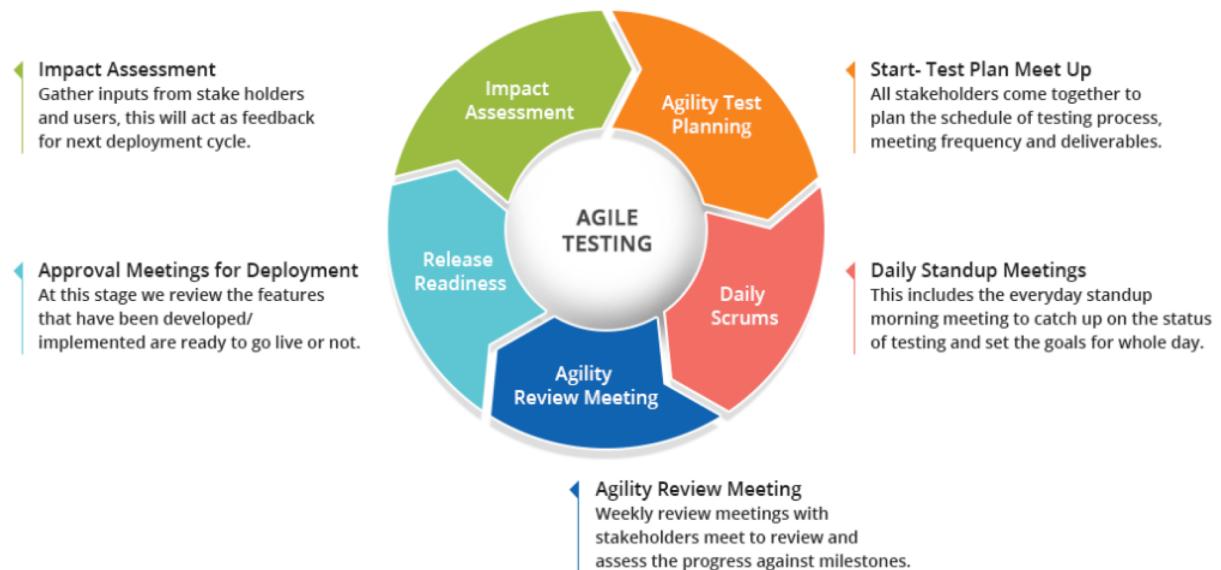


3.2.7 Manager update service



V. Software Testing Documentation

1. Scope of Testing



In project, we apply Agile testing for many aims:

- Detect the errors in the system as soon as possible.
- Flexibility in providing solutions to resolve the errors.
- Out of order (Executed only after code completion).
- Suitable for the constantly changing requirements.

2. Test Strategy

2.1 Testing Types

Verification	Validation
User requirement	<p>Acceptance testing</p> <ul style="list-style-type: none">● Check user interface to ensure front-end met requirement● Test load defect● Test performance defect
System requirement	<p>System testing</p> <ul style="list-style-type: none">● Test system functionality and the communication of system● Cover all hardware and software problems
Detail design	<p>Unit testing</p> <ul style="list-style-type: none">● System run correctly

	• Cover all defect
--	--------------------

Table 219. Testing types

2.2 Test Levels

Testing Levels	Description
Unit testing	Unit testing is developed during the module design phase, executed to detect and limit bugs at function level or unit level
System testing	System testing is developed during the system design phase. System testing ensures that project expectations are met.
Acceptance testing	Acceptance testing is developed during the requirements analysis phase. Our team will be testing on a real server with real data. Acceptance testing ensures that our system meets the requirement to use in real life

Table 218. Testing levels

2.3 Supporting Tools

N/A

3. Test Plan

3.1 Human Resources

Worker/Doer	Role	Specific Responsibilities/Comments
SangNT(se140026)	Dev, Tester	Unit Test, System Test
SangNT(se130221)	Dev, Tester	Unit Test, System Test, User Acceptance Test
HuyTH	Dev, Tester	Unit Test, System Test, User Acceptance Test
NamTH	Dev, Tester	Unit Test, System Test, User Acceptance Test

Table 221. Human resources

3.2 Test Environment

Purpose	Tool	Provider	Version
Functional Test	VSCode	Microsoft	9.29.0
User Interface Test	Google Chrome	Google	104.0.5112.101

Table 222. Environment

3.3 Test Milestones

Milestone Task	Effort (md)	Start Date	End Date
Create test plan	1	10/09/2022	12/09/2022
Review and update test plan (Iterator 1)	3	20/10/2022	23/10/2022
Create test case (Iterator 1)	3	23/10/2022	26/10/2022

