American International University-Bangladesh (AIUB)

Department of Computer Science

Faculty of Science & Technology (FST)

Travel and Ticket Management System

Semester: Fall 25-26

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1. PROJECT PROPOSAL

1.1 Background to the Problem

The rapid growth of the global travel and aviation industry has significantly increased the need for fast, accurate, and reliable ticket management solutions. Despite this advancement, many local and small-scale travel agencies still depend on traditional, paper-based, or semi-manual processes for booking, managing, and storing flight ticket information. These traditional methods often lead to critical issues such as inaccurate data handling, duplicate records, operational delays, loss of important information, and overall inefficient customer service. As a result, customers face long waiting times, limited access to real-time flight information, and poor transparency in ticketing procedures.

Furthermore, the manual system provides limited support for managing large volumes of customers or group bookings. Agents struggle to handle data consistently, while administrators lack a centralized way to monitor user activity, maintain records, or evaluate performance. The absence of a secure and integrated platform makes the system vulnerable to errors, unauthorized access, and data inconsistency. In modern digital environments, such limitations hinder customer satisfaction and reduce operational reliability.

To address these challenges, there is a need for a **centralized, automated, and user-friendly** travel and ticket management system that improves operational workflow and provides real-time, secure access to data. The proposed **Travel and Ticket Management System** aim to fill this gap by offering a complete digital platform built using C# Windows Forms and SQL Server. This system not only automates the entire ticket management process but also ensures transparency, accuracy, and efficient handling of flight information. Through a multi-layered, object-oriented architecture, the system provides different access levels Customer, Agent, and Admin each designed to support specific roles and responsibilities while maintaining overall system integrity.

The system empowers customers with capabilities such as registration, login, search for flights, ticket booking, history tracking, and submitting reviews or reports. Agents are given enhanced tools to manage up to ten tickets at a time, update client information, process bookings, and respond to customer feedback. Administrators, functioning as the highest-level authority, can manage all users, oversee booking activities, monitor reviews, and maintain database records. This structured control ensures that every operation from booking and updating tickets to user management and system monitoring is handled efficiently and securely.

By providing an automated alternative to the traditional workflow, the system reduces human error, accelerates ticket processing time, ensures secure data storage, and enhances the user experience. Moreover, it supports scalability and future improvements, making it suitable for travel agencies of various sizes.

Target Group of Users

The proposed system is designed for three main user groups:

i. **Customers (Travelers)**

Individuals who want to book flight tickets, check availability, view ticket history, update passenger details, submit reviews, and manage personal profiles. This group benefits from fast, transparent, and secure booking processes.

ii. **Agents (Ticketing/Travel Agency Staff)**

Staff members responsible for handling customer bookings, managing group reservations, maintaining passenger information, and generating reports. Agents require efficiency, accuracy, and tools to manage multiple bookings simultaneously.

iii. **Administrators (System/Agency Managers)**

Admin users who oversee system operations, manage all user accounts, handle booking oversight, process feedback, and ensure overall system security and performance. They require complete control and access to all system resources.

1.2 Selection of Process Model

i. Explanation of Selected Process Model – Agile (Scrum) Process Model

For the **Travel and Ticket Management System**, the **Agile Process Model**, particularly the **Scrum framework**, has been selected as the most suitable software development process model.
Agile is an **iterative and incremental development approach** where the system is developed in small, manageable phases called **sprints**. Each sprint delivers a functional and testable part of the system within a short time frame (usually **1–2 weeks**). Instead of building the entire system in a single cycle, Agile allows continuous development, testing, and improvement throughout the project lifecycle.
In the Scrum-based Agile model:

- System requirements are maintained in a **Product Backlog**, which includes all functional and non-functional requirements such as user authentication, ticket booking, role-based access, and reporting.
- The project is divided into **modules**, including:

    a. User Registration & Login

    b. Flight Search & Booking

    c. Ticket Management

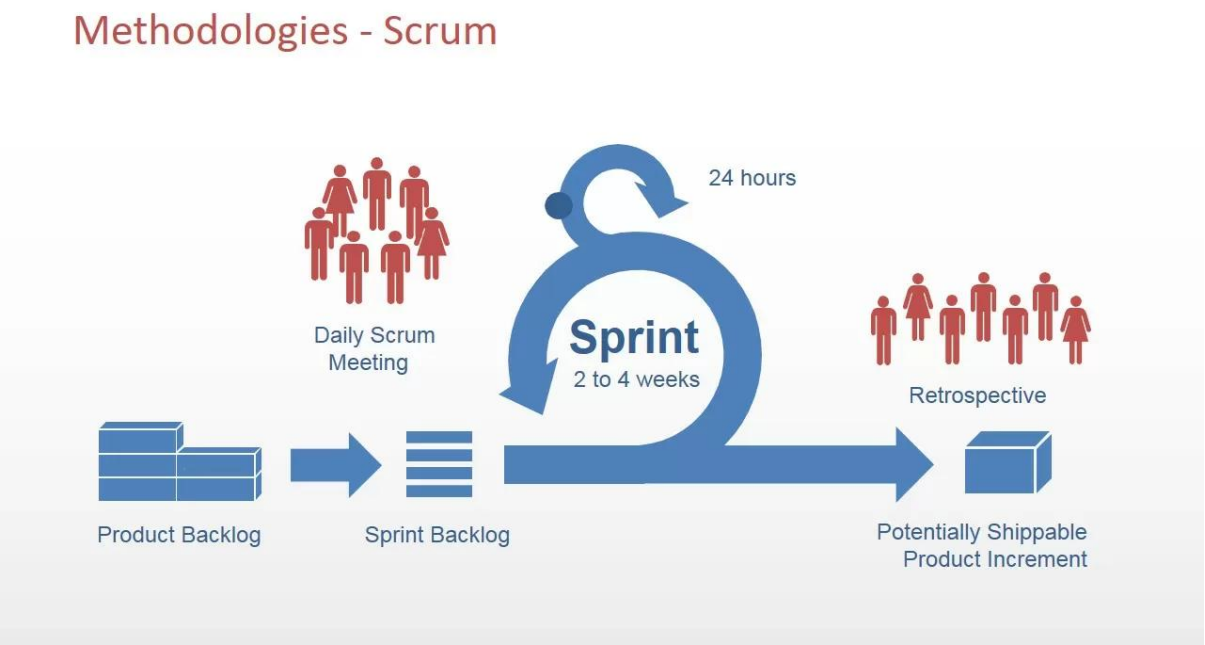
    d. Customer Review & Feedback

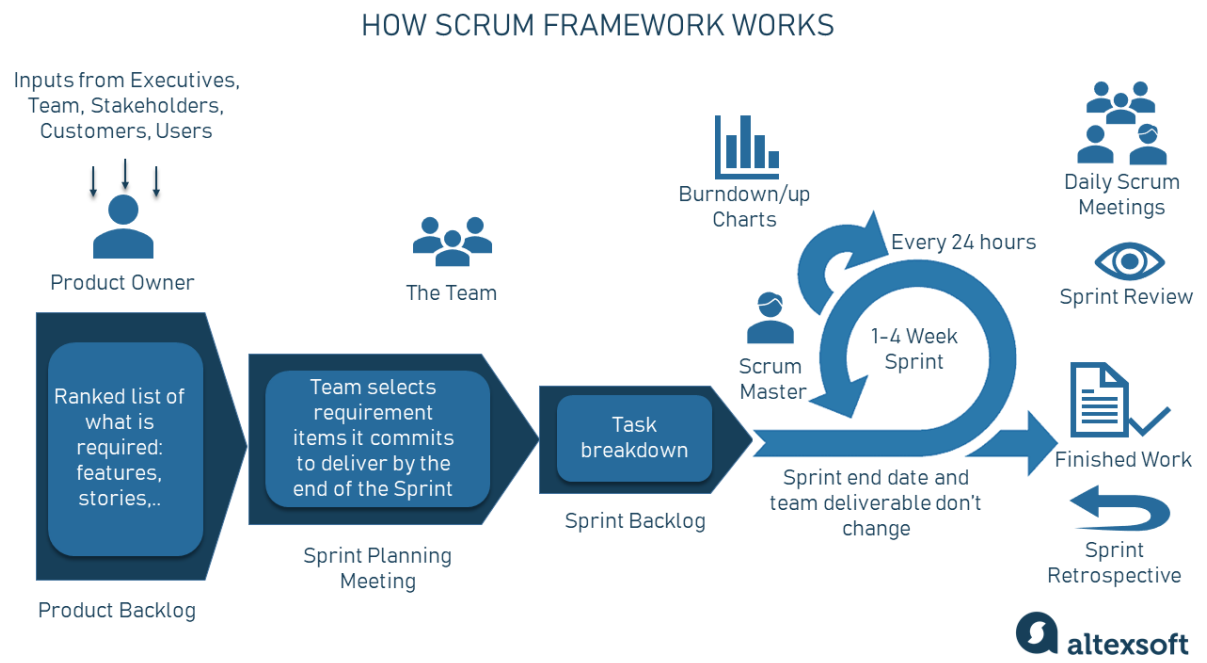
    e. Agent Operations

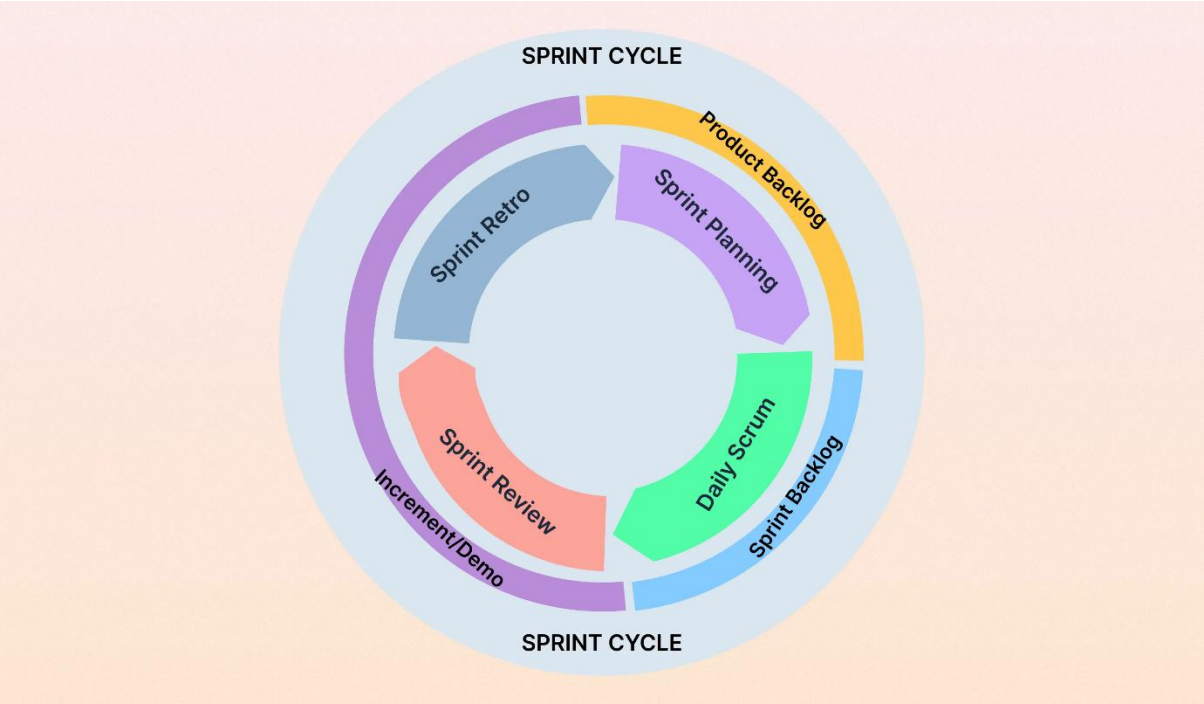
    f. Admin Management & Monitoring

- Each sprint includes the following activities:
    g. Sprint Planning
    h. Design & Development
    i. Testing & Debugging
    j. Sprint Review
    k. Integration and Improvement

