

19CSE204

OBJECT ORIENTED PROGRAMMING

HOUSEBOAT MANAGEMENT SYSTEM

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1. INTRODUCTION

This project focusses on applying OOPS concepts to build an application for a chain of houseboats. The Houseboat Management System provides a window for customers and owners to login and help them to access the information and implement certain functionalities.

The application is meant to be used by the customers and the owners of the houseboats. The owners can view the details of their houseboats that are booked and the staff working under them. The customers can register and login and book houseboats and make payment.

Java Swings have been used in this project to implement the UI for the application. The project also uses Java Database Connectivity to insert, access, update and delete data from the Houseboat Management System database.

2. ABSTRACT

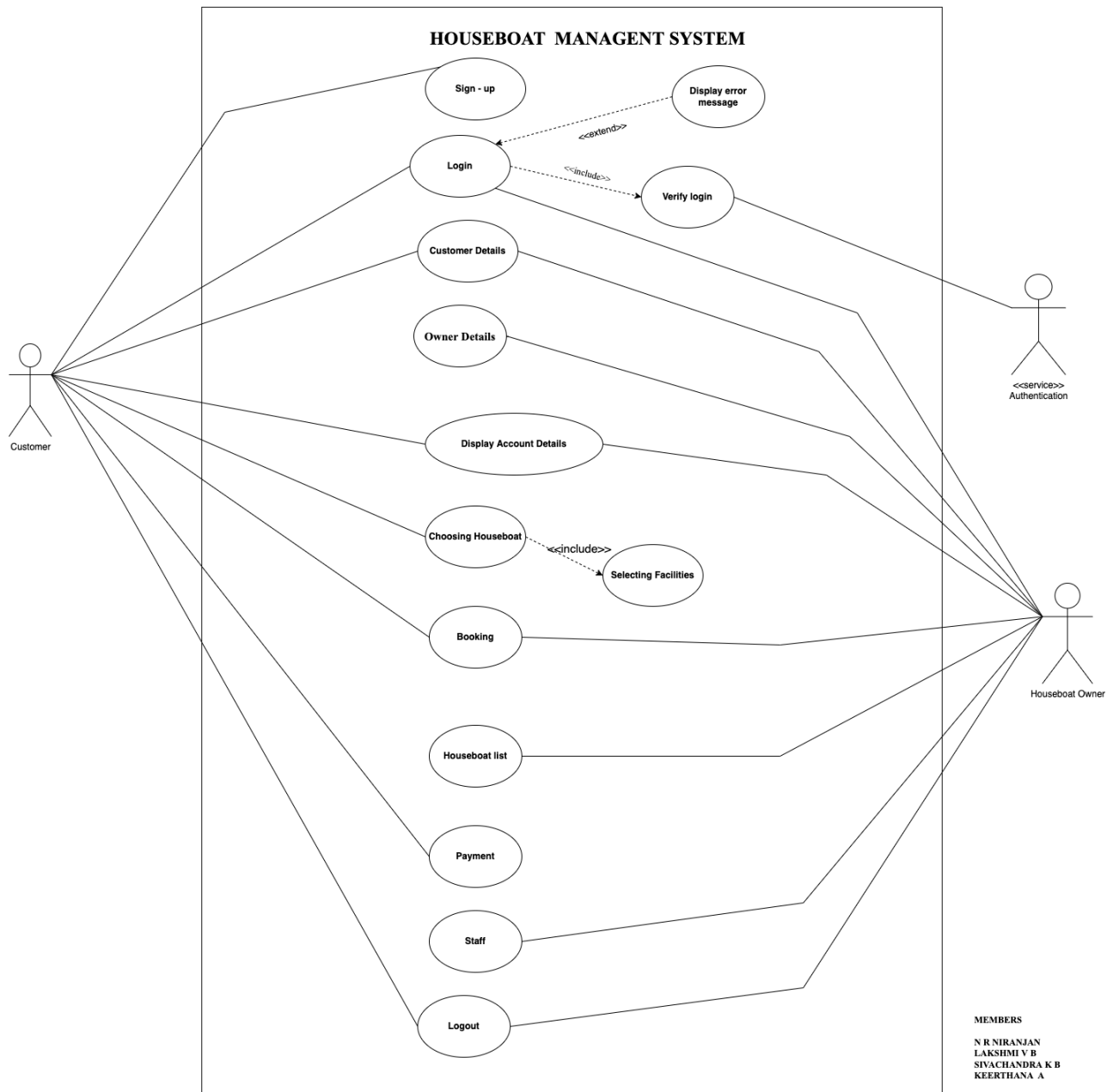
This project aims to develop a houseboat management system that can help an agency keep track of its customers, houseboat owners and their houseboats. When a customer books a houseboat through the agency, he/she is asked to sign-up and give his/her details. Similarly, if a houseboat owner wants to rent out his houseboat to the agency, he is asked to give his details and the houseboats details including the details of the facilities and staffs employed into the portal by signing up. The details that are provided are stored into the database. The database helps store this information for later use when the user has to access this through the portal after logging in. The customers can log-in to view their profile, carry out bookings after selecting the houseboat and going through their facilities and at last carry out payments through the portal.

After logging in, the customer is first brought into their profile where he/she is shown the details he/she gave when he/she registered. Then the customer can proceed to booking by selecting the houseboat that he/she might want depending on the number of passengers, then they can proceed to see the facilities the boat provides and select the required ones. The last part is where he is shown the total amount for renting the houseboat.

For the owner after logging in they are brought to their profile where they see their details. Then they can monitor their houseboats by seeing the boats that are rented and also their staff details.

3. USE CASE DIAGRAM

GROUP -15



3.1 ACTORS

1. CUSTOMER

2. HOUSEBOAT OWNER

3.2 FUNCTIONALITIES

1. Sign-Up

Description: The customers can sign-up by entering the details.

Actors: Customer

2. Login

Description: The customers and houseboat owners can login using their user id and password.

Actors: Customer, Houseboat Owner

3. Customer Details

Description: The customers and houseboat owners can view the details of the customers who has login.

Actors: Customer, Houseboat Owner

4. Owner Details

Description: The owners can view the details of the customers who has login.

Actors: Houseboat Owner

5. Display Account Details

Description: Both houseboat owner and customer can view their details after login.

Actors: Customer, Houseboat Owner

6. Choosing Houseboats

Description: The customers choose a houseboat of their choice.

Actor: Customer

7. Selecting Facilities

Description: After selecting the houseboat, the customer can select the facilities required.

Actors: Customer

8. Booking

Description: The customer can book a houseboat of their choice and the houseboat owner can know if the booked houseboat belongs to him or not.

Actors: Customer, Houseboat Owner

9. Payment

Description: After the trip, the customer can view the amount of the trip and make payment.

Actors: Customer

10. Houseboat List

Description: The houseboat owner can view the list of booked houseboats.

Actors: Houseboat Owner

11. Staff List

Description: The houseboat owner can view the staff working under them.