Execute unit test (Iterator 1)	3	26/10/2022	29/10/2022
Execute system test (Iterator 1)	3	29/10/2022	30/10/2022
Execute acceptance test (Iterator 1)	2	31/10/2022	1/11/2022
Review and update test plan (Iterator 2)	3	1/11/2022	4/11/2022
Create test case (Iterator 2)	3	4/11/2022	7/12/2022
Execute unit test (Iterator 2)	3	10/11/2022	13/11/2022
Execute system test (Iterator 2)	3	13/11/2022	16/11/2022
Execute acceptance test (Iterator 2)	4	16/11/2022	20/11/2022

Table 223. Test milestones

4. Test Cases

- Unit Test Cases: [Report5_Unit Test Case.xlsx](#)
- Other Test Cases: [Report5_Test Case Document.xlsx](#)

5. Test Reports

5.1 Unit Test

UNIT TEST REPORT

Project Name	Furniture repair and maintenance service	Creator	Nguyễn Tân Sang		
Project Code	FA22SE58	Reviewer/Approver			
Document Code	FA22SE58_Test Report_v1.0	Issue Date	18/11/2022		
Notes					

No	Function code	Passed	Failed	Untested	N	A	B	Total Test Cases
2	F02	9	0	0	3	6	0	9
3	F03	4	0	0	1	3	0	4
4	F04	12	0	0	12	0	0	12
5	F05	6	0	0	2	4	0	6
6	F06	6	0	0	3	3	0	6
8	F08	9	0	0	2	7	0	9
9	F09	8	0	0	1	7	0	8
Sub total		54	0	0	24	30	0	54

Test coverage **100.00 %**
 Test successful coverage **100.00 %**
 Normal case **44.44 %**
 Abnormal case **55.56 %**
 Boundary case **0.00 %**



Figure 131. Unit test

5.2 Test Documents

TEST REPORT						
Project Name	Furniture repair and maintenance service	Creator	Nguyễn Tân Sang			
Project Code	FA22SE58	Reviewer/Approver				
Document Code	FA22SE58_TCD_v0.1	Issue Date				
Notes						

No	Module code	Pass	Fail	Untested	N/A	Number of test cases
1	Authenticate	20	0	0	0	20
2	Schedule	7	0	0	0	7
3	Booking	63	0	0	0	63
4	Service	20	0	0	0	20
6	Customer	24	0	0	0	24
7	Employee	20	0	0	0	20
8	Manager	18	0	0	0	18
Sub total		110	0	0	0	110

Test coverage	100.00 %
Test successful coverage	100.00 %

Figure 132. Test case document

VI. Release Package & User Guides

1. Deliverable Package

1.1 Source codes & documents

No.	Items	Sub-Items	Type	Version
Code Package				
1	SV	Back end Server	New	
2	WA	Web app for Manager	New	
3	MA	Mobile app for Staff and Customer	New	
Documents				
1	Introduction	Project Introduction.docx	Modify	
2	Management	Project Management Plan.docx	Modify	
3	Requirement	System Requirement Specification.docx	Modify	
4	Designing	Software Design Document.docx	Modify	
5	Testing	Test Case Document.xlsx, Test Documentation.docx, Unit Test Case.xlsx	Modify	
6	Guiding	Software User Guides.docx	Modify	

Table 225. Deliverable source codes & documents

1.2 Known Issues, Limitations & Restrictions

Limitations:

- The system does not support multiple languages
- The system hasn't supported online payment now. We will develop it in the future
- The system hasn't supported multiple brands of company. We will develop it in future
- The system hasn't supported map for customer and employee for searching

- The system hasn't supported OTP verify

Restrictions:

- System still need manager to assign employee manually
- Booking process still have some limit (take time, not automatically accept/deny)

2. Installation Guides

2.1 System Requirements

a. For PC

	Minimum Requirements	Recommended
Internet Connection	Cable, Wi-Fi (8 Mbps)	Cable, Wi-Fi (50 Mbps or more)
Operating System	Window 10	Window 10
Computer Processor	Intel Core i3-4010U	Intel Core i3-10100TE
Computer Memory	4GB RAM	16GB or more
Storage Space	2GB	10GB or more

Table 226. PC system requirements

b. For Android

	Minimum Requirements	Recommended
Internet Connection	3G, Wi-Fi (2 Mbps)	4G, Wi-Fi (50 Mbps or more)
Operating System	Android 10	Android 11 and upper
Storage Space Require	1 GB	2 GB

Table 227. Android system requirements

2.2 Installation Instruction

a. Mobile

To use Computer services application, download fms-setup.apk files attached from this document to an android device, or setup from github source code by steps below:

- Install dart from [Dart programming language | Dart](#)
- Download source code from github: https://github.com/COCONUC/FMS_Employee_App
- Open source code folder, open Command prompt and execute command:
 - flutter build apk --release
- Navigate to:
 - build\app\outputs\flutter-apk\
- Copy fms-setup.apk (app-release.apk) to your phone

Open the setup file, and click the “Install” button.