    At the end of every sprint, a **working increment** of the Travel and Ticket Management System is produced, such as a completed booking module or a fully functional admin dashboard. This allows early verification of system behavior and usability.







The Agile (Scrum) model emphasizes **continuous user feedback, collaboration, and adaptability**, making it highly suitable for a **multi-user, database-driven, and role-based system** like the Travel and Ticket Management System.

ii) Why We Selected This Process Model

The **Agile (Scrum) Process Model** was selected for the following reasons:

1. Frequently Changing and Expanding Requirements

The Travel and Ticket Management System involves multiple user roles (Customer, Agent, Admin) and complex functionalities such as booking, ticket history, feedback, and system monitoring. As development progresses, new requirements or improvements may be identified. Agile supports changes at any stage without affecting the entire system structure.

2. Modular Development Structure

Each major feature of the system—such as flight search, booking management, and admin control—can be developed independently in separate sprints. This aligns perfectly with Agile's incremental development approach and ensures better organization and clarity.

3. Improved Collaboration and Task Distribution

Since this is a group-based software project, Agile supports teamwork through sprint planning and task distribution. Each team member can work on assigned modules while maintaining synchronization with the overall system.

4. Early Testing and Error Reduction

Continuous testing after each sprint helps detect errors early. This is critical for a system that handles **user data, booking records, and authentication**, where accuracy and data integrity are essential.

5. Better Progress Monitoring

Agile allows the project supervisor or instructor to review progress frequently. Instead of waiting until the final submission, the system can be demonstrated incrementally with working features.

6. Scalability and Future Enhancement

The Travel and Ticket Management System may be extended in the future to include online payment gateways, mobile integration, or analytics. Agile supports easy scalability without redesigning the entire system.

- **Benefits of Using Scrum in This Project**
  a. **Transparency** – Progress is visible through sprint backlogs and completed modules.
  b. **Inspection** – Bugs and logic errors are identified early during sprint reviews.
  c. **Adaptation** – System features can be modified easily based on feedback or new requirements.

- **Why Agile (Scrum) is Best for This System**

The Travel and Ticket Management System is:

a. Multi-user and role-based

b. Database-intensive

c. Feature-rich

d. Expected to evolve during development

Therefore, the **Agile (Scrum) Process Model** is a natural and effective choice for ensuring successful development, timely delivery, and high system quality.

Common Scrum Terminologies Used

- **Sprint** – A short development cycle (1–2 weeks)
- **Product Backlog** – Prioritized list of system features
- **Sprint Backlog** – Tasks selected for a specific sprint
- **Increment** – A functional part of the system delivered after a sprint
- **User Story** – Requirement described from the user's perspective
- **Sprint Planning** – Meeting to define sprint goals
- **Sprint Review** – Demonstration of completed features
- **Scrum Master** – Facilitates Scrum activities
- **Product Owner** – Manages system requirements
- **Development Team** – Team members who build the system

2. SOFTWARE REQUIREMENTS SPECIFICATIONS (SRS) / PRODUCT REQUIREMENTS DOCUMENT (PRD)

2.1 Scopes and Features

Scope 1: User Management & Authentication

Features:

- Customers can register using name, email, username, and password
- Admin can manually create Customer and Agent accounts
- Secure login system for all users
- Forgot password functionality using email or username
- Users can update personal profile information
- Admin can activate, deactivate, edit, or delete user accounts
- Role-based access control (Customer, Agent, Admin)

Scope 2: Flight Search & Ticket Booking

Features:

- Customers and Agents can search flights using source and destination cities
- Display of flight details (date, time, price, seat availability)
- Customers can book individual tickets
- Agents can book up to **10 tickets at a time**
- Passenger details can be entered and modified before confirmation
- Automatic booking confirmation generation
- Users can view booking history anytime

Scope 3: Passenger & Booking Management

Features:

- Edit passenger information before booking confirmation
- Admin can view, update, or cancel any booking
- Agents can manage group reservations
- Travel cost estimation between cities
- All booking records stored in a centralized SQL Server database

Scope 4: Review & Reporting System

Features:

- Customers can submit travel reviews
- Customers can submit complaints or reports
- Agents and Admin can view reviews and reports
- Agents can respond to customer feedback
- Admin can analyze service quality using reviews

Scope 5: Administrative Control Panel

Features:

- Full CRUD operations on users
- DataGridView used for displaying database records
- Admin can cancel any ticket
- Admin can monitor agent performance
- Booking statistics and system logs available

Scope 6: Security & System Control

Features:

- Secure login and logout
- Password encryption
- Session management
- Role-based authorization (ACL)
- Safe system exit and shutdown

2.2 User Story Table

2.2.1 Customer User Stories

As a User	I want to	So that	Acceptance Criteria
Customer	Register an account	I can access the system	Valid data, unique email/username
Customer	Login securely	I can use my dashboard	Valid credentials required
Customer	Recover password	I regain access	Reset link sent successfully
Customer	Search flights	I find suitable options	Results displayed correctly
Customer	Book tickets	I confirm travel	Seat availability verified
Customer	Update passenger info	Data remains accurate	Changes saved
Customer	View booking history	I track past trips	History displayed
Customer	Write reviews	Share experience	Review saved
Customer	Submit complaints	Admin is informed	Complaint recorded
Customer	Update profile	Data stays current	Update successful
Customer	Logout	Account remains secure	Session terminated