Actors: Houseboat Owner

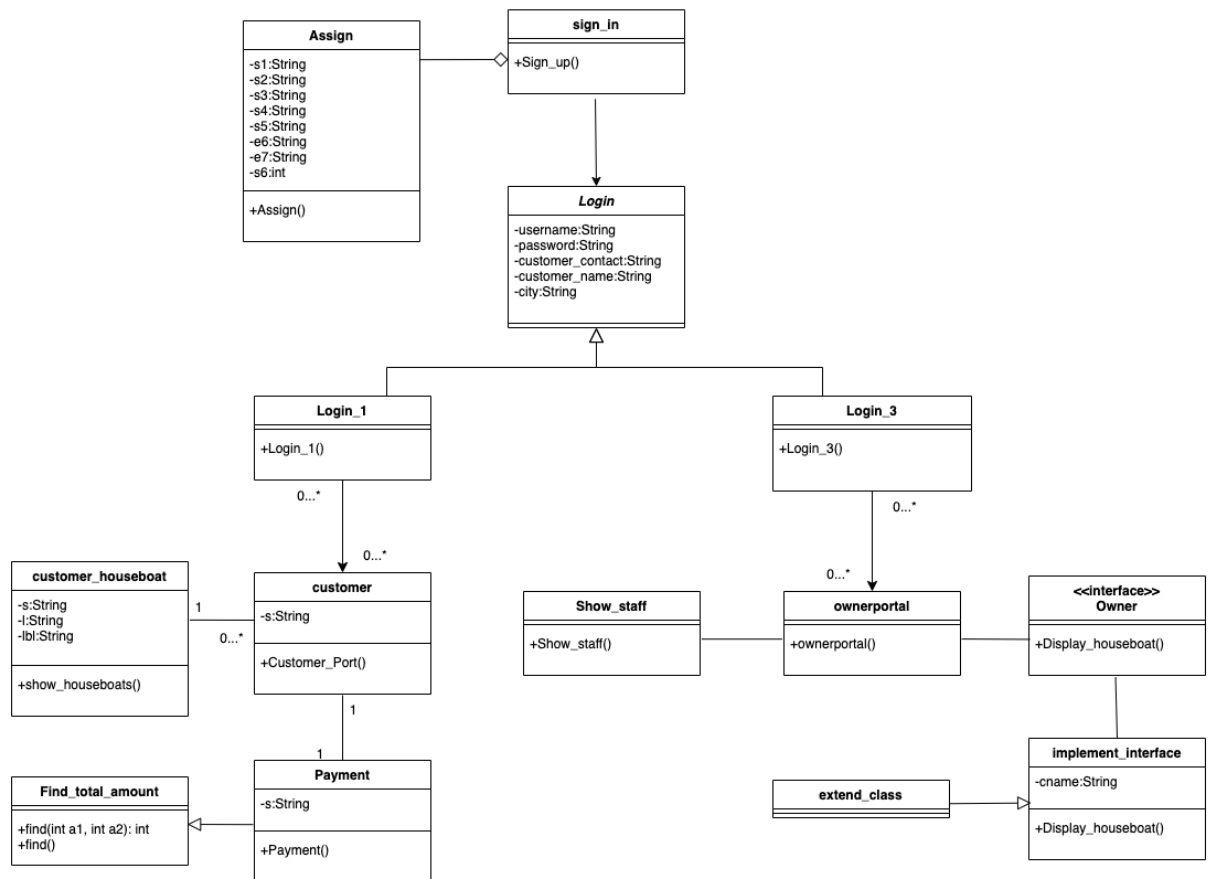
12. Logout

Description: Both the houseboat owner and customer can logout from the portal.

Actors: Customer, Houseboat Owner

4. CLASS DIAGRAM

HOUSEBOAT MANAGEMENT SYSTEM



Members:
 N R Niranjana
 Sivachandra K B
 Lakshmi V B
 Keerthana A

5. OOP FEATURES IMPLEMENTED

5.1 AGGREGATION

Aggregation is a special type of association that models a whole- part relationship between aggregate and its parts.

It is implemented using the sign_in and assign class where assign class is a part of the sign_in class. We used the assign class to input the values of the customer's sign_in details to the database.

5.2 GENERALIZATION

A generalization helps to connect a subclass to its superclass. A sub-class is inherited from its superclass. Generalization relationship can't be used to model interface implementation. Class diagram allows inheriting from multiple super classes.

It is implemented in the login portal, where both the classes Login_1 and Login_3 inherit the data members from the Login class.

5.3 INHERITANCE

Java inheritance refers to the ability in Java for one class to inherit from another class.

It is used in the customer portal, where the payment class inherits the member functions from the Find_total _amount class.

It is also implemented in the owner portal, where extend_class inherits the member functions from implement_interface class.

5.4 POLYMORPHISM

The compiler resolves the polymorphism during the compilation of the program. Also, called static binding. In Java, it can be achieved with the help of Method Overloading.

It is implemented in the payment portal, where the payment class calls the member function find() from the class Find_total_amount. Depending on the parameters passed on to the function, the respective find() is called. Thereby implemented method overloading.

5.5 ABSTRACTION

ABSTRACTION is the concept of object-oriented programming that "shows" only essential attributes and "hides" unnecessary information.

It is implemented using an interface Owner which is implemented by a class called implement_interface. This is used to display the houseboat list to the owner.

It is also implemented in the login portal where the login class is defined as an abstract class.

5.6 ENCAPSULATION

The process of binding data and corresponding methods (behaviour) together into a single unit is called encapsulation in Java.

Since we're using classes in our code, Encapsulation is satisfied by default.

6. DATABASE DETAILS

There are 8 tables in the Houseboat Management System. The details of each of them are given below:

6.1 OWNER TABLE

COLUMN_NAME	DATATYPE
owner_id	varchar(25)
license_no	varchar(25)
city	varchar(25)
owner_name	varchar(25)
owner_contact	varchar(10)
no_of_boats	int
owner_password	varchar(25)

6.2 CUSTOMER TABLE

COLUMN_NAME	DATATYPE
customer_id	varchar(25)
customer_name	varchar(25)
customer_city	varchar(25)
customer_country	varchar(25)
customer_contact	varchar(10)
no_of_passengers	int
customer_password	varchar(25)

6.3 AVAILABLE_HOUSEBOAT TABLE

COLUMN_NAME	DATATYPE
houseboat_id	varchar(25)
owner_id	varchar(25)
houseboat_name	varchar(25)
houseboat_capacity	int
no_of_rooms	int
typeof_boat	varchar(25)
price_per_head	int

6.4 BOOKED_HOUSEBOAT TABLE

COLUMN_NAME	DATATYPE
houseboat_id	varchar(25)
owner_id	varchar(25)
houseboat_name	varchar(25)
houseboat_capacity	int
no_of_rooms	int
typeof_boat	varchar(25)
price_per_head	int

6.5 FACILITIES TABLE

COLUMN_NAME	DATATYPE
customer_id	varchar(25)
houseboat_id	varchar(25)
wifi	varchar(10)
breakfast	varchar(25)
lunch	varchar(25)
snacks	varchar(25)
dinner	varchar(25)
entertainment	varchar(25)

6.6 STAFF TABLE

COLUMN_NAME	DATATYPE
staff_id	varchar(25)
owner_id	varchar(25)
staff_name	varchar(25)
gender	varchar(10)
job	varchar(25)
salary	decimal(7,2)

