







PHOENIX AIRLINE

WEB APPLICATION
DEVELOPMENT



PREPARED BY:

| Name | Student ID | Signature |
|-------------------------|------------|---|
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| A.L.A. Sewwandi | 22755 |  |
| G.Y.Y. Mihiranga | 22684 |  |
| R.B. Wickramaratne | 22691 |  |

MODULE NAME AND CODE:

SE 204.3 Development of
Enterprise Applications
(DEA)

MODULE LEADER:

Dr. Chaminda Wijesinghe

WHO WE ARE?

We are an undergraduate student who study information technology related degree program in NSBM Green University.

WHY WE BUILD UP THIS PROJECT?

This is our second-year Development of Enterprise Applications (DEA) module, final project.

CONTENT

1. Company introduction
2. Main types of users in this system
3. Tasks of each user types
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8. Flow chart
9. How our web application front-end looks like?
10. How our web application back-end looks like?
11. Test script

OUR TEAM



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Company Introduction

We design and develop a web-based application to manage airline service called “Phoenix Airline PVT”. This is an airline with a small online flight booking system and lots of other processes, such as user management, flight management, and ticket management are done by manually. Because of Covid-19 situation they cannot do those tasks by manually. So they required a website for that.



Main types of users in this system

There are three types of users in our system.

1. User/Client
2. Staff-1
3. Staff-2
4. Admin

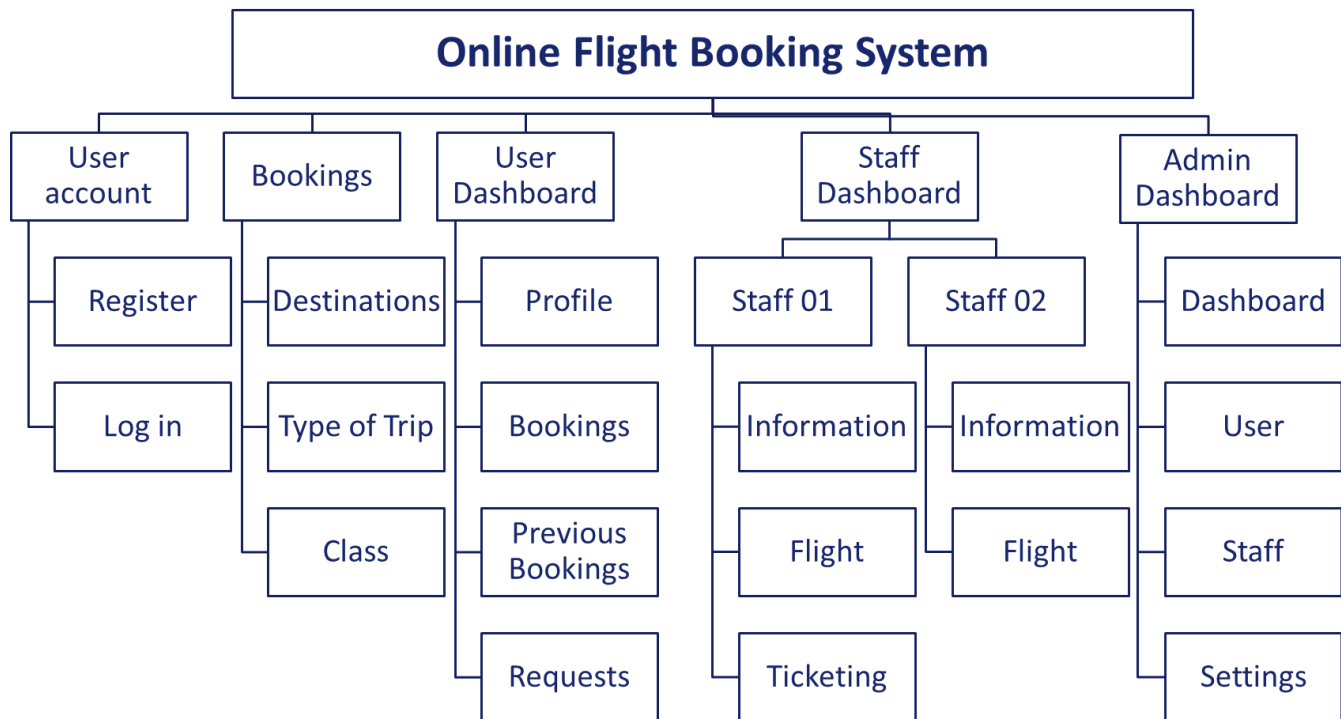
Tasks of each user types

| | |
|-------------|---|
| User/Client | <ul style="list-style-type: none"> • Can create their accounts by themselves. • Can access to user dashboard. • Can view and filter flights on a particular date and destination point. • Can update their profiles and reservations. • Can search flights through the flight ID. |
| Staff-1 | <ul style="list-style-type: none"> • Can create their accounts by themselves. • Update or delete some information. • View information. • Add new flight details. • Can access to staff dashboard. • Adding, updating, deleting flights details. • Checking, updating or deleting ticket information. • Checking the user's accounts, blocking or updating accounts, and providing Information to users via internal chat. |
| Staff-2 | <ul style="list-style-type: none"> • Can create their accounts by themselves. • Can access to staff dashboard. • Accessed user dashboards. |
| Admin | <ul style="list-style-type: none"> • Can Approve staff accounts. • Add staff members to the system. • Can Access to admin dashboard. • Can monitor every activity of the staff and users. |

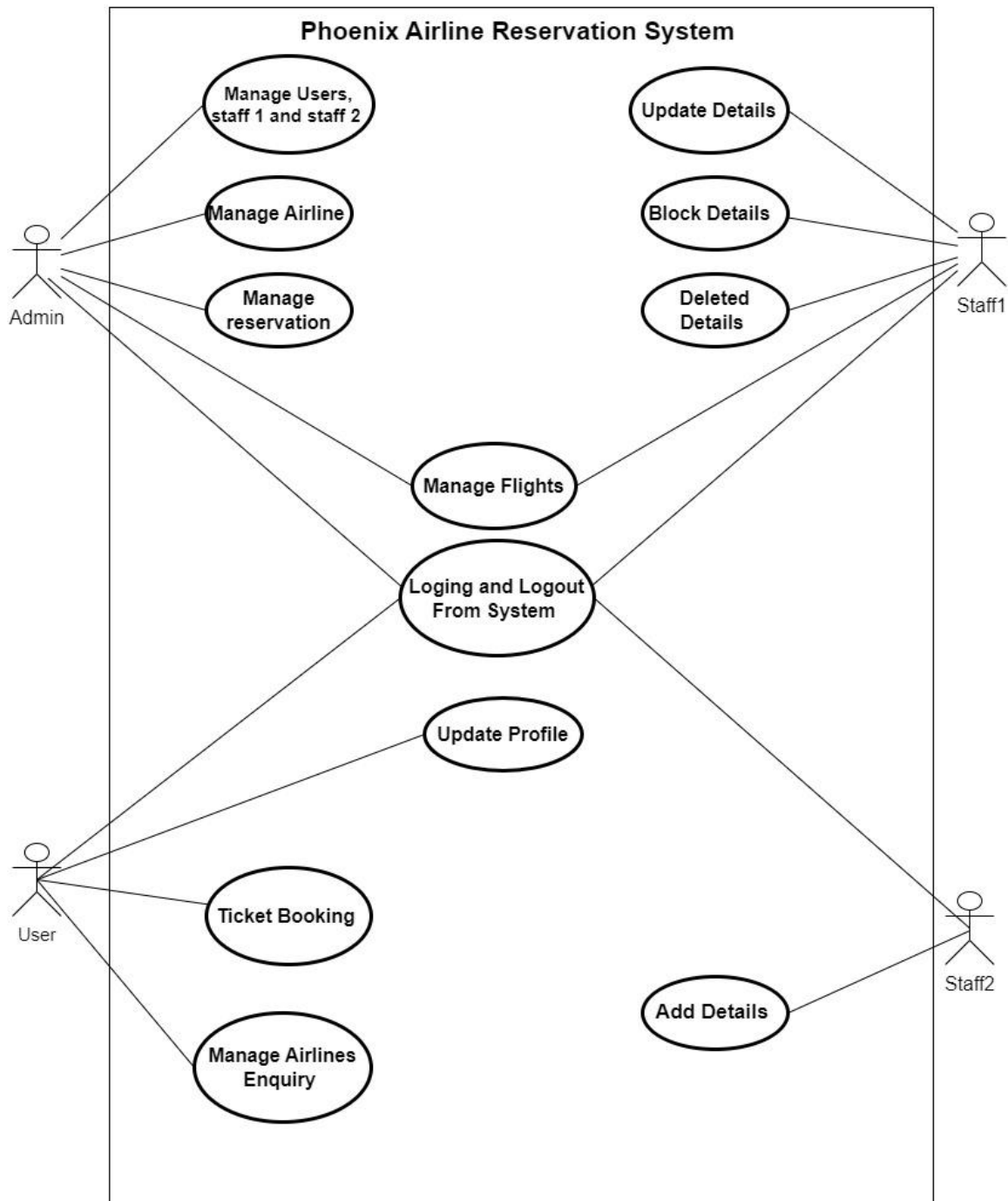
Other mentioned requirements

- Every activity of the staff and users should be monitored by their ID or email.
- Ticket information can be found on the Ticket ID.
- The last login time and IP of all users should be monitored.
- All users can search flights through the flight ID.