b. Front End

- Set up Front End in local:
 - Install React.js from: <https://reactjs.org/docs/create-a-new-react-app.html>
 - Download and unzip front end project folder (computer-services)
 - Open command line (cmd) in computer-services folder and execute these commands:
 - npm install
 - npm start

- Deploy Front End in Netlify server:
 - Download and unzip front end project folder (computer-services)
 - Push source code Github repository
 - Create an account from <https://www.netlify.com/>
 - Connect to Github provider
 - Choose your repository, deploy branch and confirm deploy site

c. Back End

- Set up Back End in local:
 - Install Node.js from <https://nodejs.org/en/>
 - Download and unzip back end project folder (project)
 - Open command line (cmd) in project folder and execute these commands:
 - npm install
 - npm start
- Deploy Back End in Heroku server:
 - Download and unzip back end project folder (project)
 - Push source code Github repository
 - Create an account from <https://www.heroku.com/>
 - Create new app at dashboard
 - Connect your Github provider
 - Choose your repository, deploy branch and confirm deploy site

3. User Manual

3.1 Overview

We provide a customer mobile application to be able to book repair and maintenance service and a staff mobile application to receive assigned booking and also send detailed reports to manager . Finally, the web admin system to manage and handle requests from both applications. Detailed instructions on how to use it are described below.

3.2 Assign Staff

Danh sách đơn							Tái lại dữ liệu
Tim kiếm theo tên:				Thứ tự:	Trạng thái:	Tùy chọn	
#	Mã đơn	Tên khách hàng	Số điện thoại	Trạng thái đơn	Thời gian tạo	Thay đổi trạng thái	Hành động
1	3035	Taikhoan5	931415154	Đã tiếp nhận	01/30/2023	<button>Đổi trạng thái đơn</button>	1
2	3034	Taikhoan5	931415154	Đã tiếp nhận	01/29/2023	<button>Đổi trạng thái đơn</button>	2
3	3033	Taikhoan5	931415154	Đã tiếp nhận	01/28/2023	<button>Đổi trạng thái đơn</button>	3
4	3030	Taikhoan5	931415154	Đã tiếp nhận	01/28/2023	<button>Đổi trạng thái đơn</button>	4
5	3029	Test5	999999999	Đã tiếp nhận	01/28/2023	<button>Đổi trạng thái đơn</button>	5

← Thông tin đơn hàng

Mã đơn:	3030	Họ và tên:	Taikhoan5	Ảnh đại diện:
Số điện thoại:	931415154	Số địa chỉ:		
Ngày hẹn:	01/30/2023	Giờ hẹn:	02:54	

Dịch vụ

Trạng Thái: Đang xử lý

#	Loại dịch vụ

Nhân viên

#	Tên nhân viên	Chuyên môn	Loại bỏ
Thêm nhân viên	3		

Xác nhận Hủy đơn

Danh sách nhân viên

Tìm kiếm theo tên: Tim kiem Chuyên môn: Trống đơn Tải lại dữ liệu C

#	Tên nhân viên	Số điện thoại	Chuyên môn	Hành động
0	John	098555899	Thợ Gỗ	 
1	Nguyễn Hải Nam	097366688	Thợ Gỗ	 

5 

4 

← Thông tin đơn hàng

Mã đơn:	3030	Họ và tên:	Taikhoan5	Ảnh đại diện:
Số điện thoại:	931415154	Số địa chỉ:		
Ngày hẹn:	01/30/2023	Giờ hẹn:	02:54	

Dịch vụ

Trạng Thái: Đang xử lý

#	Loại dịch vụ

Nhân viên

#	Tên nhân viên	Chuyên môn	Loại bỏ
1	Nguyễn Hải Nam		

Thêm nhân viên Xác nhận Hủy đơn

6  7 

No.	Step	Note
1	Select order status “Đã tiếp nhận”	required
2	Select order	required
3	Select add staff	required
4	Select staff	required
5	Confirm select staff	required

6	Click “Xác nhận” to confirm	required
7	Click “Hủy đơn” to cancel	mandatory

3.3 Approved order

Danh sách đơn
Tim kiếm theo tên: Thứ tự: Trang Thái: Tải lại dữ liệu

#	Mã đơn	Tên khách hàng	Số điện thoại	Trạng thái đơn	Thời gian tạo	Thay đổi trạng thái	Hành động
1	3019	Nguyen Van Tuan	0975556789	Đang thực hiện	12/16/2022	Đổi trạng thái đơn	2
2	3017	Nguyen Van A	0955591968	Đang thực hiện	12/16/2022	Đổi trạng thái đơn	
3	2	Nguyen Van A	0955591968	Đang thực hiện	11/04/2022	Đổi trạng thái đơn	
4	1	Nguyen Van A	0955591968	Đang thực hiện	11/03/2022	Đổi trạng thái đơn	