6.7 CURRENT TABLE

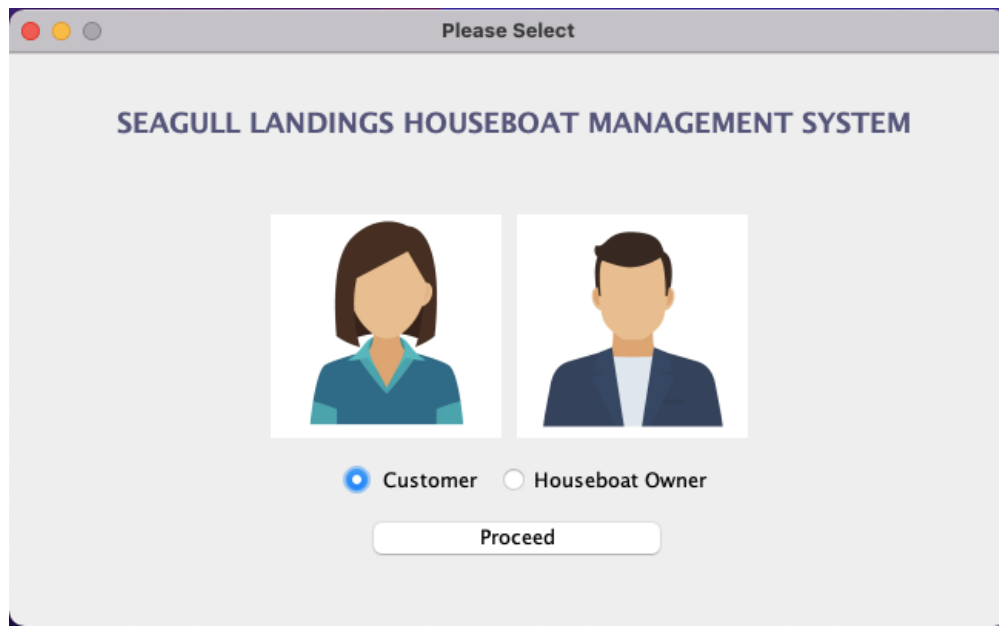
COLUMN_NAME	DATATYPE
cust_id	varchar(25)
name	varchar(25)
city	varchar(25)
contact_no	varchar(10)

6.8 HOUSEBOAT_CURRENT TABLE

COLUMN_NAME	DATATYPE
houseboat_id	varchar(25)

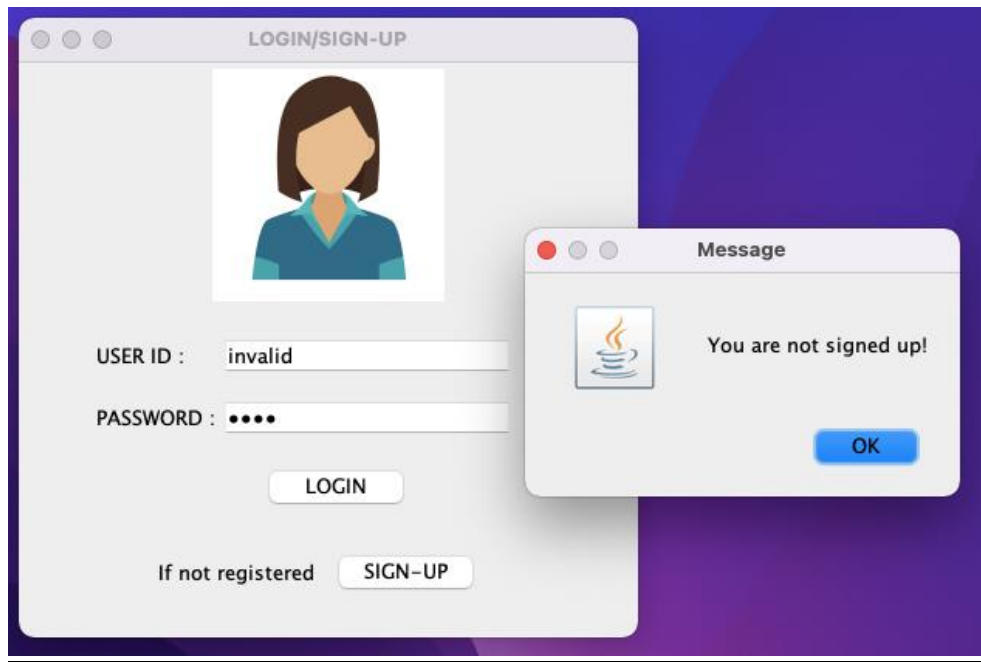
7. PROJECT FEATURES

7.1



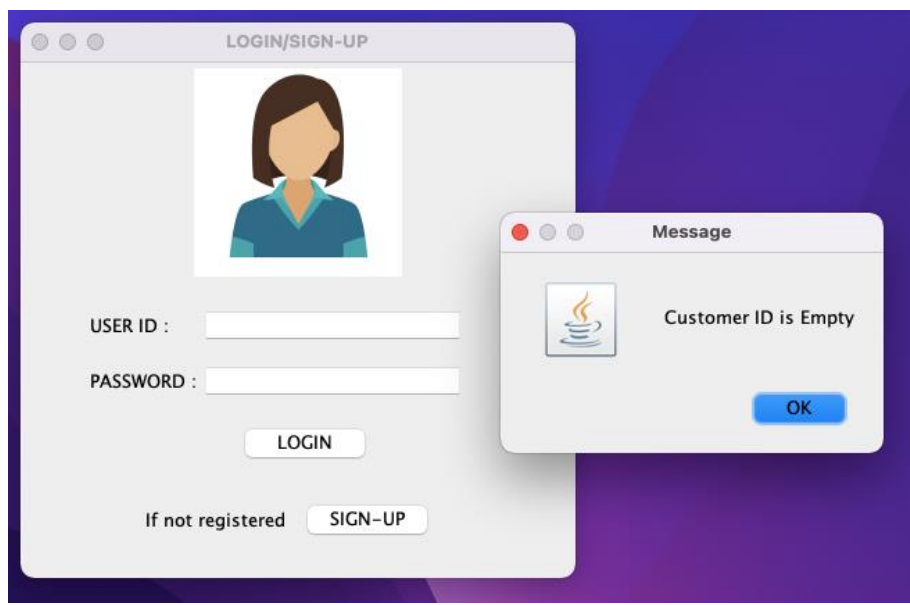
We start our code from the page above where the user can either select the Customer or the Houseboat Owner. Here we go ahead with Customer.