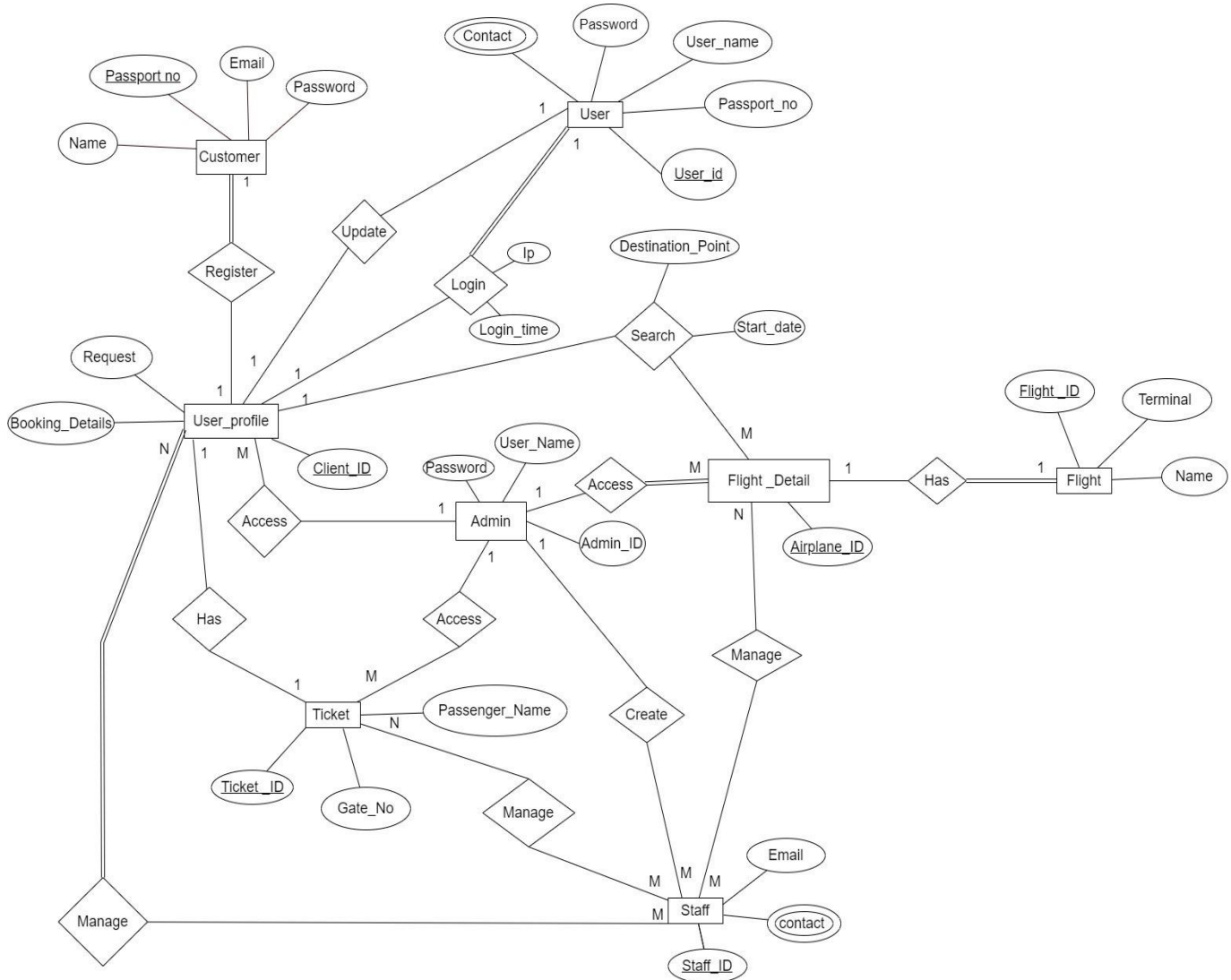
Hierarchy of the system



Use Case Diagram



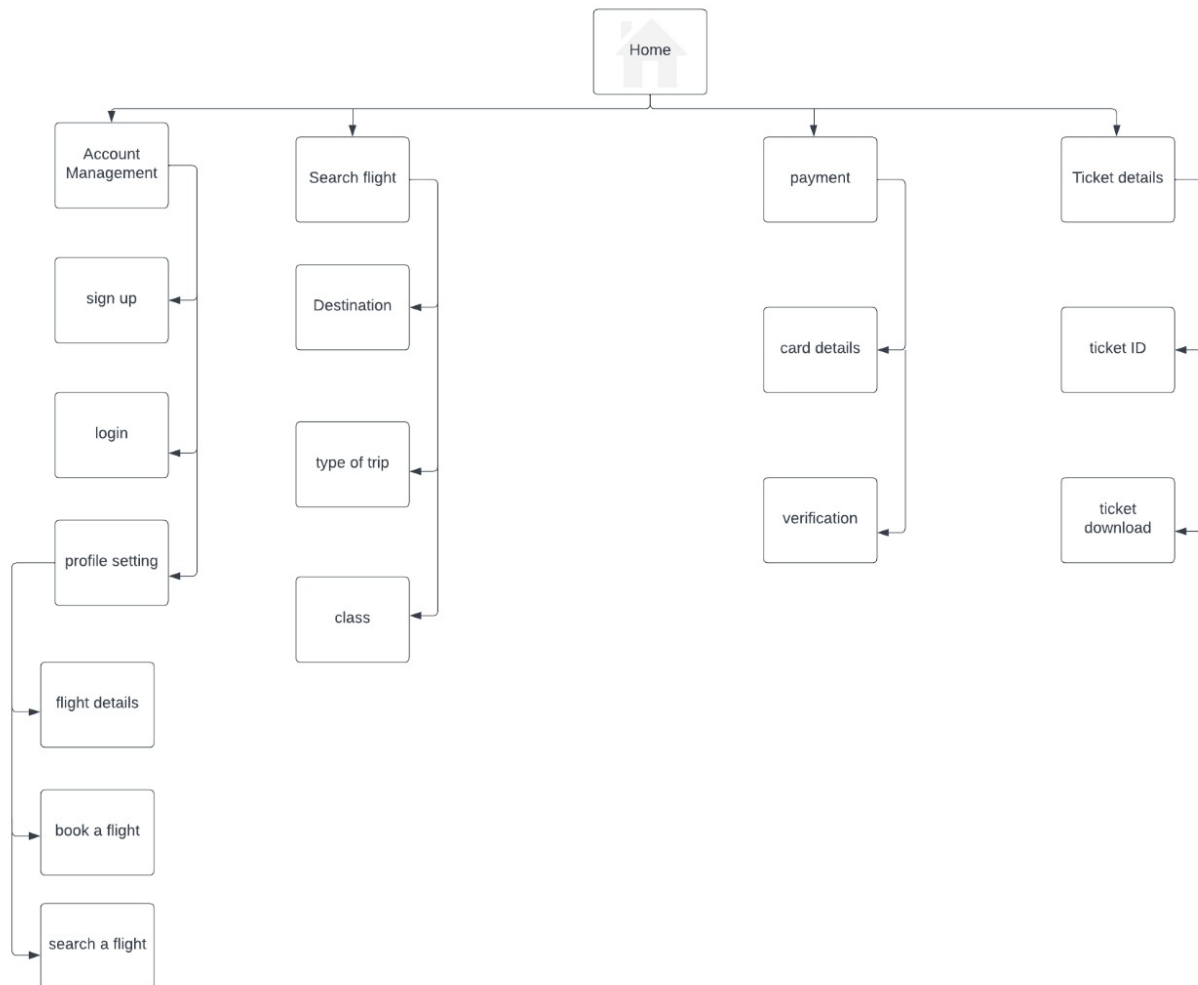
ER diagram for required Web Application



Assumptions

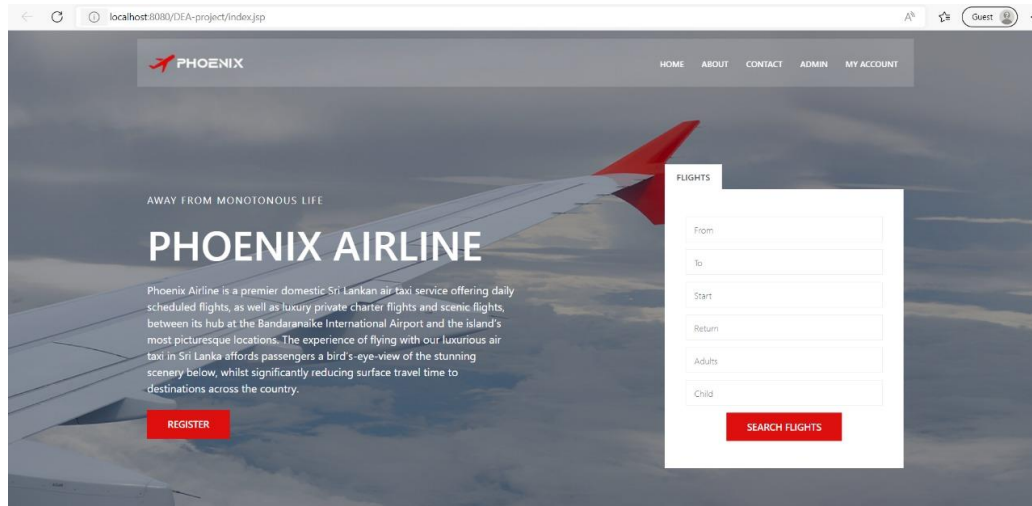
- Admin taking client details by login into admin dashboard.
- Staff entity has both staff1 and staff2 members.
- Admin can access all details.
- Staff members can add, update, delete block user profiles, flight details and ticket booking entities

Web site Map



How our web application front-end looks like?

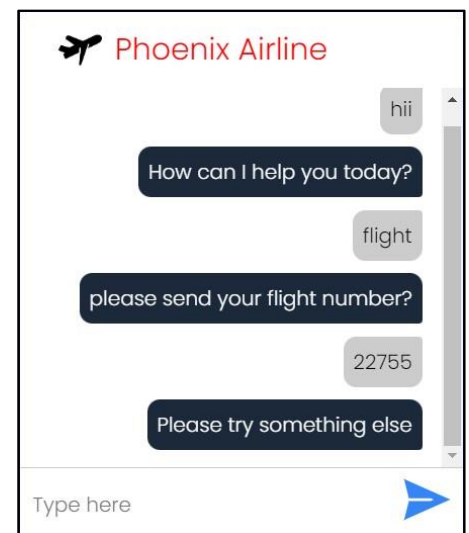
Home page




This is home page of Phoenix Airline PVT.