«First 1 »Last

← Thông tin đơn
Khách hàng: Nguyen Van A Số điện thoại: 0955591968 Ngày hẹn: 01/04/2023 Giờ hẹn: Invalid date

Mô tả đơn:

Loại đơn: Địa chỉ:
Sửa chữa đồ gỗ

Danh sách dịch vụ khách hàng đặt:

#	Tên dịch vụ	Số lượng dịch vụ	Giá tiền một dịch vụ	Tổng giá
0	Khu kuan Sofa	1	350000	350000
1	Khử khuẩn ghế vải da	1	250000	250000
2	Bọc mới da ghế sofa	2	900000	1800000
3	Làm liền vết nứt trên salon gỗ	3	400000	1200000

Danh sách dịch vụ khách hàng đặt:

#	Tên Nhân viên	Chuyên Môn
0	John	
1	Nguyễn Hải Nam	

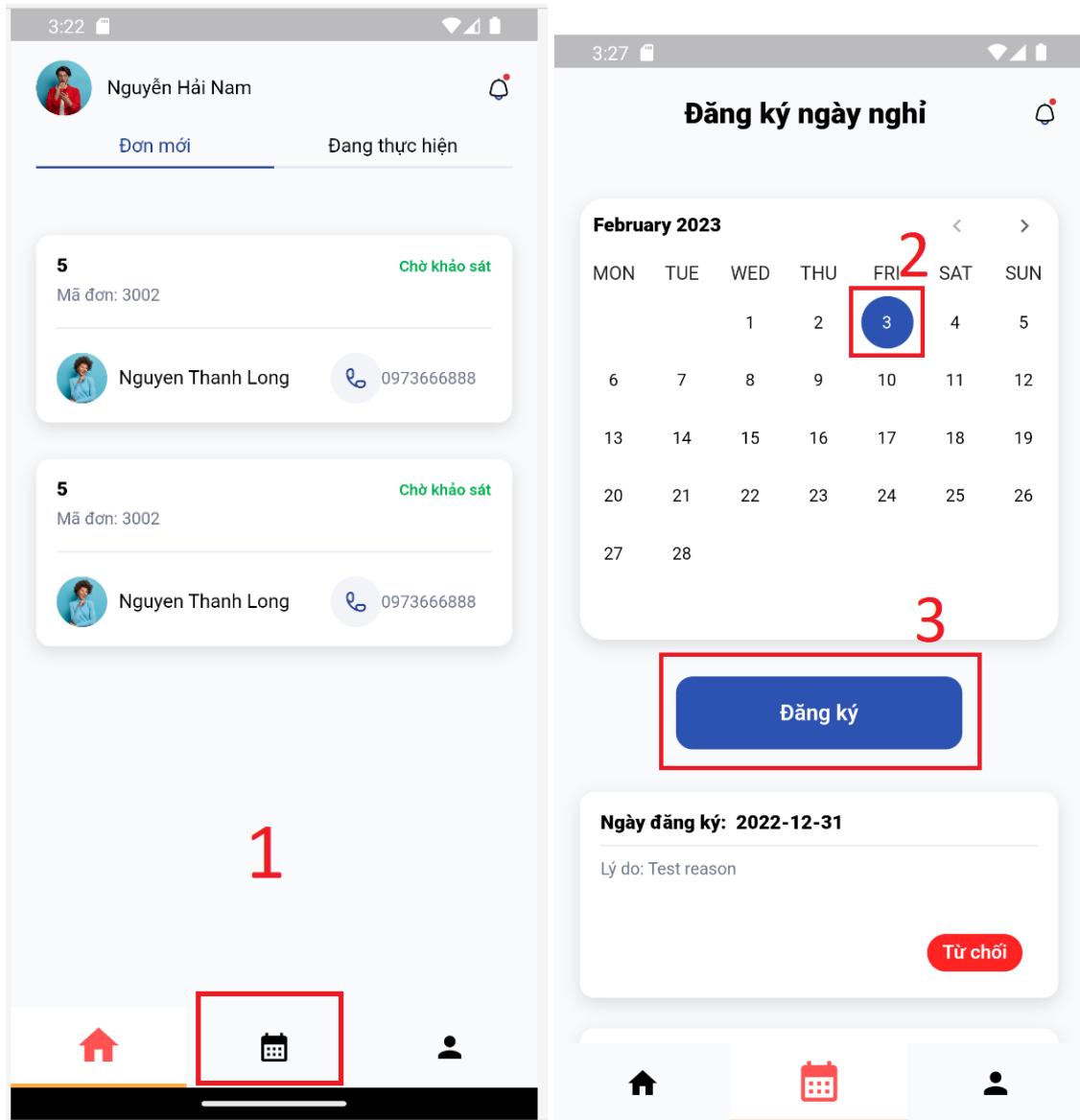
Thêm nhân viên Hình ảnh thực tế (nhấn vào ảnh để phóng lớn): 3