2.2.2 Agent User Stories

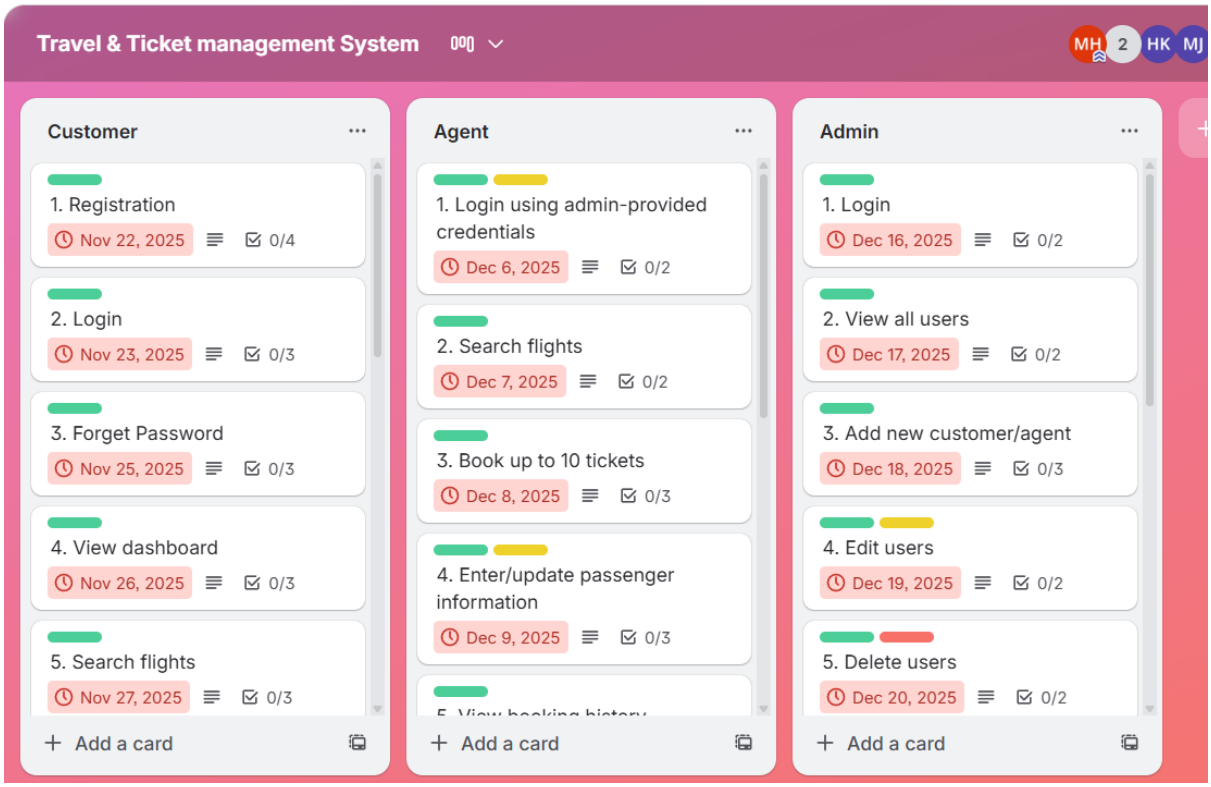
As a User	I want to	So that	Acceptance Criteria
Agent	Login	Manage bookings	Secure access
Agent	Search flights	Assist customers	Accurate results
Agent	Book tickets	Confirm customer travel	Booking successful
Agent	Book group tickets	Handle bulk bookings	Max 10 tickets
Agent	Update passenger data	Avoid errors	Data saved

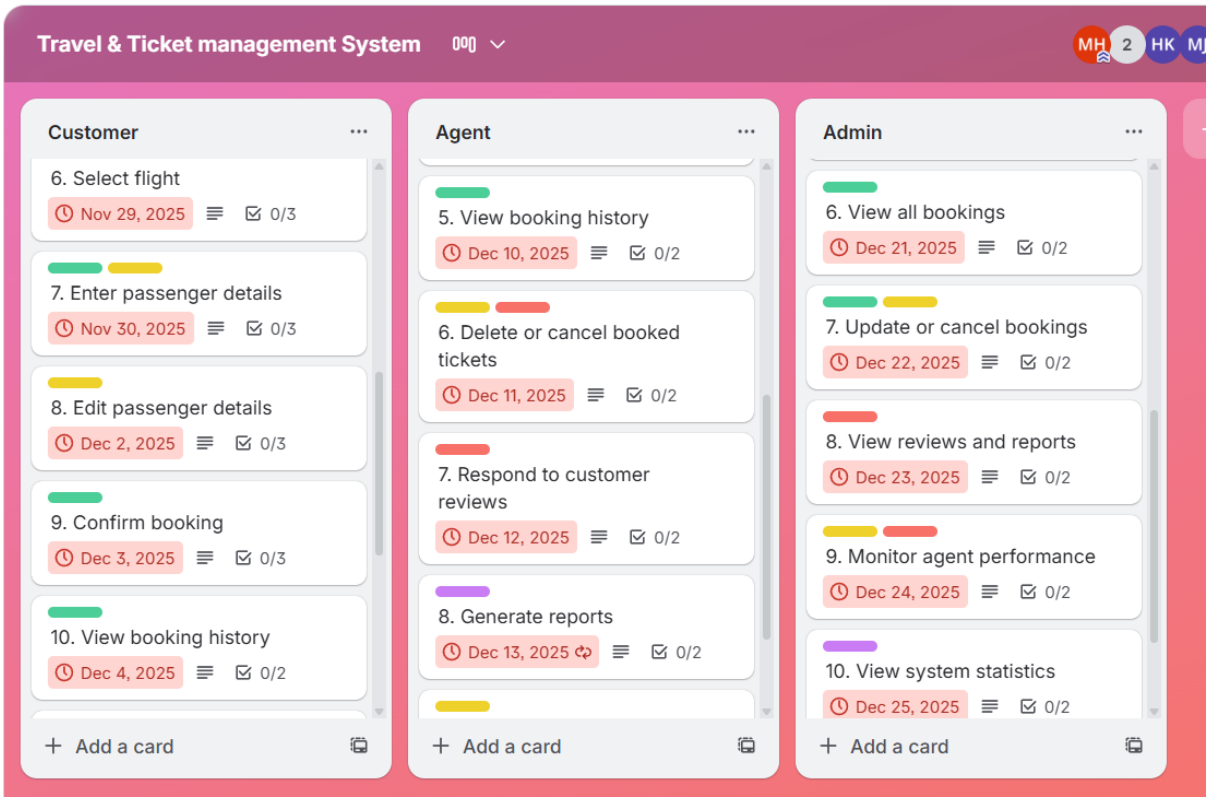
Agent	View booking history	Track bookings	History accessible
Agent	Respond to reviews	Improve service	Response saved
Agent	Logout	Secure session	Logout successful