7.2



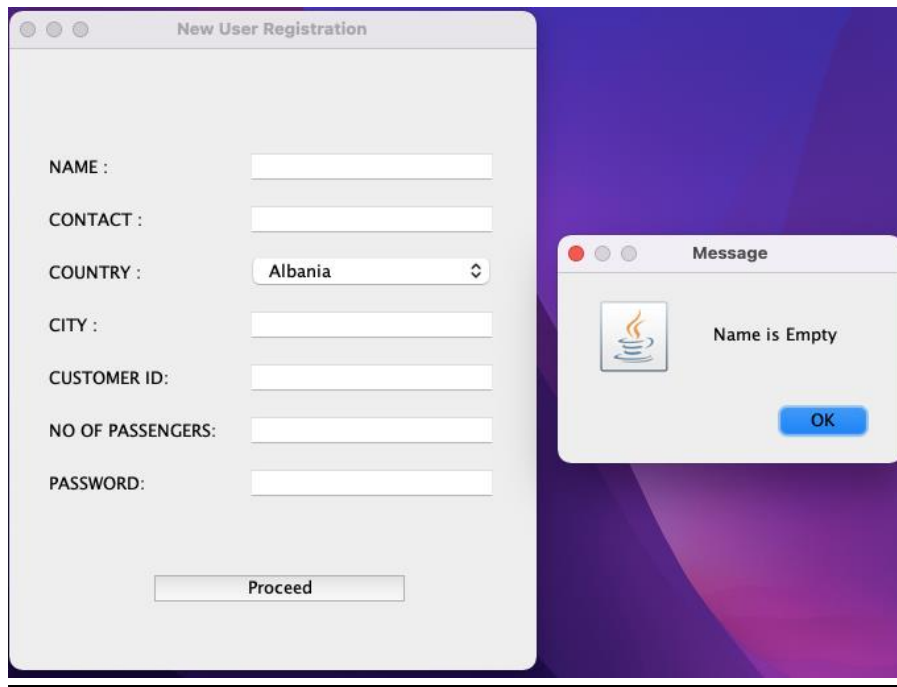
If we give the invalid credentials the above pop-up will appear, prompting us that the credentials are invalid.

7.3



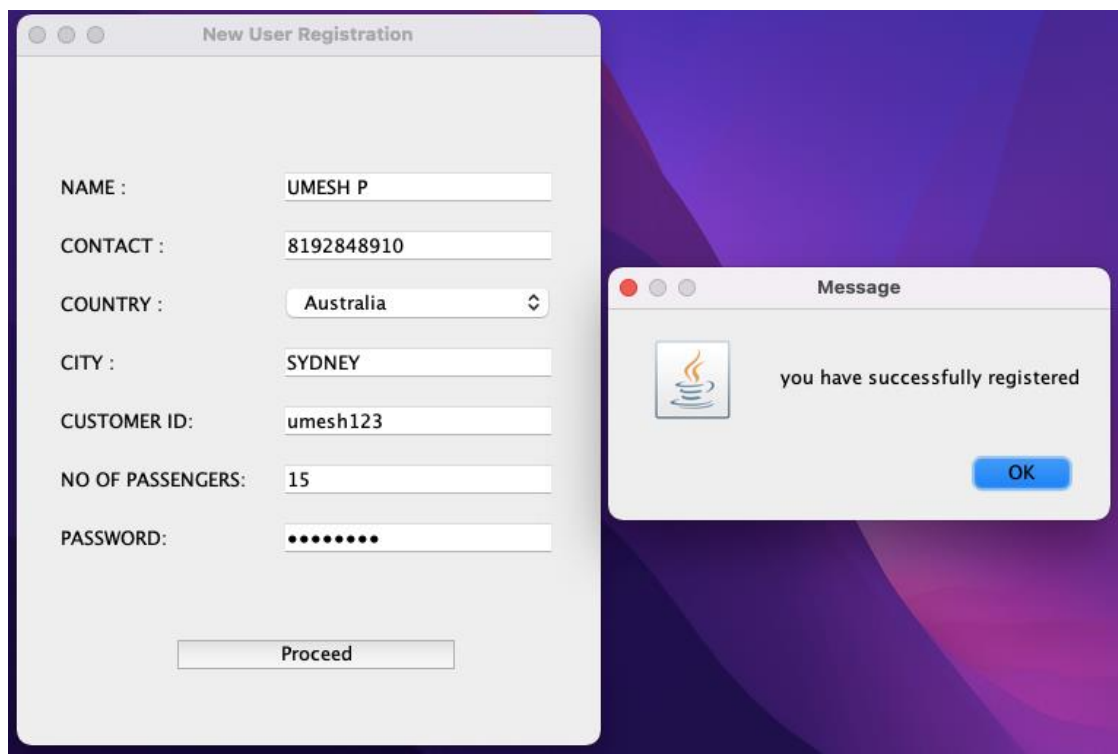
If we give any field empty the code gives us a prompt saying that.
If we need a new account as a customer we can click the button sign-up.

7.4



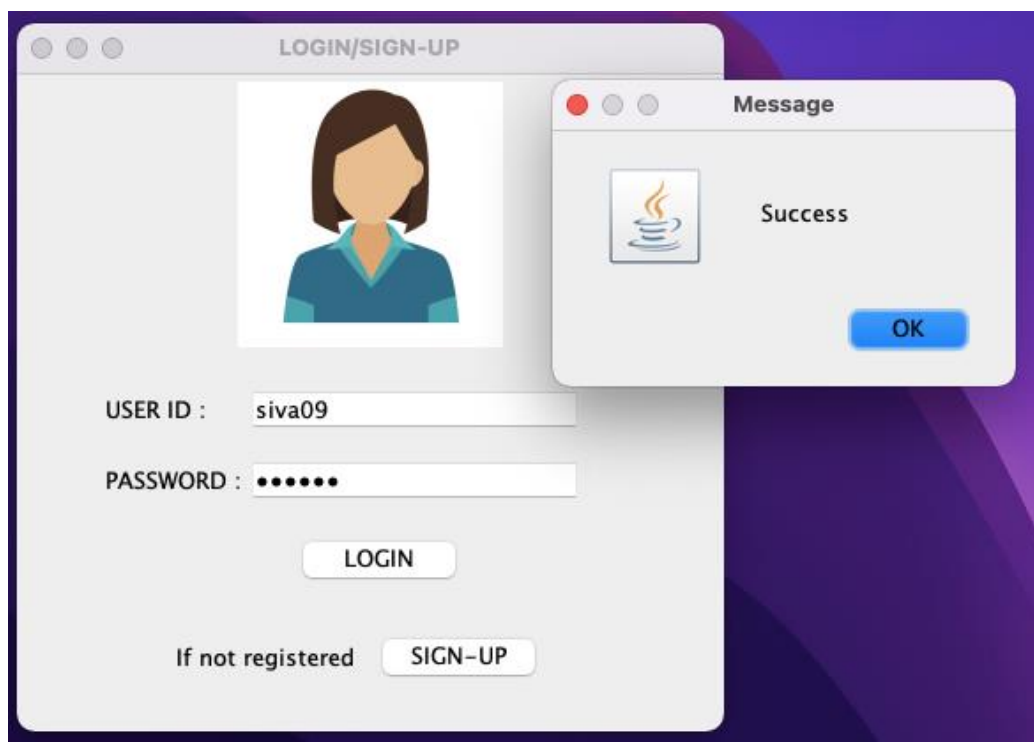
Inside the sign up page we can enter the necessary details and click proceed if any value is not given the following pop-up is shown.

7.5



Once we give the proper details and proceed the following pop-up comes and our details are entered into the database thus making an account.

7.6



Next we can login to the customer portal with the proper credentials.