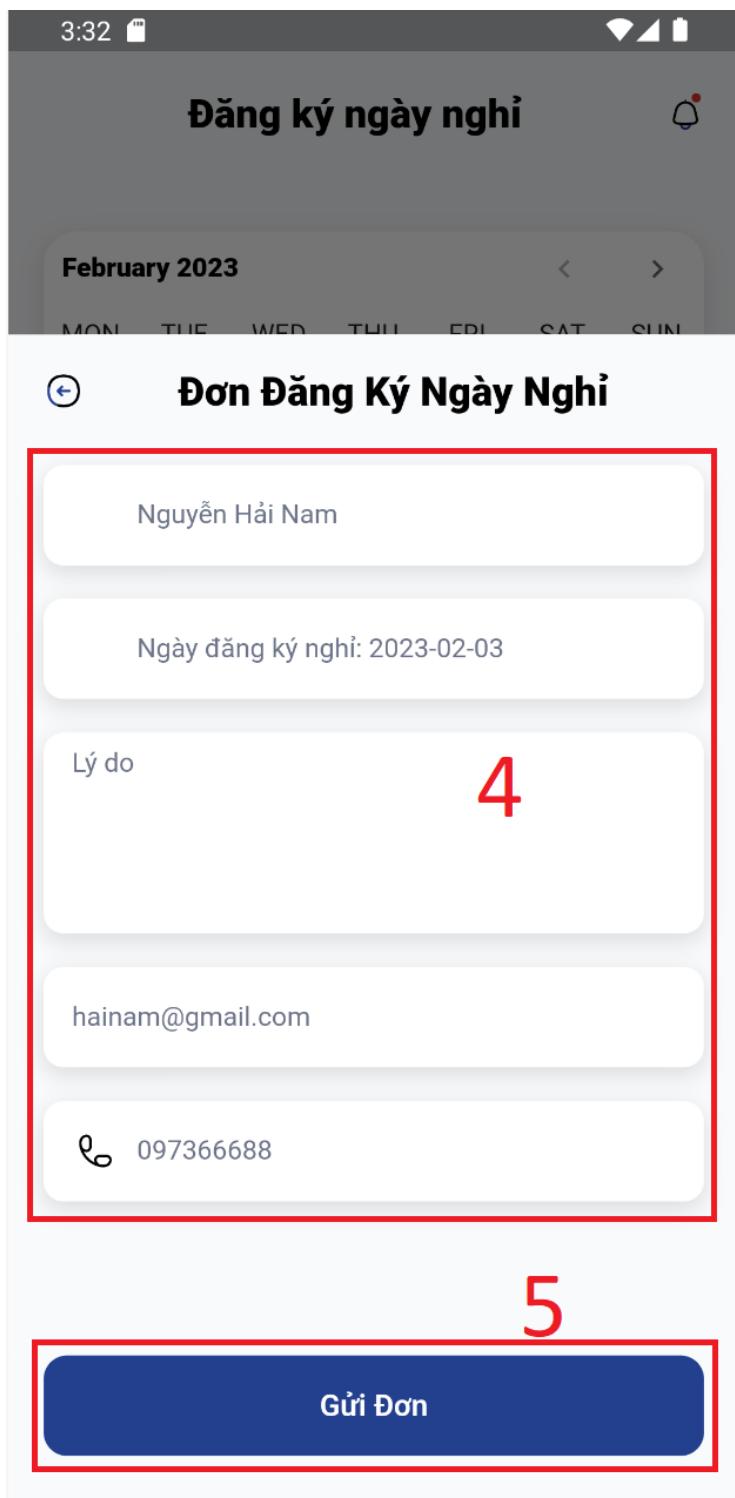
Xác nhận Hủy đơn 4

No.	Step	Note
1	Select order status “Đang thực hiện”	required
2	Select order	required
3	Confirm order	required