- In here we have navigation bar with four selections.
 1. Home
 2. About
 3. Contact
 4. My account
 - a. User
 - b. Staff1
 - c. Staff2
 - d. admin
- Those can be viewed by scroll down the page.
- Below we can see About Us and Contact us pages.

Also, we provide chat box feature too.





About Us

Who We Are?

Our company is a company that provides air transport services for traveling passengers and freight. We use aircraft to supply these services and may form partnerships or alliances with other airlines.

Contact Us

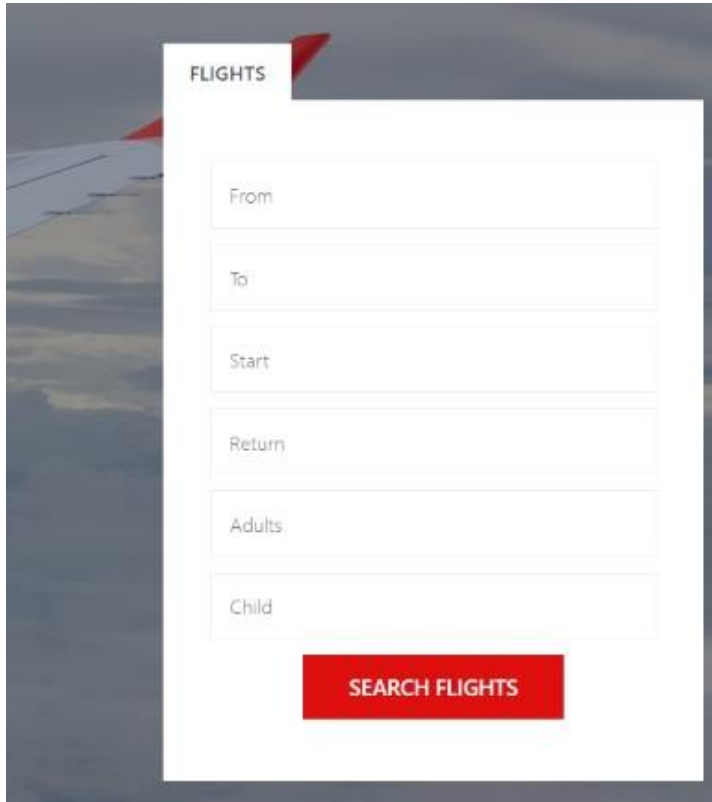
Colombo, Sri Lanka
011 123 5678
Monday to Friday 8am to 5 pm
phoenixairline.com
Send us your messages anytime!

- This is Footer of our web application System.

- This is LOGO of our web application System.



Search Flight Section



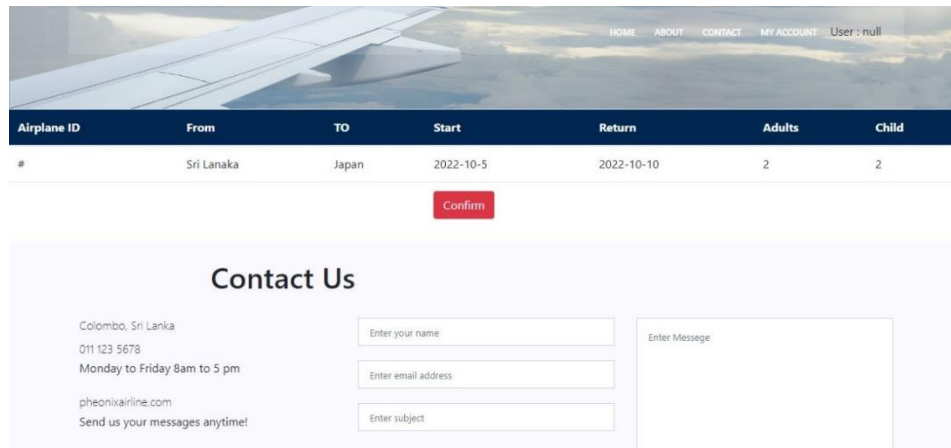
The screenshot shows a 'FLIGHTS' search form overlaid on a background image of an airplane wing. The form contains the following fields:

- From
- To
- Start
- Return
- Adults
- Child

A red button labeled 'SEARCH FLIGHTS' is positioned at the bottom of the form.

- In here user can enter
 - ✓ User can enter flight departure location
 - ✓ User can enter flight arrival location
 - ✓ User can enter flight departure date
 - ✓ User can enter flight arrival date
 - ✓ User can enter number of adults
 - ✓ User can enter flight arrival child
- Finally, user can click search flight button and user redirected to the flight details page.

Flight Details Section



| Airplane ID | From | TO | Start | Return | Adults | Child |
|-------------|-----------|-------|-----------|------------|--------|-------|
| # | Sri Lanka | Japan | 2022-10-5 | 2022-10-10 | 2 | 2 |

[Confirm](#)

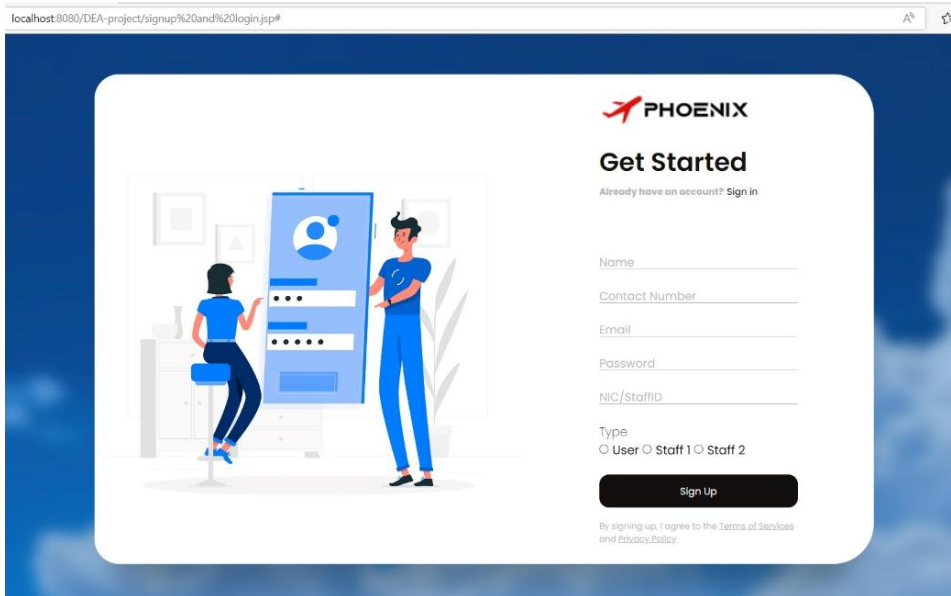
Contact Us

Colombo, Sri Lanka
011 123 5678
Monday to Friday 8am to 5 pm
phoenixairline.com
Send us your messages anytime!


Enter Message


- If the user is already registered in our system, he can easily see this type of interface.
- In here, user can see his previous entered details.
- After checking these details, if the details are correct, user can click confirm button and redirecting to the payment detail section.
- If there is something to be edited, user can easily click edit button and edit the details.
- If user is not registered in the system yet, user cannot process his work and he had to become a member in our system first.

Register and Login Sections



localhost:8080/DEA-project/signup%20and%20login.jsp#





Get Started

Already have an account? [Sign In](#)

Name

Contact Number

Email

Password

NIC/StaffID

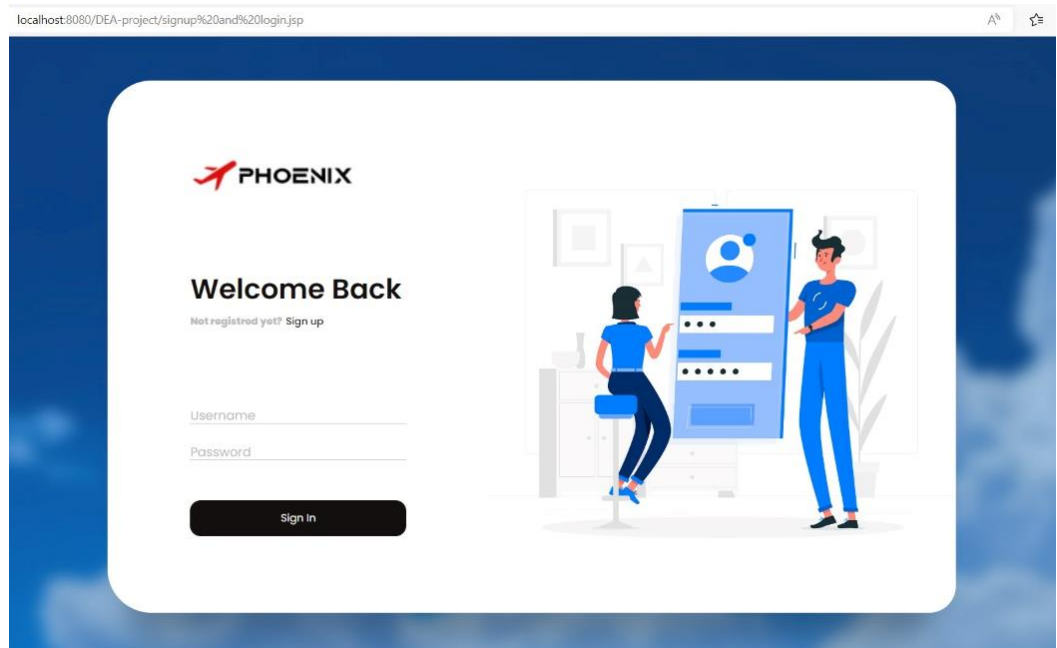
Type
☐ User ☐ Staff 1 ☐ Staff 2

[Sign Up](#)


By signing up, I agree to the [Terms of Services](#) and [Privacy Policy](#).