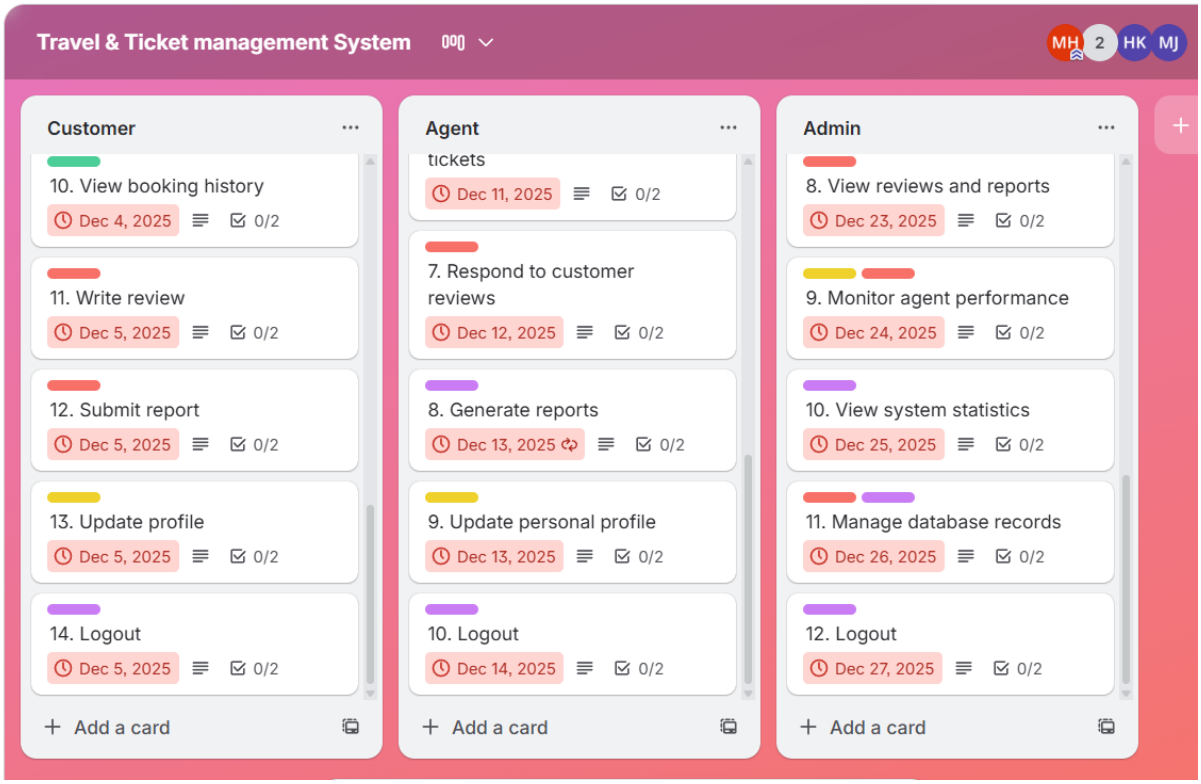
2.2.3 Admin User Stories

As a User	I want to	So that	Acceptance Criteria
Admin	Login	Control system	Secure access
Admin	Manage users	System stays organized	CRUD operations
Admin	Manage bookings	Data remains accurate	Update/cancel allowed
Admin	View reports	Address issues	Reports visible
Admin	Monitor agents	Evaluate performance	Statistics shown
Admin	Control system settings	Ensure stability	Changes applied
Admin	Logout	Prevent misuse	Session terminated

Trello Scheduling




Travel & Ticket management System
MH 2 HK MJ
Customer
6. Select flight
Nov 29, 2025 0/3
7. Enter passenger details
Nov 30, 2025 0/3
8. Edit passenger details
Dec 2, 2025 0/3
9. Confirm booking
Dec 3, 2025 0/3
10. View booking history
Dec 4, 2025 0/2
Add a card
Agent
5. View booking history
Dec 10, 2025 0/2
6. Delete or cancel booked tickets
Dec 11, 2025 0/2
7. Respond to customer reviews
Dec 12, 2025 0/2
8. Generate reports
Dec 13, 2025 0/2
Add a card
Admin
6. View all bookings
Dec 21, 2025 0/2
7. Update or cancel bookings
Dec 22, 2025 0/2
8. View reviews and reports
Dec 23, 2025 0/2
9. Monitor agent performance
Dec 24, 2025 0/2
10. View system statistics
Dec 25, 2025 0/2
Add a card