4	Cancel order	mandatory
---	--------------	-----------

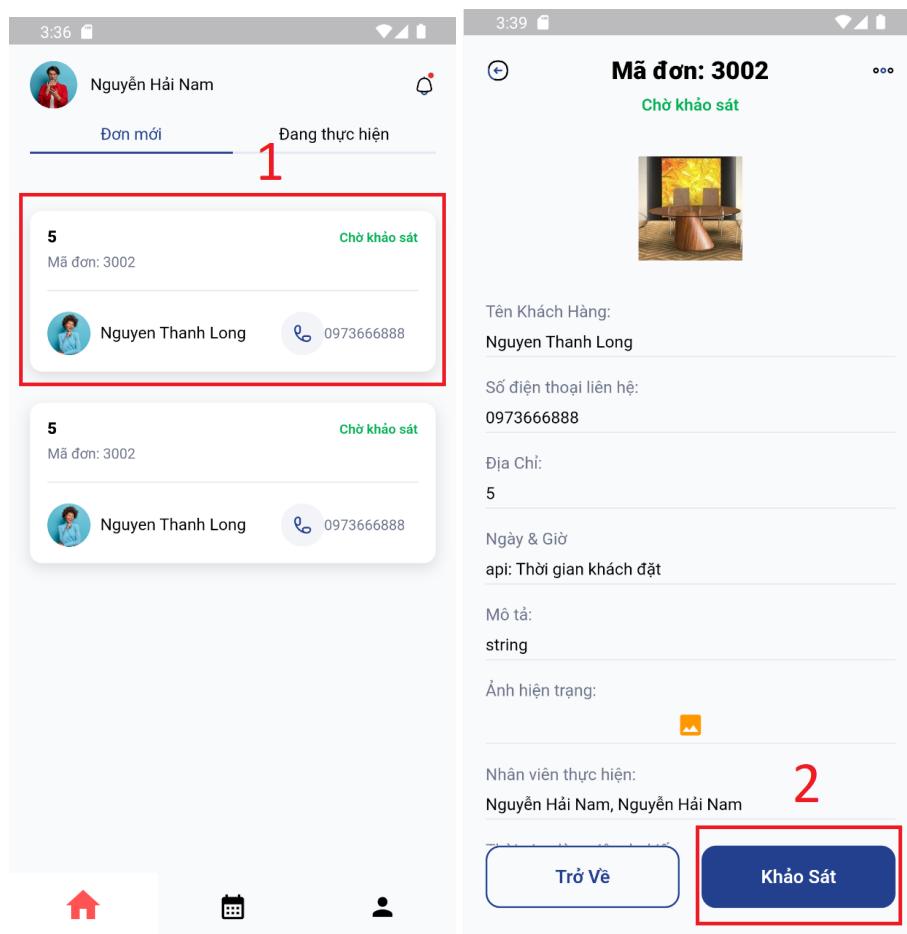
3.4 Staff send day off request





No.	Step	Note
1	Select timetable icon	required
2	Select day wanted to request	required
3	Confirm selection	required
4	Fill required fields	mandatory
5	Send request	mandatory

3.5 Staff fulfil order



3

Mã đơn: 3002
api: trạng thái đơn hàng

Chi tiết đơn hàng

Lưu ảnh Chụp ảnh

Ảnh đã lưu:

Mô Tả Tình Trạng:
api thợ nhập vào mô tả

Dịch vụ:

Thêm dịch vụ

Khu khuan Sofa
Vệ sinh
Đơn vị: : đơn vị tính
Số lượng: 2
350000 VNĐ **Thành tiền: VNĐ**

Khử khuẩn ghế vải da
Vệ sinh
Đơn vị: api: đơn vị tính
Số lượng: 1
250000 VNĐ **Thành tiền: VNĐ**

Gửi cho quản lý

4

Chọn dịch vụ muốn thêm

Khu khuan Sofa
Vệ sinh
Đơn vị: api: đơn vị tính
Giá tiền: 350000

Khử khuẩn ghế vải da
Vệ sinh
Đơn vị: api: đơn vị tính
Giá tiền: 250000

Bọc mới da ghế sofa
Sửa chữa
Đơn vị: api: đơn vị tính
Giá tiền: 900000

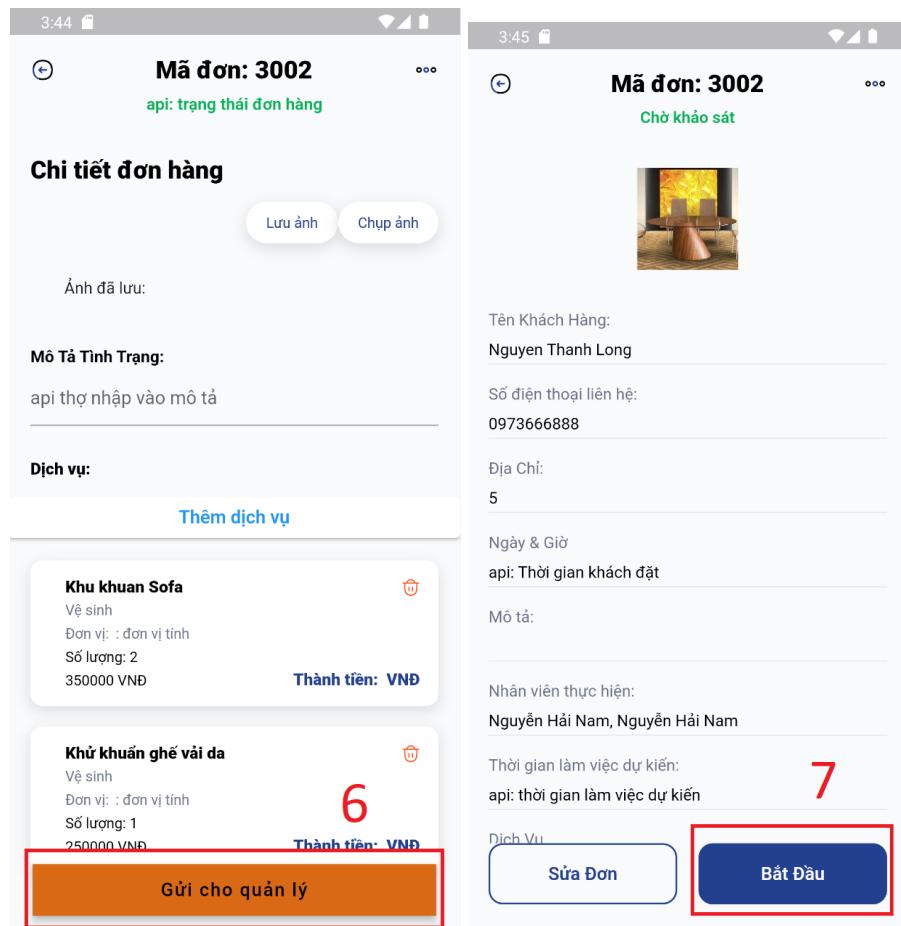
Làm sạch bụi salon gỗ
Vệ sinh
Đơn vị: api: đơn vị tính
Giá tiền: 500000