This is register page. If the user is not a member of website, he can easily fill these fields and become a registered member of Phoenix Airline PVT.

This is login page. If the user is a member of this site, he can easily enter his username and password in above fields and he can easily see his user/ staff1/ staff2 dashboard.



localhost:8080/DEA-project/signup%20and%20login.jsp





Welcome Back

Not registered yet? [Sign up](#)

Username

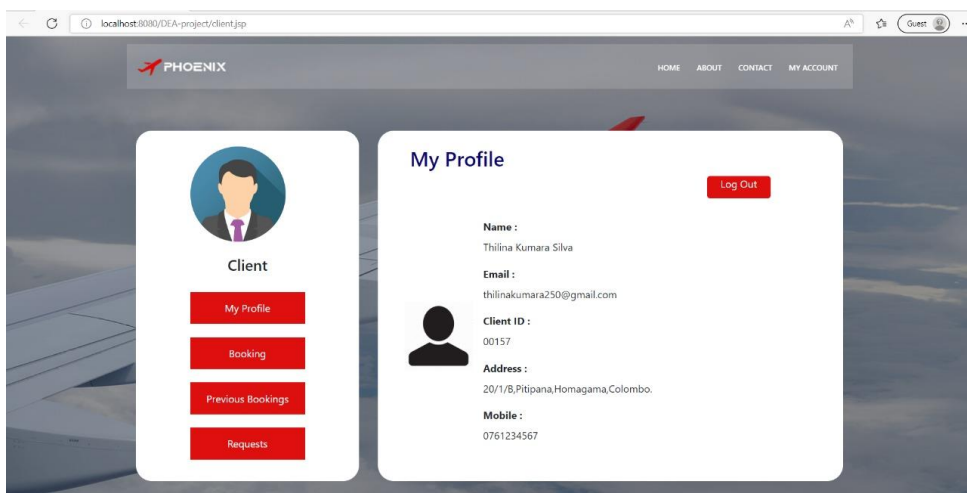
Password

[Sign In](#)

Dashboards

- We can consider 4 dashboards.
 - User
 - Staff-1
 - Staff-2
 - Admin

USER



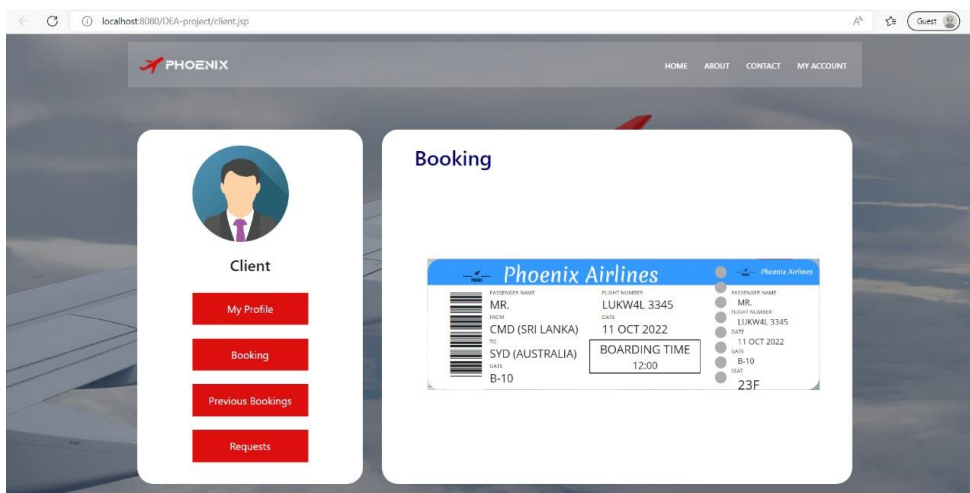
• Can create their accounts by themselves

• Accessed user dashboard

• Can view and filter flights on a particular date and destination point

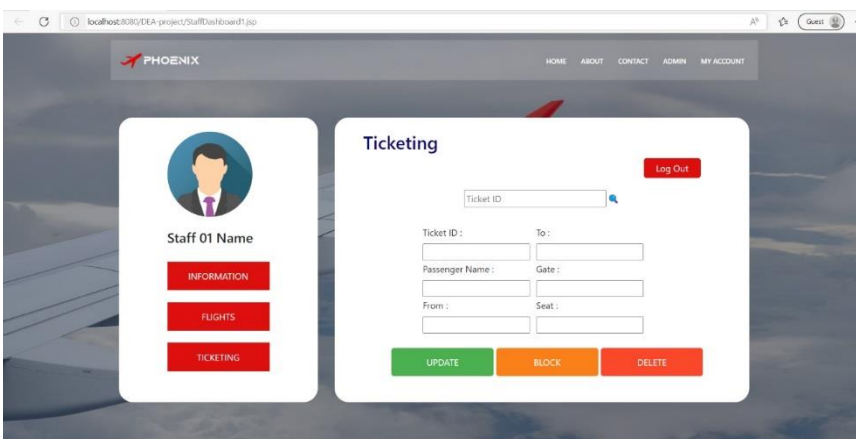
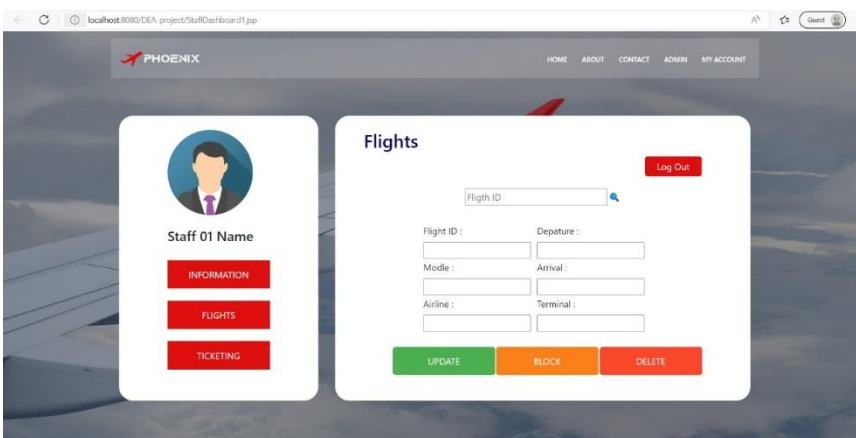
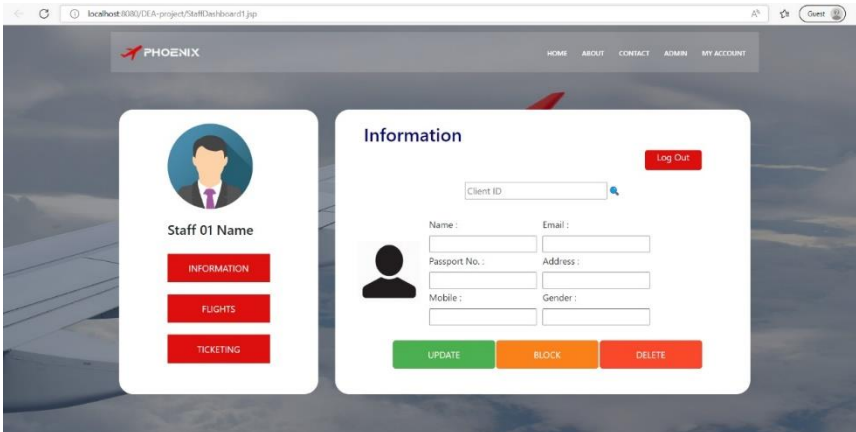
• Can update their profiles and reservations

• Can search flights through the flight ID.



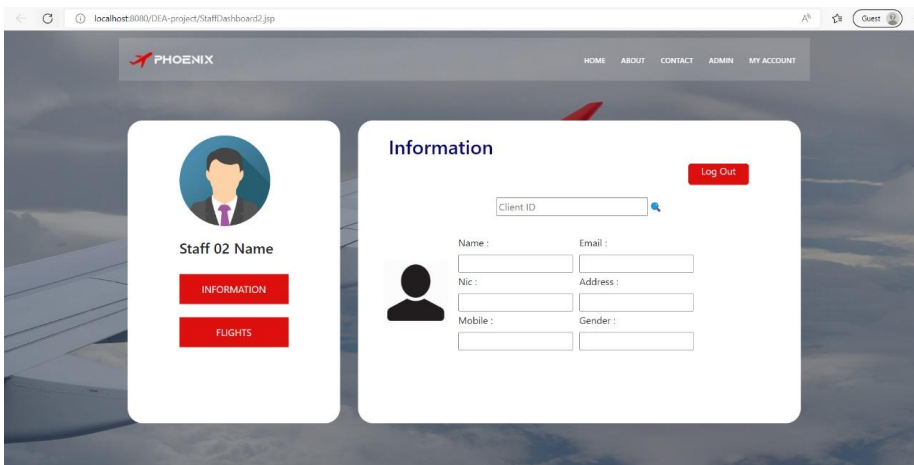
STAFF 1

- ❖ If someone login to the system as staff 1, they can see this type of interfaces. Every staff 1 members can do below tasks.