7.7


HOUSEBOAT MANAGEMENT SYSTEM

Profile

Houseboats

Payment

Logout



Name: SIVA PRIYA

Phone no: 8071210856

City: THRISSUR

Inside the customer portal we have 4 options to view which are profile, houseboats, payment and logout. In the profile we are given the basic details of the customer as shown above.

7.8


HOUSEBOAT MANAGEMENT SYSTEM

Profile

Houseboats

Payment

Logout



LIST OF AVAILABLE HOUSEBOATS

Please click the houseboat id you want to book :

HOUSEBOAT ID	HOUSEBOAT NAME	CAPACITY	TYPE	NO OF ROOMS
silverlining	Silver Lining	25	3-TIER	6
seastheday	Seas the day	35	3-TIER	7
rainbowends	Rainbow Ends	15	2-TIER	3
fallingstar	Falling Star	20	2-TIER	3
bluemoon	Blue Moon	15	2-TIER	3
aecclipse	A Eclipse	30	3-TIER	8
happyhours	Happy Hours	30	3-TIER	7
neptuneclory	Neptune Glory	15	2-TIER	4

After your trip you can go ahead and see the total amount you have spent for the trip in the payment tab.

The next option is to view the houseboat. In this tab we can go ahead and click the row out of the desired houseboat to proceed to booking.

7.9

The screenshot displays the 'HOUSEBOAT MANAGEMENT SYSTEM' interface. On the left, a sidebar contains buttons for 'Profile', 'Houseboats', 'Payment', and 'Logout'. The main area is titled 'LIST OF AVAILABLE HOUSEBOATS' and features a small image of a houseboat on water. Below the image, a table lists available houseboats. A 'Message' dialog box is overlaid on the table, displaying the houseboat ID 'seastheday' and an 'OK' button. The table has columns for 'HOUSEBOAT ID', 'HOUSEBOAT NAME', 'PRICE', 'TIER', and 'NO OF ROOMS'.

HOUSEBOAT ID	HOUSEBOAT NAME	PRICE	TIER	NO OF ROOMS
seastheday	Seastheday		3-TIER	7
rainbowends	Rainbowends		3-TIER	3
fallingstar	Fallingstar		3-TIER	3
bluemoon	Blue Moon		3-TIER	3
aeclipse	A Eclipse	30	3-TIER	8
happyhours	Happy Hours	30	3-TIER	7
neptuneglory	Neptune Glory	15	2-TIER	4
happylife	Happy Life	20	2-TIER	5

After your trip you can go ahead and see the total amount you have spent for the trip in the payment tab.

The following tab comes up confirming the houseboats id and proceeds to the next page.

7.10

HOUSEBOAT MANAGEMENT SYSTEM

BOOKING

Please select the facilities you want :

Wifi : Yes Breakfast : Native Cuisine

Lunch : Continental Cuisine Dinner : Native Cuisine

Snacks : Icecream Entertainment : Music

Confirm Booking

Here we can select the desired facilities we want in our houseboat and click confirm booking.

7.11

HOUSEBOAT MANAGEMENT SYSTEM

BOOKING

Please select the facilities you want :

Wifi : Yes Breakfast : Native Cuisine

Lunch : Continental Cuisine Dinner : Native Cuisine

Snacks : Icecream Music

Message

Successfully booked

OK

After that a pop-up confirms that we have successfully booked the houseboat.

The booked houseboat is taken away from the table in the houseboats tab as it is already booked by another customer and is not returned until after the trip.

7.12

The screenshot shows a web application window titled "HOUSEBOAT MANAGEMENT SYSTEM". On the left is a dark sidebar with four buttons: "Profile", "Houseboats", "Payment" (which is highlighted), and "Logout". The main content area has a header "Payment" and a message: "Hope you have enjoyed your trip, to view your bill please click the 'check amount' button below". Below this message is a "Check Amount" button. Further down are two input fields: "Name:" and "Total Amount:", both currently empty.

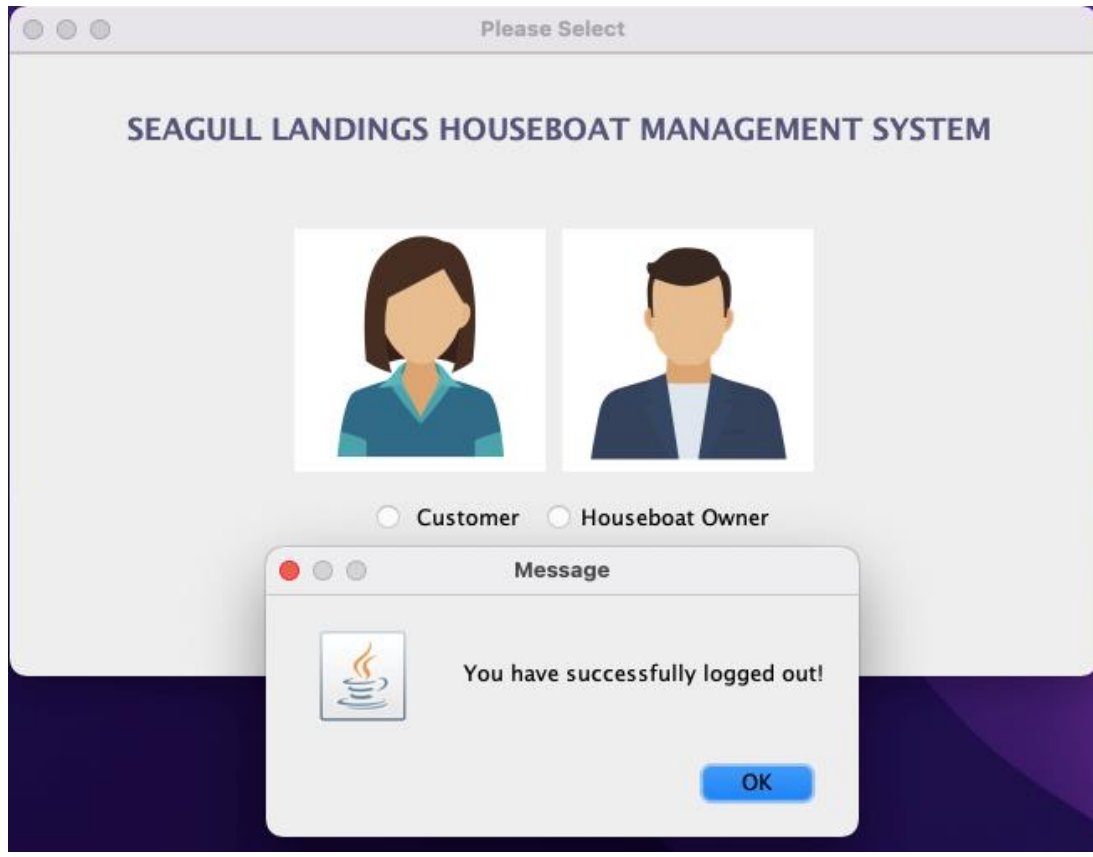
The customer is asked only to pay the amount after he/she is back from the trip and after that they can see their amount by the check amount button.

7.13

This screenshot shows the same "Payment" page as before, but with data entered in the input fields. The "Name:" field contains "SIVA PRIYA" and the "Total Amount:" field contains "9900". A "Check Amount" button is still present. A "Message" pop-up window is overlaid on the bottom right, featuring a small icon of a houseboat and the text "Thank you for sailing!". An "OK" button is at the bottom of the pop-up.