Làm liền vết nứt trên salon gỗ
Sửa chữa
Đơn vị: api: đơn vị tính
Giá tiền: 400000

Thêm

5

Xác nhận



No.	Step	Note
1	Select order	required
2	Select survey button	required
3	Select add service button	optional
4	Select service	optional
5	Confirm selection	required
6	Select send to manager button	mandatory
7	Select start job button	mandatory

3.6 Customer create a booking

5:06

oo

Search...

Wall Painting Service
Make your wall stylish
Book Now

Loại dịch vụ 1

Tất cả

Sửa chữa

Vệ sinh

Nổi bật

Xem tất cả

Sơn nhà

Sửa bàn

Home

Profile

Logout

5:21 ⚡ 🔋

Chi tiết



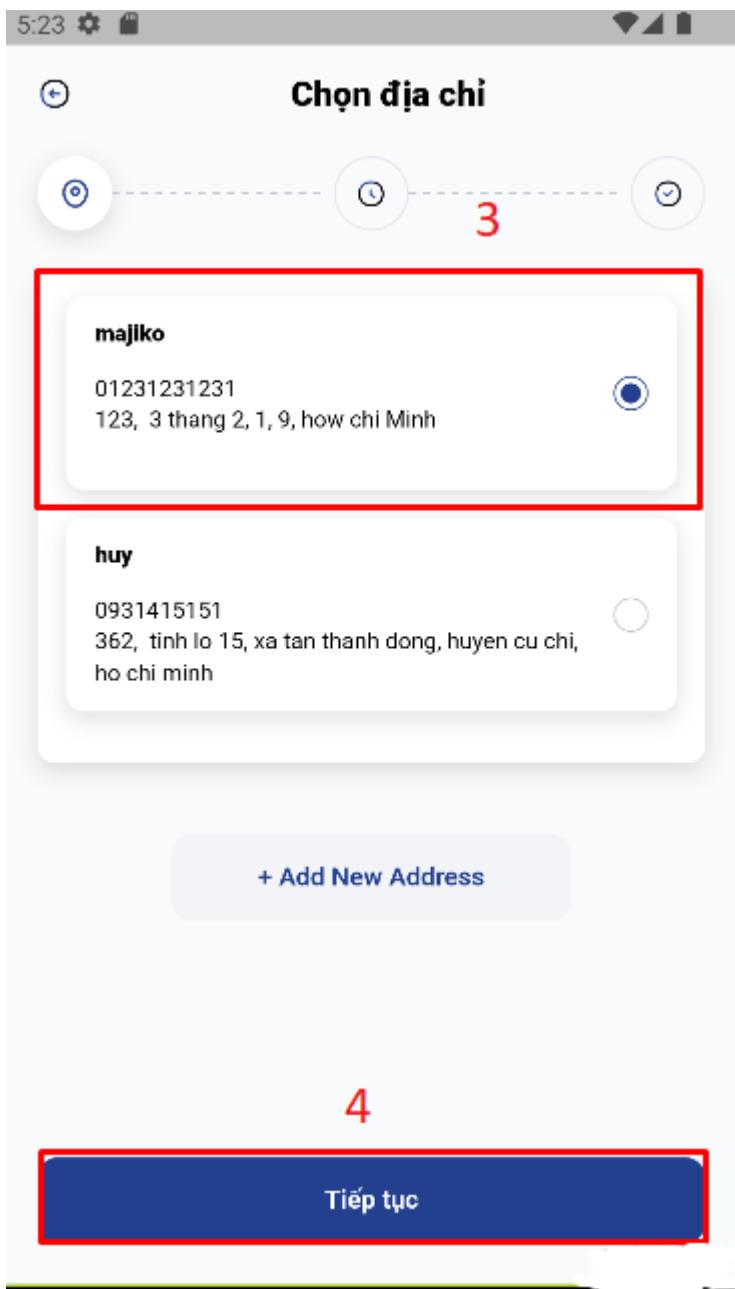
Phân loại: Sửa chữa ▾

Dịch vụ sửa chữa

Dịch vụ vệ sinh là dịch vụ sẽ giúp tân trang lại những món đồ nội thất đã sử dụng rất lâu của bạn.