Travel & Ticket management System
MH 2 HK MJ
Customer
10. View booking history
Dec 4, 2025 0/2
11. Write review
Dec 5, 2025 0/2
12. Submit report
Dec 5, 2025 0/2
13. Update profile
Dec 5, 2025 0/2
14. Logout
Dec 5, 2025 0/2
Add a card
Agent
tickets
Dec 11, 2025 0/2
7. Respond to customer reviews
Dec 12, 2025 0/2
8. Generate reports
Dec 13, 2025 0/2
9. Update personal profile
Dec 13, 2025 0/2
10. Logout
Dec 14, 2025 0/2
Add a card
Admin
8. View reviews and reports
Dec 23, 2025 0/2
9. Monitor agent performance
Dec 24, 2025 0/2
10. View system statistics
Dec 25, 2025 0/2
11. Manage database records
Dec 26, 2025 0/2
12. Logout
Dec 27, 2025 0/2
Add a card

2.3 Requirements Traceability Matrix (RTM)

Requirement ID	Requirement Description	User Role	Module
FR-01	User Registration	Customer	User Management
FR-02	Secure Login	All	Authentication
FR-03	Flight Search	Customer/Agent	Booking
FR-04	Ticket Booking	Customer/Agent	Booking
FR-05	Group Booking	Agent	Booking
FR-06	Passenger Management	Customer/Agent	Booking
FR-07	Booking History	All	Records
FR-08	Review Submission	Customer	Review
FR-09	Complaint Handling	Admin	Reports
FR-10	User Management	Admin	Admin Panel

2.3.1 Functional Requirements

Customer Functional Requirements

a. Register
b. Login
c. Forgot Password
d. View Dashboard
e. Search Flights
f. Select Flight
g. Enter Passenger Details
h. Edit Passenger Details
i. Confirm Booking
j. View Booking History
k. Submit Review
l. Submit Complaint
m. Update Profile
n. Logout

Agent Functional Requirements

a. Login
b. Search Flights

c. Book Up to 10 Tickets
d. Manage Passenger Data
e. View Booking History
f. Cancel or Modify Tickets
g. Respond to Reviews
h. Generate Reports
i. Update Profile
j. Logout

Admin Functional Requirements

a. Login
b. View All Users
c. Add/Edit/Delete Users
d. View All Bookings
e. Cancel or Update Bookings
f. View Reviews & Complaints
g. Monitor Agent Performance
h. View System Statistics
i. Manage Database Records
j. Logout

2.3.2 Non-Functional Requirements

- **Performance Requirements**

    a. System should respond within **2 seconds**
    b. Booking confirmation generated instantly

- **Security Requirements**

    a. Encrypted passwords
    b. Role-based access control
    c. Secure session handling

- **Usability Requirements**

    a. Simple and user-friendly interface
    b. Easy navigation for all user roles

- **Reliability Requirements**

    a. Data consistency ensured
    b. No data loss during failure

- **Scalability Requirements**

    a. Supports future features like online payment
    b. Can handle increased users

- **Maintainability Requirements**

    a. Modular architecture
    b. Easy bug fixing and updates

3. SOFTWARE DESIGN

3.1 System Design:

Description-

The Use Case Diagram of the **Travel and Ticket Management System** illustrate the complete interaction between the system and its three primary actors: **Customer**, **Agent**, and **Admin**. Each actor communicates with the system based on their assigned role and access privileges. The **Customer** represents a general traveller who uses the system to perform essential ticketing activities. The customer can register for a new account, log in securely, and recover their password if forgotten. After authentication, the customer can search for available flights by selecting origin and destination locations, view ticket details such as price, time, and date, and select a preferred flight. Before confirming a booking, the customer can enter and update passenger information, ensuring accuracy of the booking data. Once the booking is finalized, the customer receives a confirmation summary and can later view all previous booking records. Additionally, customers can share their travel experience through reviews and submit complaints or reports to the admin for service improvement. They also have access to profile settings where they can update their personal information and log out for secure session termination.