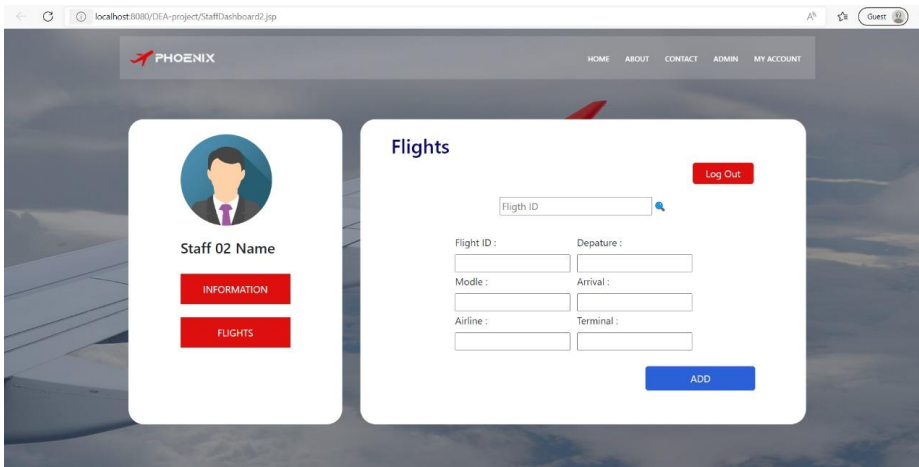
- Can create their accounts by themselves.
- Can update or delete some information.
- Can view information.
- Can add new flight details.
- Can accessed staff dashboard.
- Can adding, updating, deleting flights.
- Can checking, updating or deleting ticket information.
- Can checking the user's accounts, blocking or updating accounts, and providing Information to users via internal chat.

STAFF2



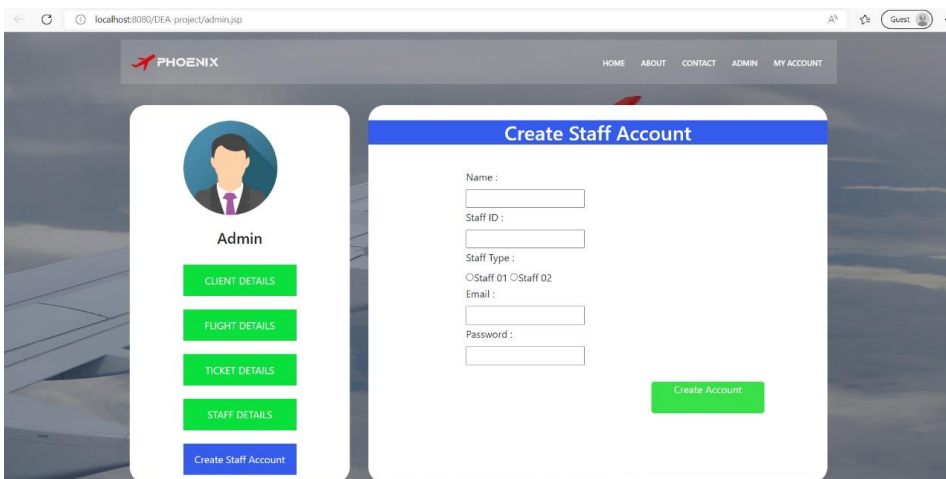
- Can create their accounts by themselves

- Accessed staff dashboard



- Accessed user dashboards

ADMIN

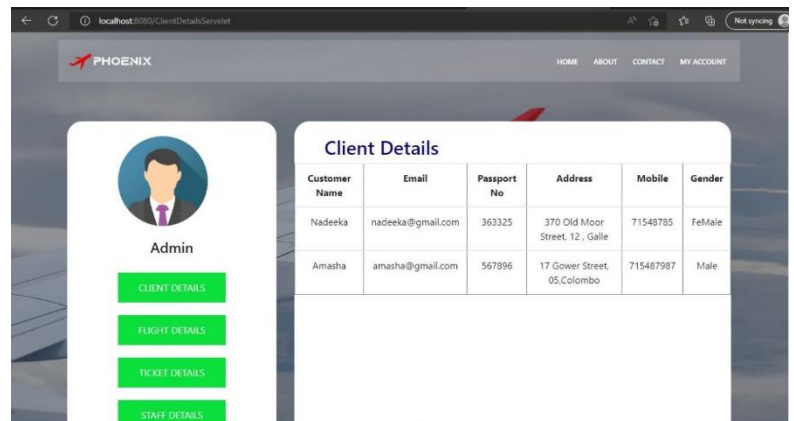
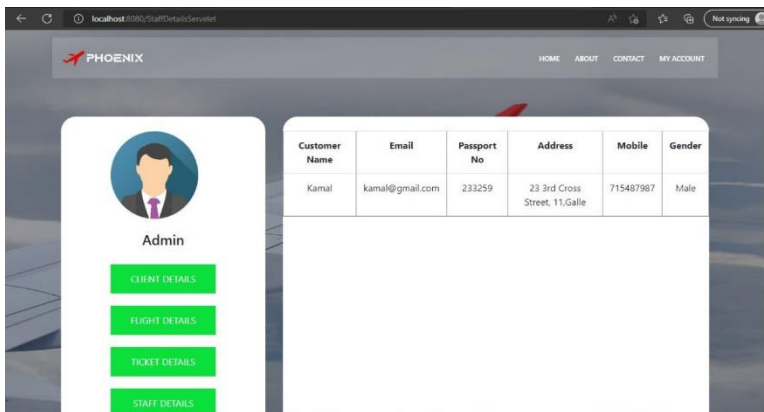
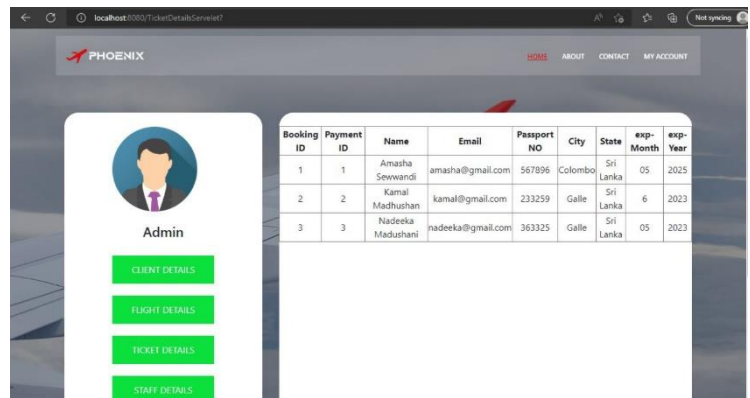
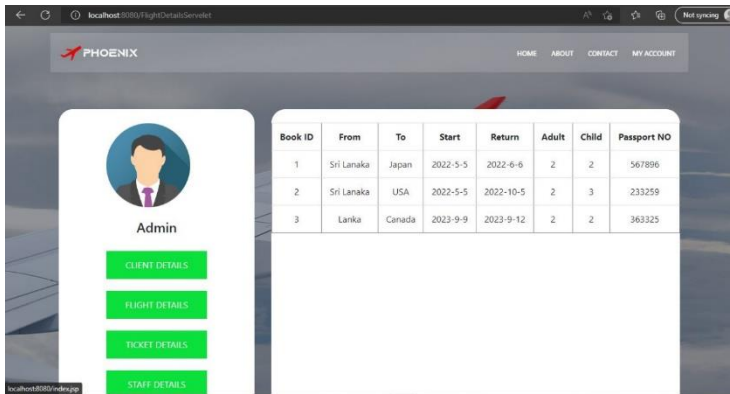