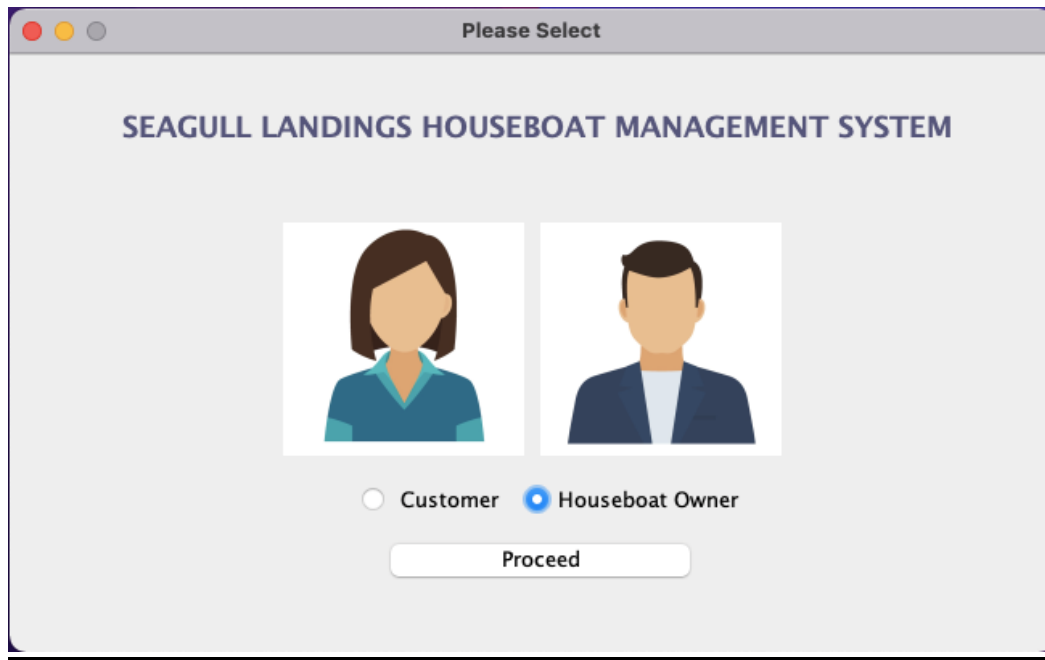
It shows us the total amount for the trip and a pop-up that says thank you. The 4th option is to logout, if you click this it'll take you to the starting page.

7.14



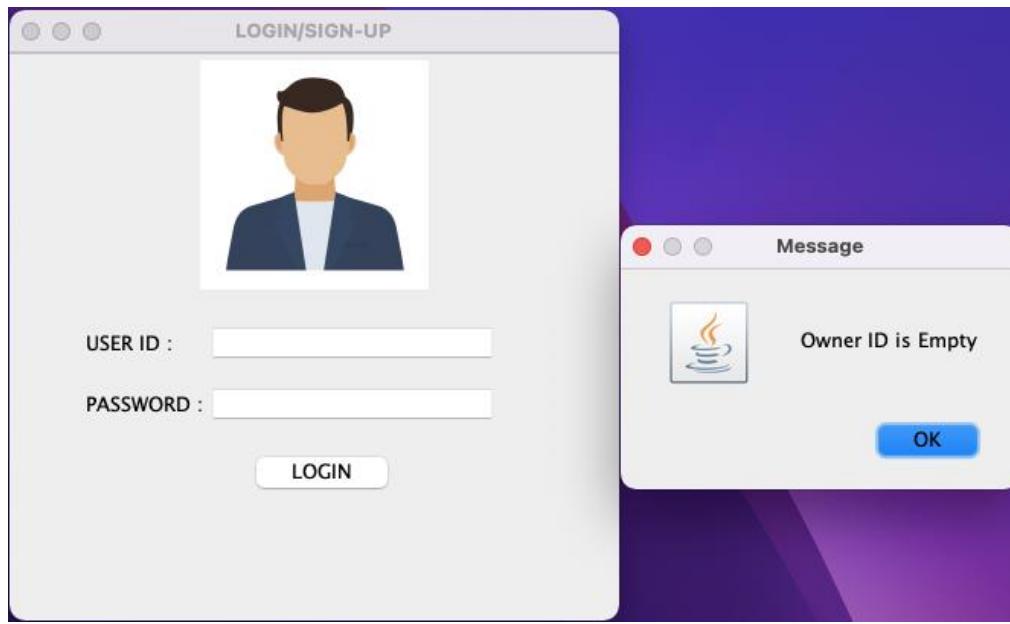
This the page after you click logout.
Any number of customers can login and logout to book their houseboats just like this.

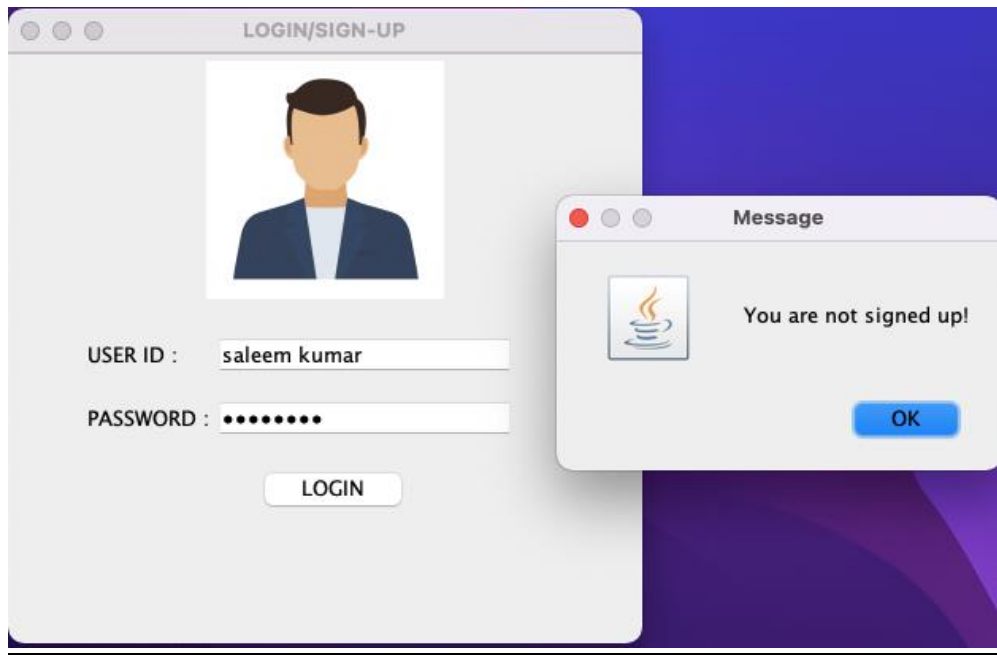
7.15



Next we'll see the owner part of the code.