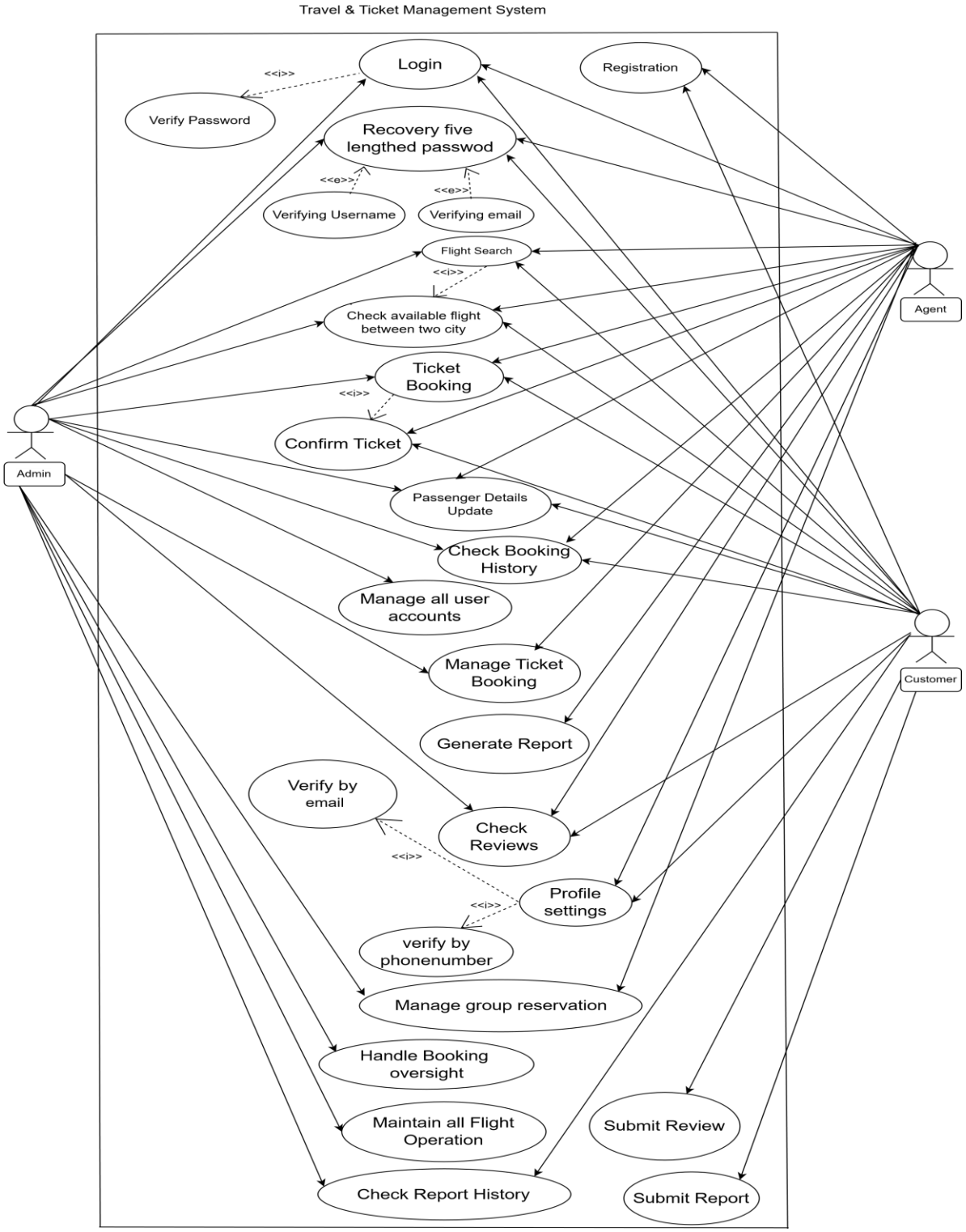
The **Agent** acts as a travel agency staff member and interacts with the system using more advanced privileges than a regular customer. An agent can search for flights, view detailed ticket information, and perform group bookings of up to ten tickets in a single session. They can manage passenger records for each booking, update or correct information before confirmation, and review all booking histories they have processed. Agents are also responsible for cancelling or modifying tickets when necessary and can view customer reviews to understand service quality. In some cases, agents may respond directly to customer feedback, enhancing communication and customer satisfaction. Like customers, agents can update their own profile information and log out of the system securely.

The **Admin** is the highest-authority user and interacts with the system to maintain overall control and ensure smooth operation. The admin can view all registered users, including customers and agents, and has full capability to add, update, or delete user accounts. The admin oversees all booking operations and can update or cancel any booking if errors or conflicts

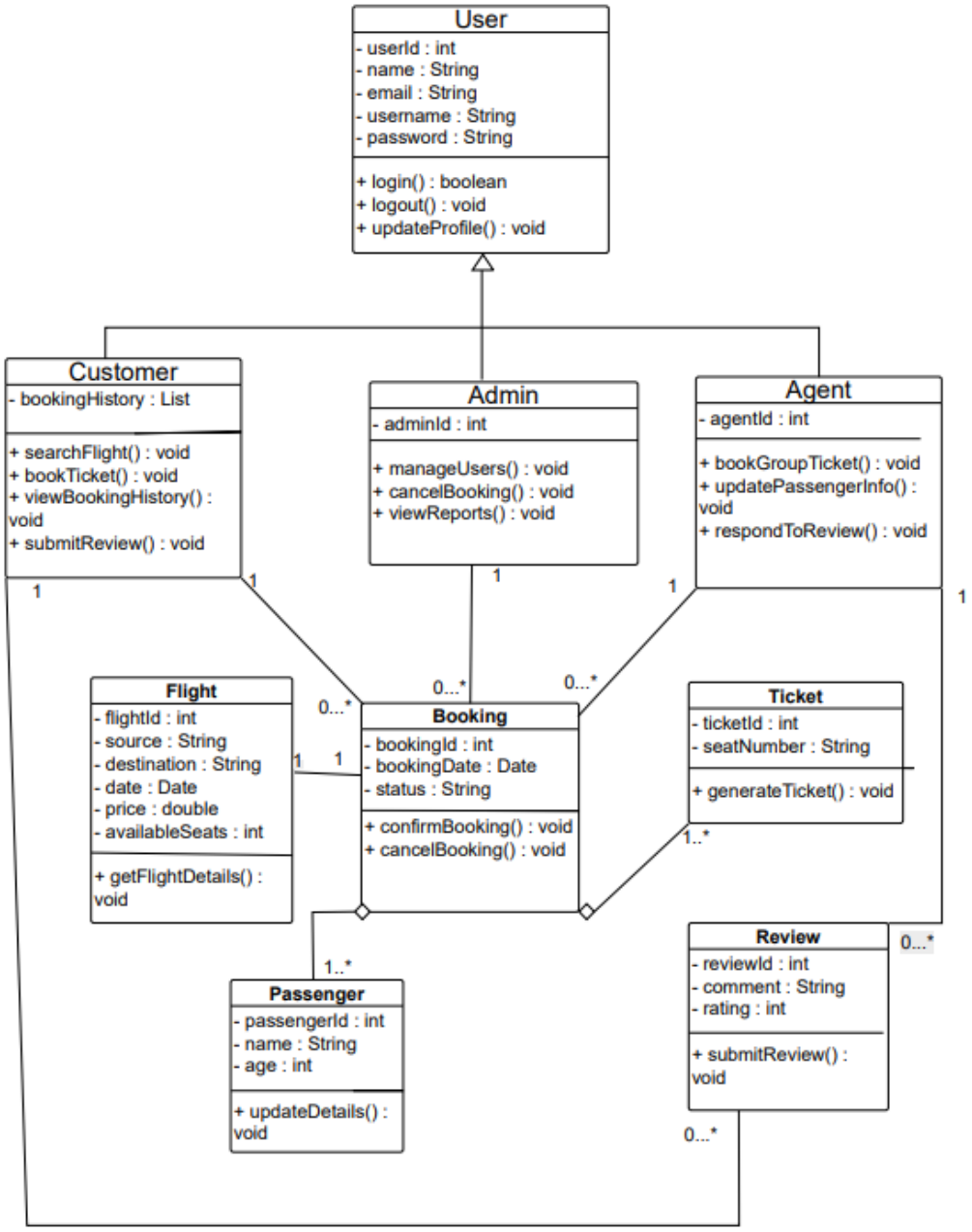
arise. They have complete access to customer reviews, submitted reports, and agent performance statistics. Through the administrative dashboard, the admin can monitor system activity, view booking trends, analyse ticket sales, and ensure database accuracy using DataGrid View control. The admin also maintains system security by managing login credentials, user permissions, and ensuring secure access and logout procedures.