- Approved staff accounts

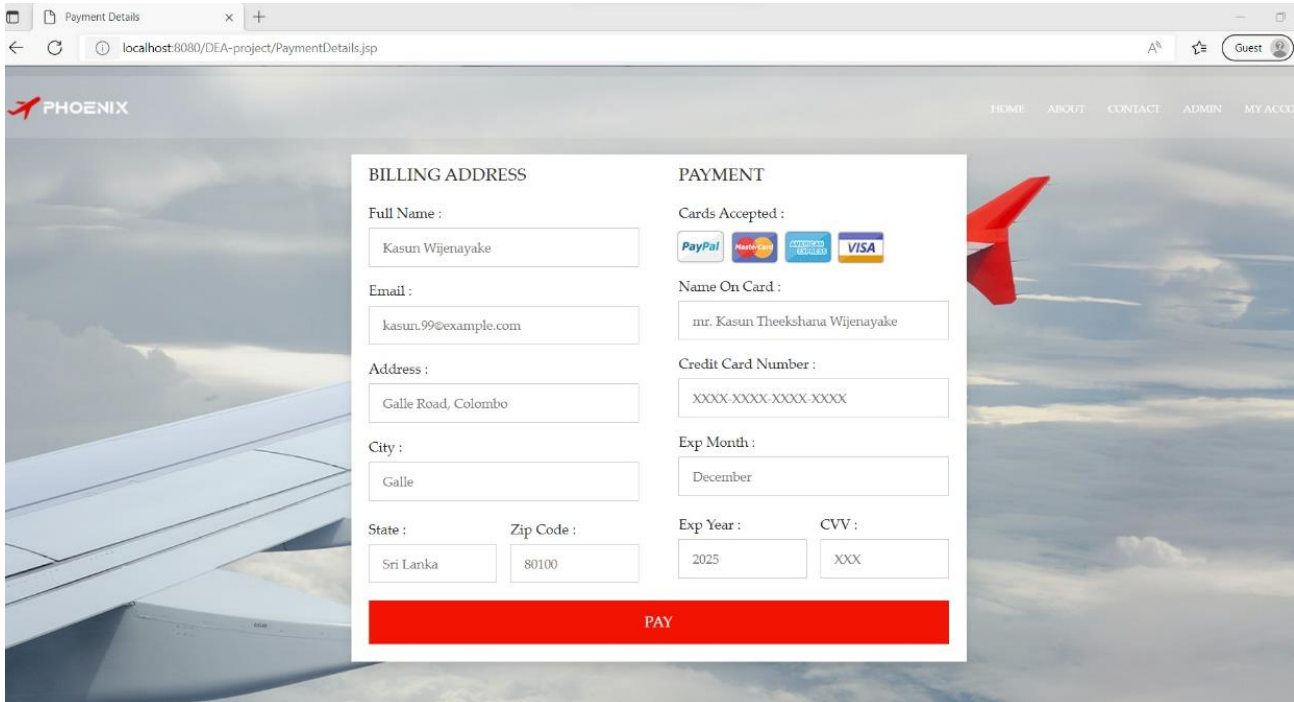
- Add staff members to the system

- Accessed admin dashboard

- Can monitor every activity of the staff and users

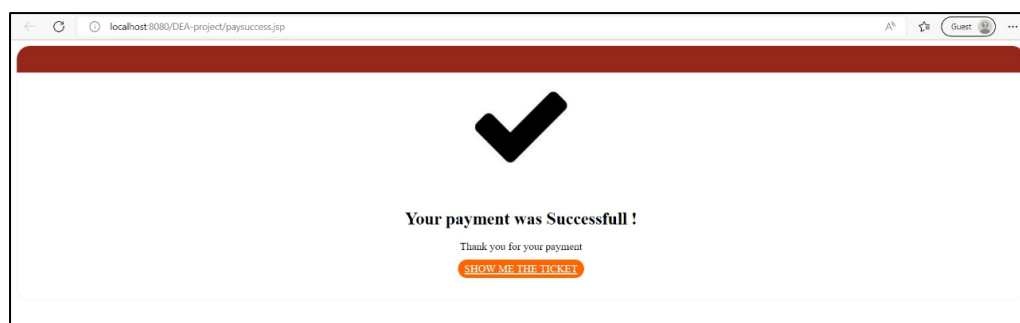


Payment Details Section

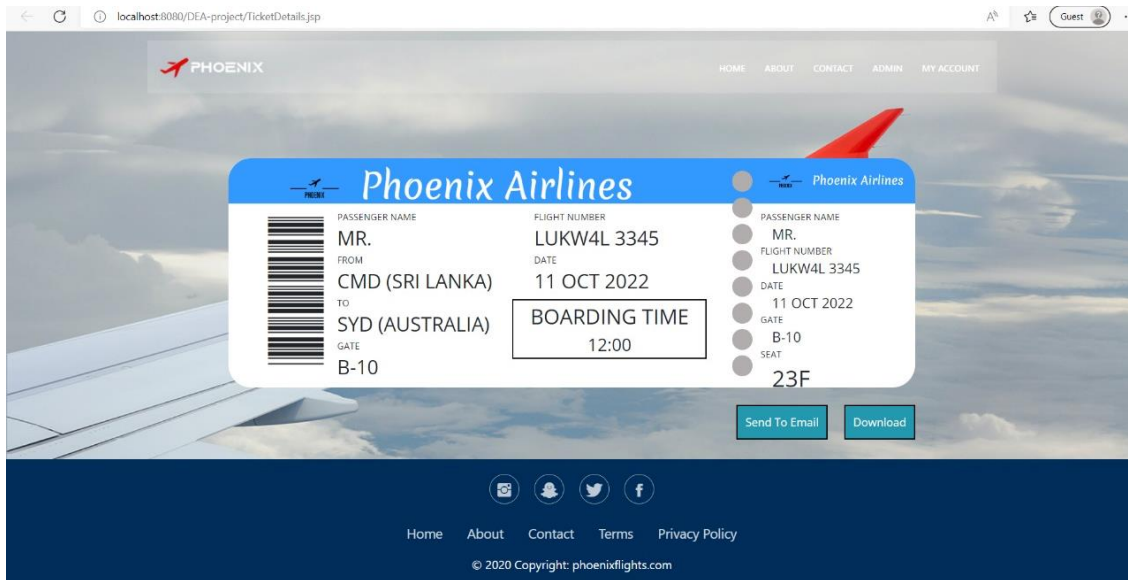


- If the user is confirmed his flight details, now he can access to payment details section.
- In here, user can easily enter his all-card details and simply click pay button.
- If the payment details are valid, he can grab his flight ticket and it shows as below.

If the payment was successful, we can see below message and then we can see the ticket.



Ticket Details Section

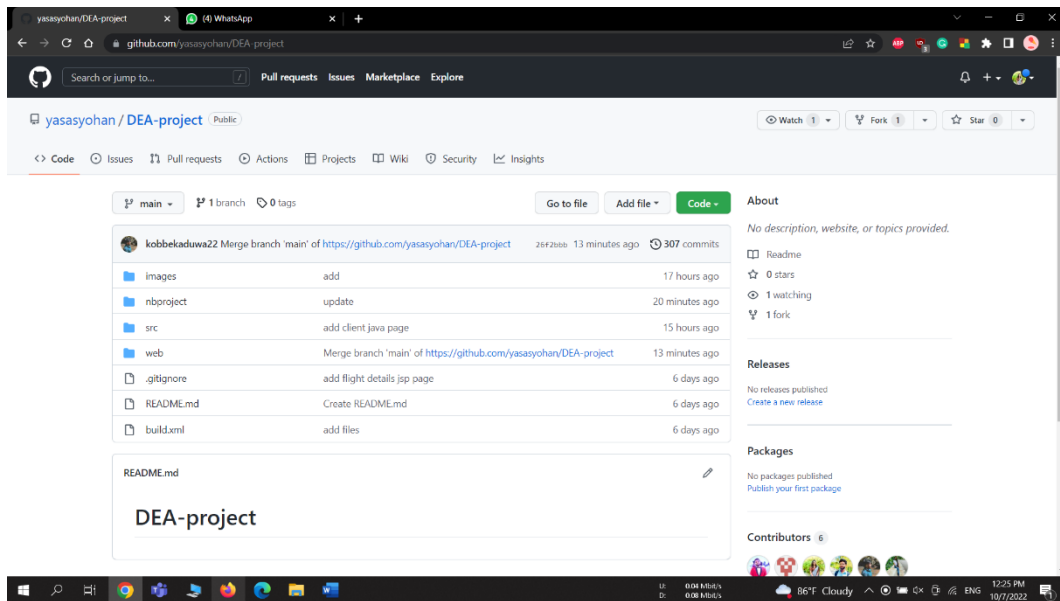


- This is the final process of our website.
- User can check his ticket and he can download the ticket.
- Also, he can send the copy of his ticket to his e-mail.

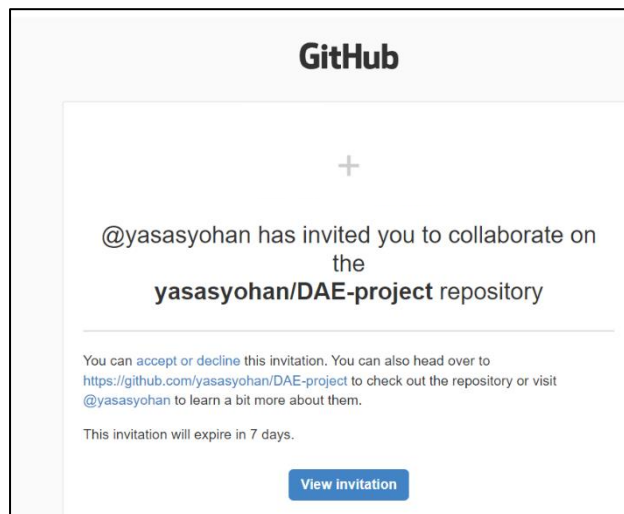
How our web application Back-end works?

We can consider some steps that we done this web application development project.

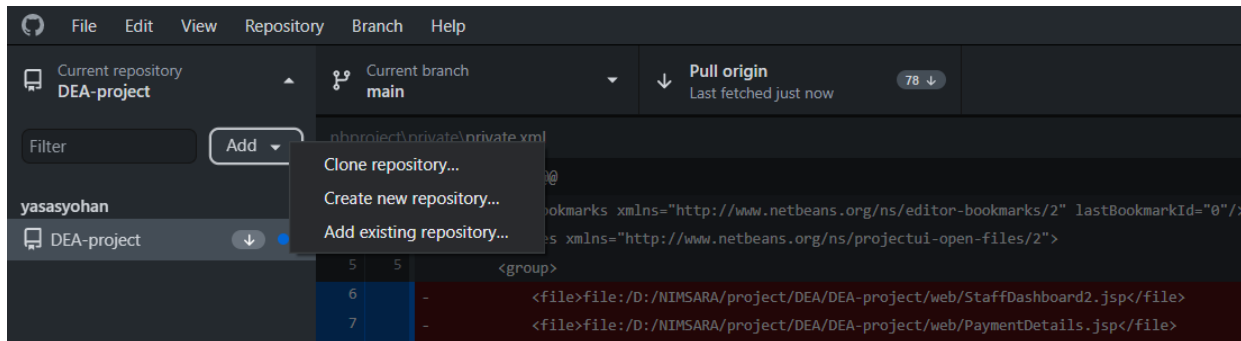
Step 01: We create git hub repository.



Step 02: Send the GitHub repository invitation to our collaborations.