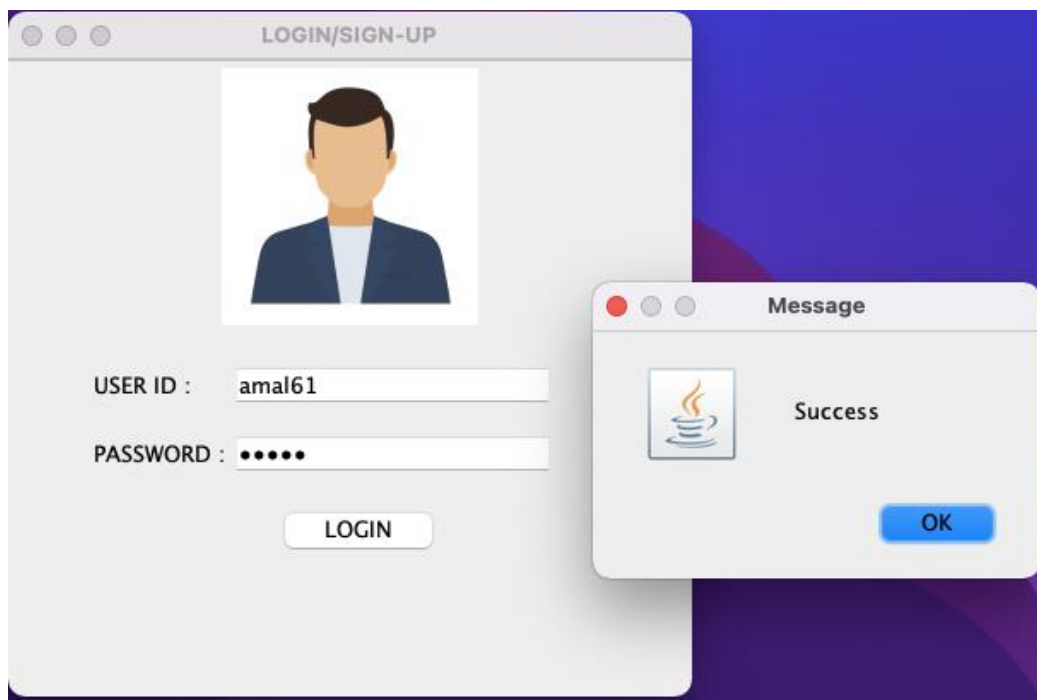
7.16





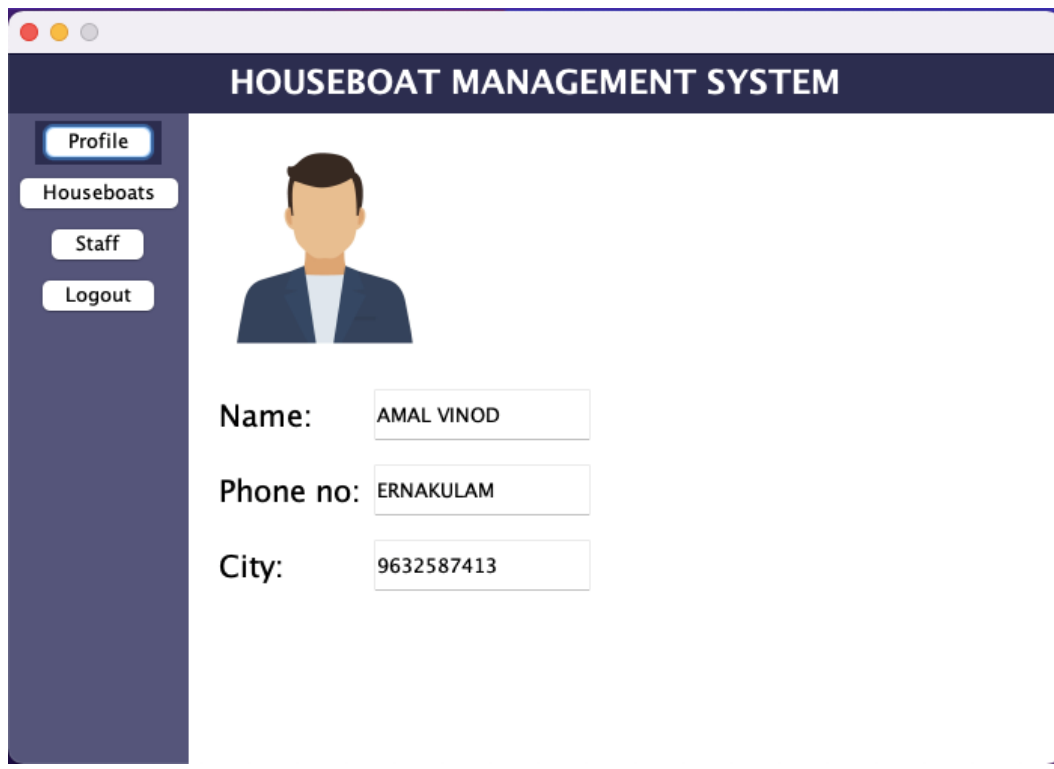
Just as in customer it gives you corresponding pop-ups for invalid or empty textfield.

7.17



After logging in we are taken to the portal.

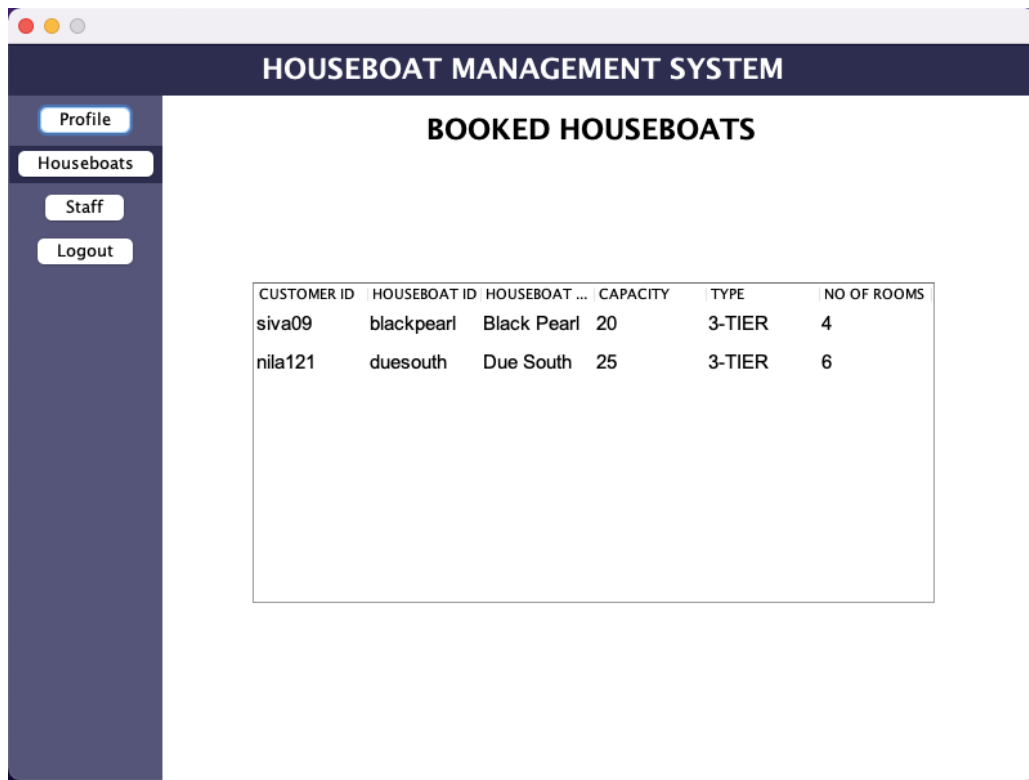
7.18



The screenshot shows a web application titled "HOUSEBOAT MANAGEMENT SYSTEM". On the left is a dark blue sidebar with buttons for "Profile" (highlighted), "Houseboats", "Staff", and "Logout". The main content area has a white background. At the top is a placeholder for a user profile picture. Below it are three form fields: "Name:" with the value "AMAL VINOD", "Phone no:" with the value "ERNAKULAM", and "City:" with the value "9632587413".