Các dịch vụ sửa chữa: 2

Tiếp tục



5:24 ☰

Chọn ngày & giờ

January 2023

SUN	MON	TUE	WED	THU	FRI	SAT
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	5	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

Chọn giờ

08:00 - 10:00

10:00 - 12:00

13:00 - 15:00

15:00 - 17:00

Tiếp tục

5:25



Hoàn tất đơn



Thời gian hẹn: 08:00, 31/1/2023



Địa chỉ

majiko || 01231231231
123, 3 tháng 2, 1, 9, Hồ Chí Minh

Chi tiết dịch vụ

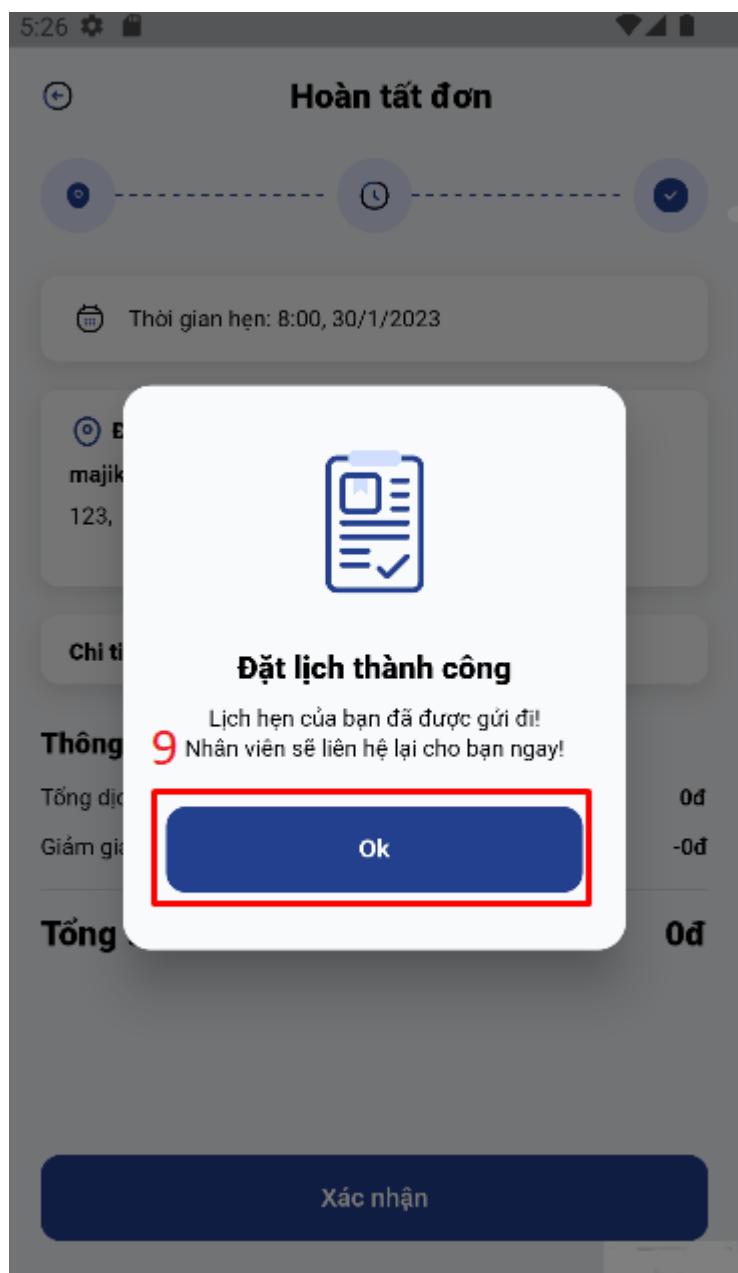
Thông tin thanh toán

Tổng dịch vụ	0đ
Giảm giá (0%)	-0đ

Tổng tiền **0đ**

8

Xác nhận



No.	Step	Note
1	Select service	required
2	Select next button	required
3	Select an address	required

4	Select next button	required
5	Select date	required
6	Select Time	required
7	Click next button	required
8	Click confirm button	required
9	Click Ok button	required