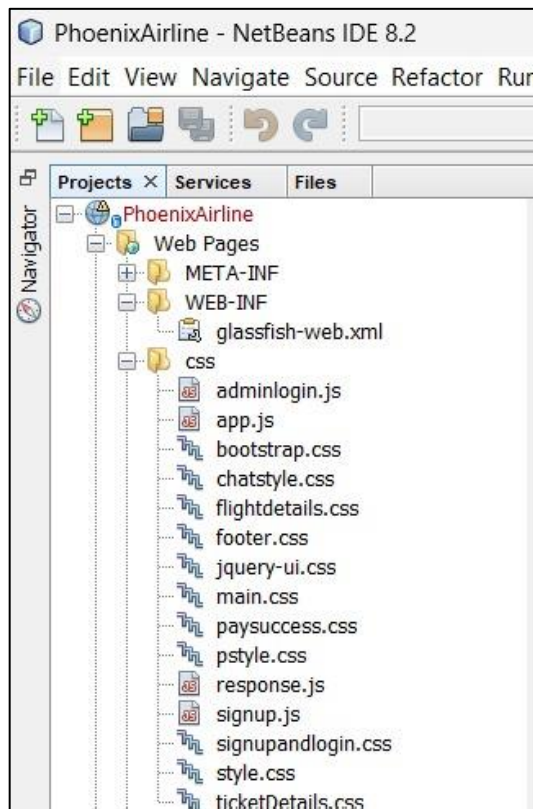
Step 03: Clone our project to the GitHub desktop



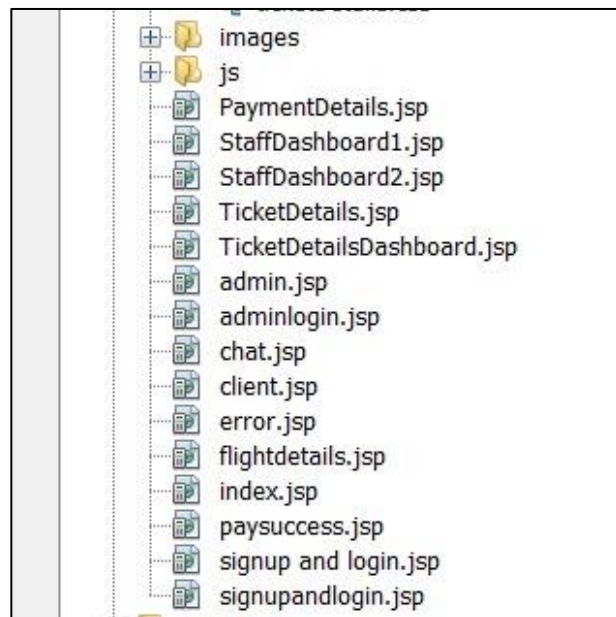
Step 04: Create a NetBeans project, cloned it to the related location.

Note: below shown our final CSS and JSP pages.

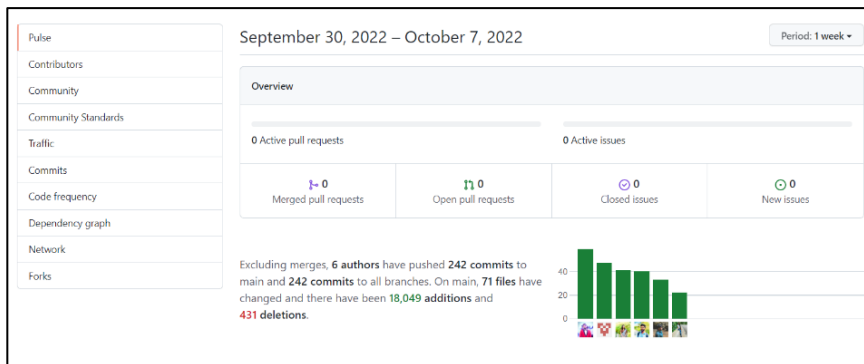
CSS part



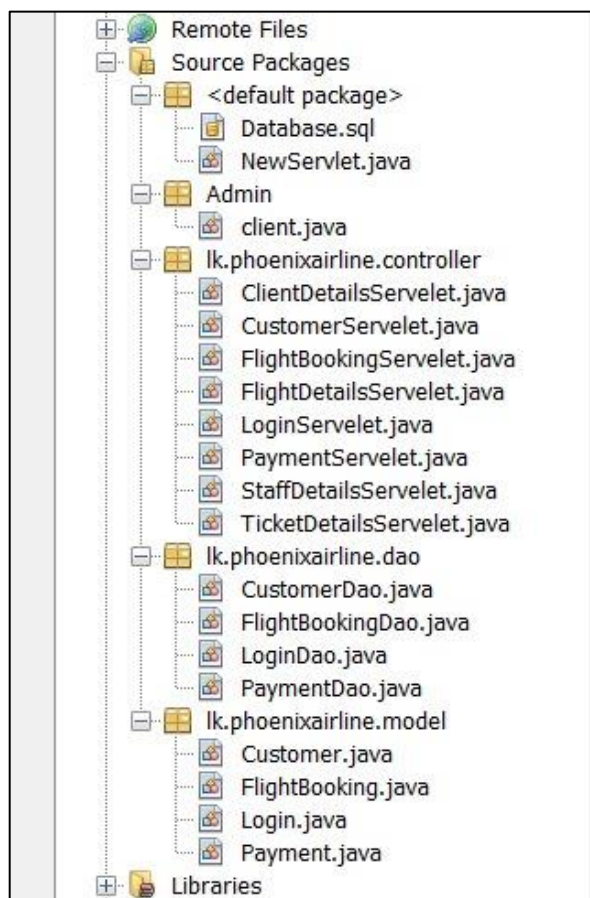
JSP part



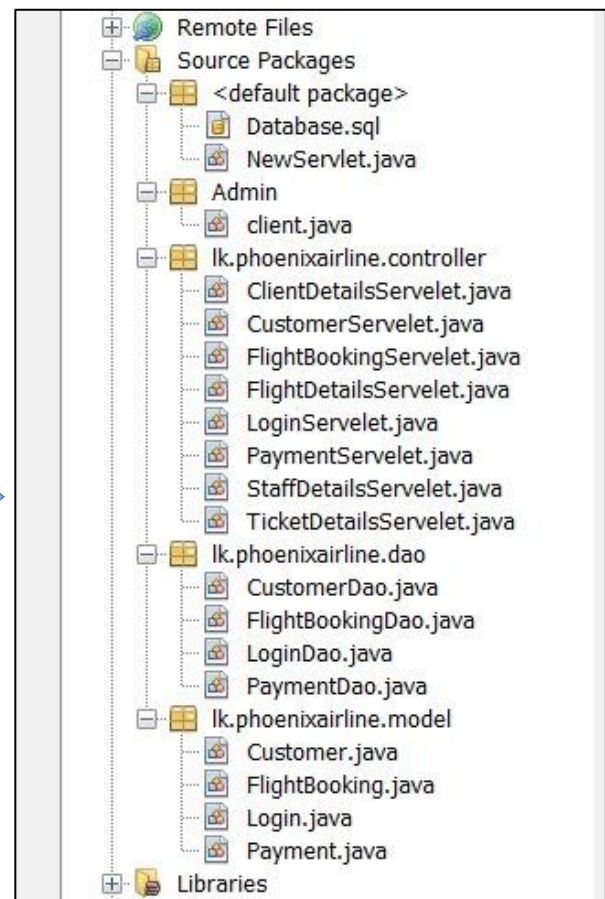
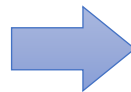
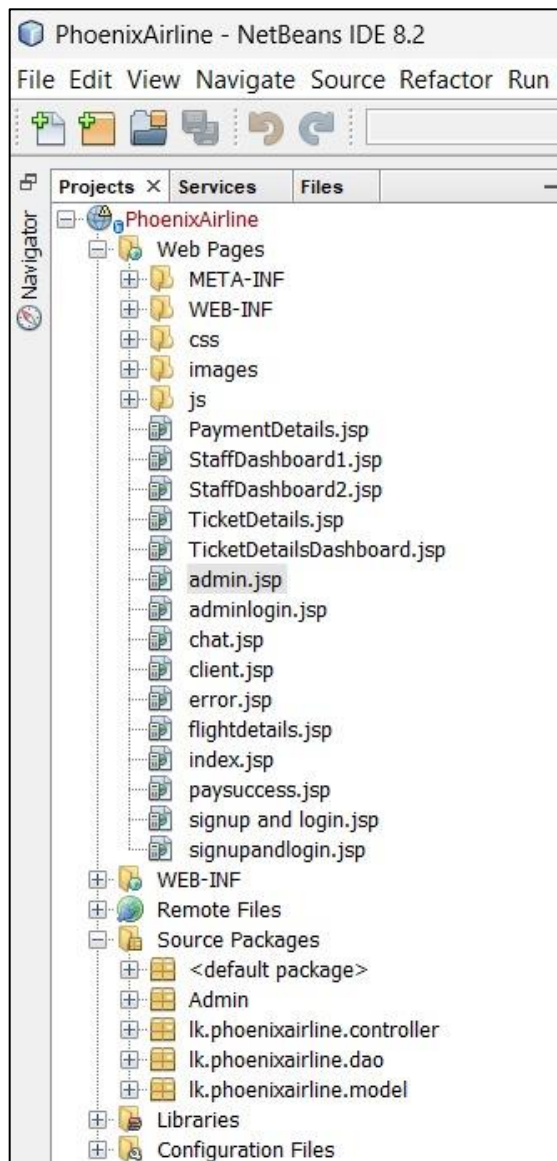
Step 05: Keep start coding and commit them to the GitHub