It shows us the details just as in the portal seen before.

7.19

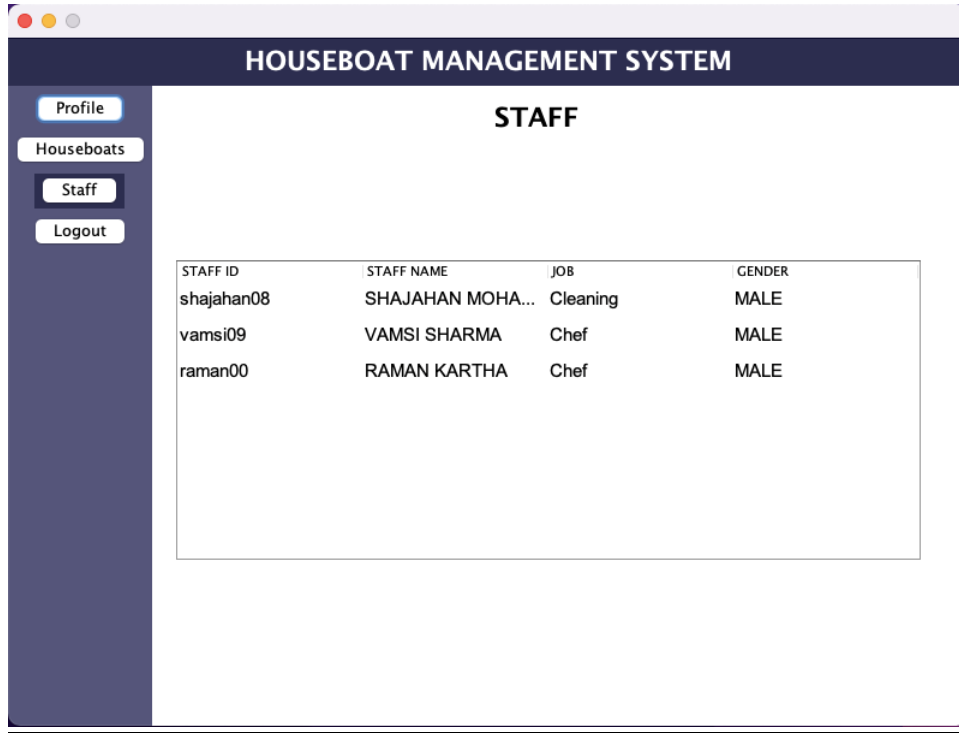


The screenshot shows a web application titled "HOUSEBOAT MANAGEMENT SYSTEM". On the left is a dark blue sidebar with buttons for "Profile", "Houseboats" (highlighted), "Staff", and "Logout". The main content area has a white background. At the top is the heading "BOOKED HOUSEBOATS". Below it is a table with the following data:

CUSTOMER ID	HOUSEBOAT ID	HOUSEBOAT ...	CAPACITY	TYPE	NO OF ROOMS
siva09	blackpearl	Black Pearl	20	3-TIER	4
nila121	duesouth	Due South	25	3-TIER	6

Once we click the houseboat option we can see which all houseboats of the owner are booked by which customers using the customers id, just as shown above.

7.20

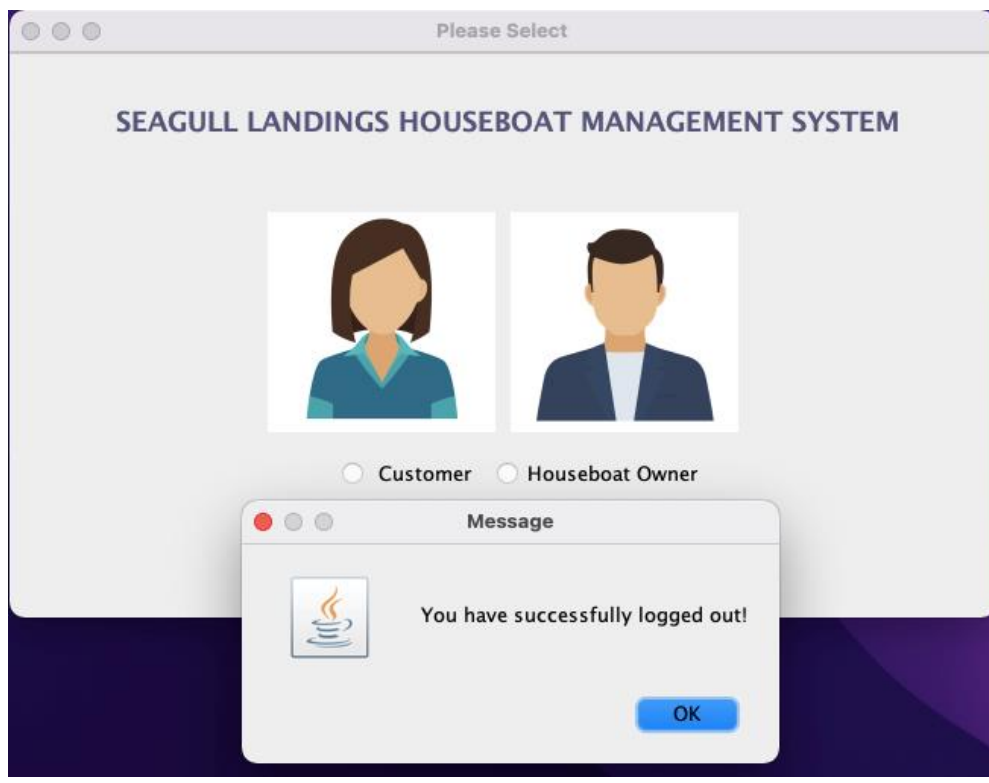


The screenshot shows a web application window titled "HOUSEBOAT MANAGEMENT SYSTEM". On the left is a dark blue sidebar with four buttons: "Profile", "Houseboats", "Staff", and "Logout". The "Staff" button is highlighted. The main content area has a title "STAFF" and a table with the following data:

STAFF ID	STAFF NAME	JOB	GENDER
shajahan08	SHAJAHAN MOHA...	Cleaning	MALE
vamsi09	VAMSI SHARMA	Chef	MALE
raman00	RAMAN KARTHA	Chef	MALE

In the staff page we can see the staff and their details, working under the houseboat owner.

7.21



After this you can click the logout option to leave the portal. Any number of owners can login and logout to manage their houseboats just like this.