Step 06: Create java servlets



Step 07: Connect below created JSP pages and java servlets



Step 08: All java servlet pages are connected to the database and they are stored as tables in database

```

MySQL 8.0 Command Line Client
mysql> select * from Customer;
+-----+-----+-----+-----+-----+-----+-----+-----+
| customerName | email | passportNumber | address | gender | mobile | password | userRole |
+-----+-----+-----+-----+-----+-----+-----+-----+
| Amasha | amasha@gmail.com | 567896 | 17 Gower Street, 05,Colombo | Male | 715487987 | 1234 | Customer |
+-----+-----+-----+-----+-----+-----+-----+-----+
1 row in set (0.00 sec)

mysql> select * from Customer;
+-----+-----+-----+-----+-----+-----+-----+-----+
| customerName | email | passportNumber | address | gender | mobile | password | userRole |
+-----+-----+-----+-----+-----+-----+-----+-----+
| Kamal | kamal@gmail.com | 233259 | 23 3rd Cross Street, 11,Galle | Male | 715487987 | 1234 | Admin |
| Nadeeka | nadeeka@gmail.com | 363325 | 370 Old Moor Street, 12 , Galle | FeMale | 71548785 | 1234 | Customer |
| Amasha | amasha@gmail.com | 567896 | 17 Gower Street, 05,Colombo | Male | 715487987 | 1234 | Customer |
+-----+-----+-----+-----+-----+-----+-----+-----+
3 rows in set (0.00 sec)

mysql> select * from flightbooking;
+-----+-----+-----+-----+-----+-----+-----+-----+
| bookingId | from_s | to_s | start_s | return_s | adults | child | passportNumber |
+-----+-----+-----+-----+-----+-----+-----+-----+
| 1 | Sri Lanaka | Japan | 2022-5-5 | 2022-6-6 | 2 | 2 | 567896 |
| 2 | Sri Lanaka | USA | 2022-5-5 | 2022-10-5 | 2 | 3 | 233259 |
| 3 | Lanka | Canada | 2023-9-9 | 2023-9-12 | 2 | 2 | 363325 |
+-----+-----+-----+-----+-----+-----+-----+-----+
3 rows in set (0.00 sec)

mysql> select * from payment;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| paymentId | bookingId | fullName | email | passportNumber | city | states | zipCode | nameOnCard | creditCardNumber | expMonth | exp |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| 1 | 1 | Amasha Sewwandi | amasha@gmail.com | 567896 | Colombo | Sri Lanka | 8565 | Amasha Sewwandi | 458796 | 05 | 202 |
| 569 | 2 | Kamal Madhushan | kamal@gmail.com | 233259 | Galle | Sri Lanka | 4 | Kamal Madhushan | 569878 | 6 | 202 |
| 658 | 3 | Nadeeka Madushani | nadeeka@gmail.com | 363325 | Galle | Sri Lanka | 5698 | Nadeeka Madushani | 5685445 | 05 | 202 |
| 258 |  |  |  |  |  |  |  |  |  |  |  |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+

```

```

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+-----+-----+-----+-----+-----+-----+-----+-----+
1 row in set (0.00 sec)

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| 2 | Sri Lanaka | USA | 2022-5-5 | 2022-10-5 | 2 | 3 | 233259 |
| 3 | Lanka | Canada | 2023-9-9 | 2023-9-12 | 2 | 2 | 363325 |
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+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| paymentId | bookingId | fullName | email | passportNumber | city | states | zipCode | nameOnCard | creditCardNumber | expMonth | exp |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| 1 | 1 | Amasha Sewwandi | amasha@gmail.com | 567896 | Colombo | Sri Lanka | 8565 | Amasha Sewwandi | 458796 | 05 | 202 |
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| 258 |  |  |  |  |  |  |  |  |  |  |  |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+

```



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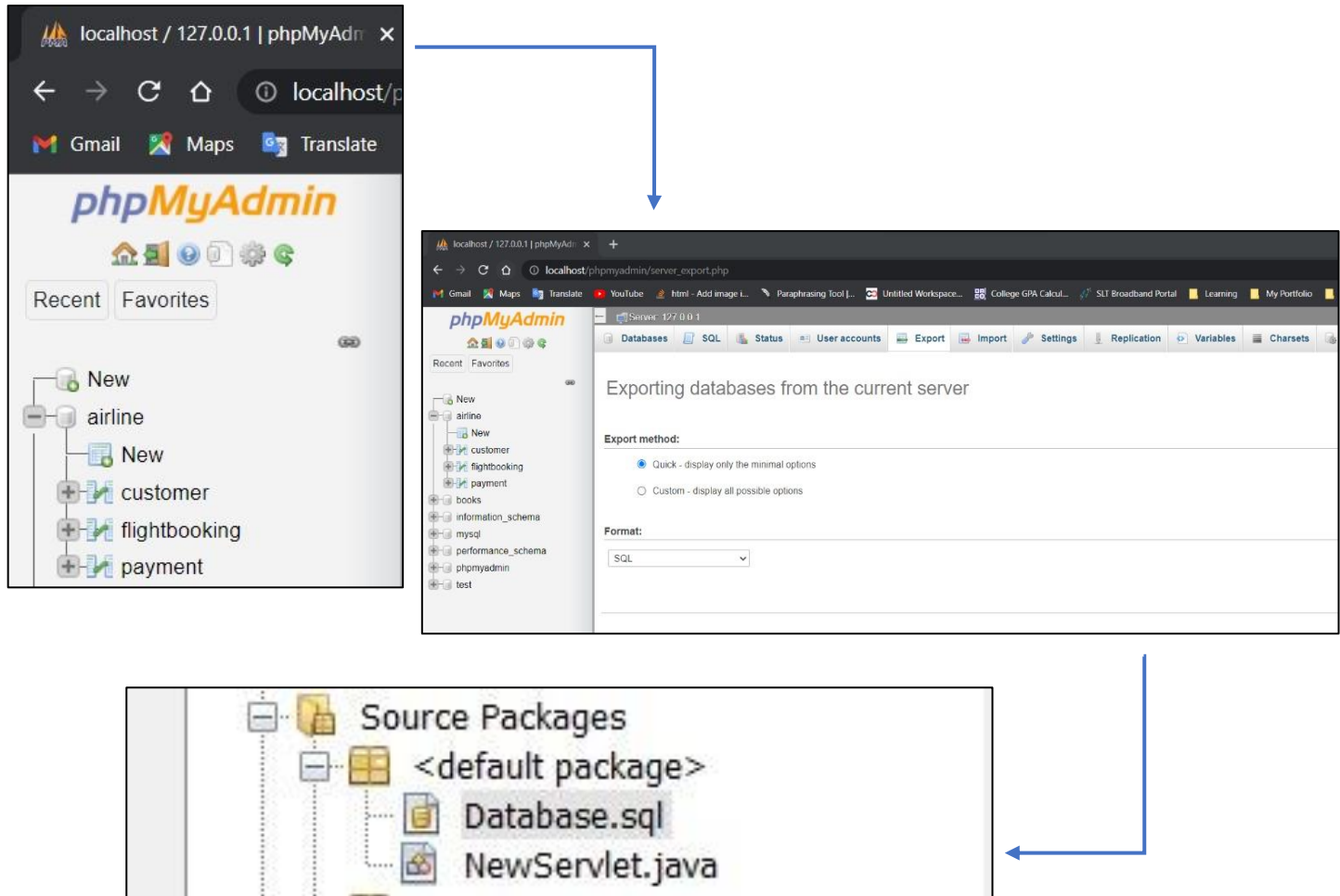
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| 2         | Sri Lanka | USA   | 2022-5-5 | 2022-10-5 | 2       | 3       | 233259         |
| 3         | Lanka    | Canada | 2023-9-9 | 2023-9-12 | 2       | 2       | 363325         |
+-----+-----+-----+-----+-----+-----+-----+-----+
3 rows in set (0.00 sec)

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+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| paymentId | bookingId | fullName      | email          | passportNumber | city | states | zipCode | nameOnCard | creditCardNumber | expMonth | exp |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| 1         | 1         | Amasha Sewwandi | amasha@gmail.com | 567896         | Colombo | Sri Lanka | 8565    | Amasha Sewwandi | 458796           | 05       | 202 |
| 2         | 2         | Kamal Madhushan | kamal@gmail.com | 233259         | Galle   | Sri Lanka | 4       | Kamal Madhushan | 569878           | 6        | 202 |
| 3         | 3         | Nadeeka Madushani | nadeeka@gmail.com | 363325         | Galle   | Sri Lanka | 5698    | Nadeeka Madushani | 5685445          | 05       | 202 |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+

```

Step 09: Import created Databases



Step 10: Send Imported file link to GitHub

Test Script

After we completed front end and back end of our web application, then we do a test case to verify our system.

| | |
|-------------------------|--|
| Test Case ID | #01 |
| Test Scenario | User can search flight details |
| Test Steps | <ol style="list-style-type: none"> 1. User can enter flight departure 2. User can enter flight arrival 3. User can enter flight departure date 4. User can enter flight arrival date 5. User can enter number of adults 6. User can enter flight arrival child 7. Finally, user can click search button |
| Prerequisites | User must have registered user account |
| Test Data | All the fields must have filled |
| Expected Results | Successfully redirecting to flight detail page |
| Actual Results | As expected |
| Test Status | pass |

| | |
|-------------------------|--|
| Test Case ID | #02 |
| Test Scenario | User can register to the web site |
| Test Steps | <ol style="list-style-type: none"> 1. First user has to enter his name 2. Then user has to enter his contact number 3. Then user has to enter his email 4. Then user has to enter a password 5. Then he has to enter NIC or Staff ID (if user is a staff, he has already staff ID) 6. Finally, user can click register and automatically created an account. |
| Prerequisites | If user is staff, he has already staff ID |
| Test Data | All the fields must have filled and all the data has to be correct |
| Expected Results | Successfully create an account |
| Actual Results | As expected |
| Test Status | Pass |

| | |
|-------------------------|--|
| Test Case ID | #03 |
| Test Scenario | User can login to the web site |
| Test Steps | <ol style="list-style-type: none"> 1. First user has to enter his email 2. Then user has to enter his password 3. Finally, user can click login and automatically directed to the dashboard |
| Prerequisites | Entered username and password are matched with previous data Those have to be correct |
| Test Data | All the filed must have filled and all the data has to be correct |
| Expected Results | Successfully login to his account |
| Actual Results | As expected |
| Test Status | Pass |

| | |
|-------------------------|---|
| Test Case ID | #04 |
| Test Scenario | User can make payments |
| Test Steps | <ol style="list-style-type: none"> 1. User has entered personal details such as name, email, address, city, gender, state, Zip code 2. Enter payment details such as card name, card number, expiry date, expiry year and ccv 3. Click pay button. |
| Prerequisites | Entered payment details has to be correct |
| Test Data | All the filed must have filled and all the data has to be correct |
| Expected Results | Successfully make payment |
| Actual Results | As expected |
| Test Status | Pass |

END