Overall, the Use Case Diagram demonstrates how the Travel and Ticket Management System support three interconnected roles, each performing different functions while maintaining a consistent workflow. By defining clear actor boundaries and responsibilities, the diagram helps visualize system behaviour, improves understanding of requirements, and ensures that every core feature such as registration, booking, managing users, and reviewing feedback is properly supported and logically connected within the system.

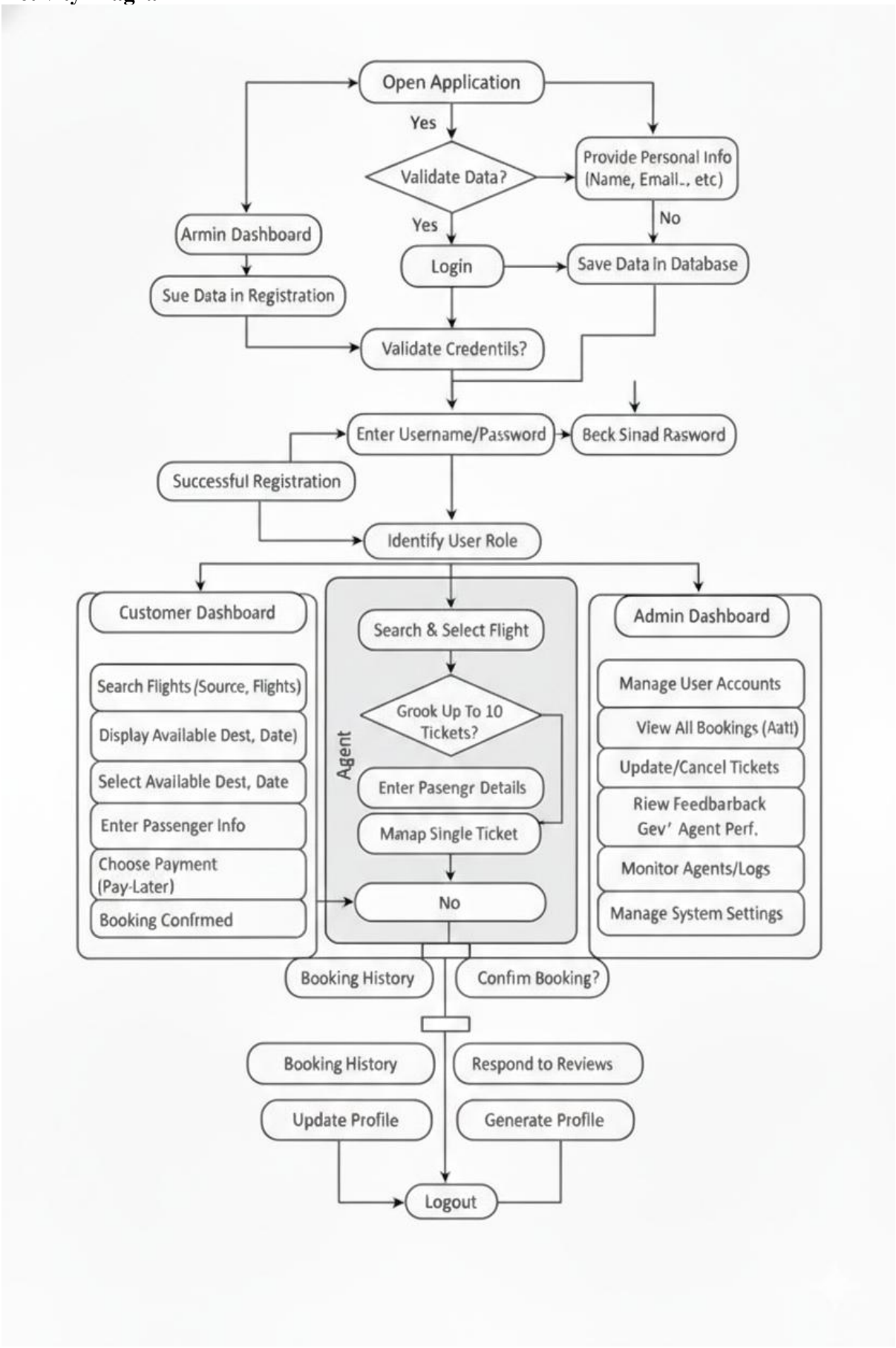
USE CASE DIAGRAM



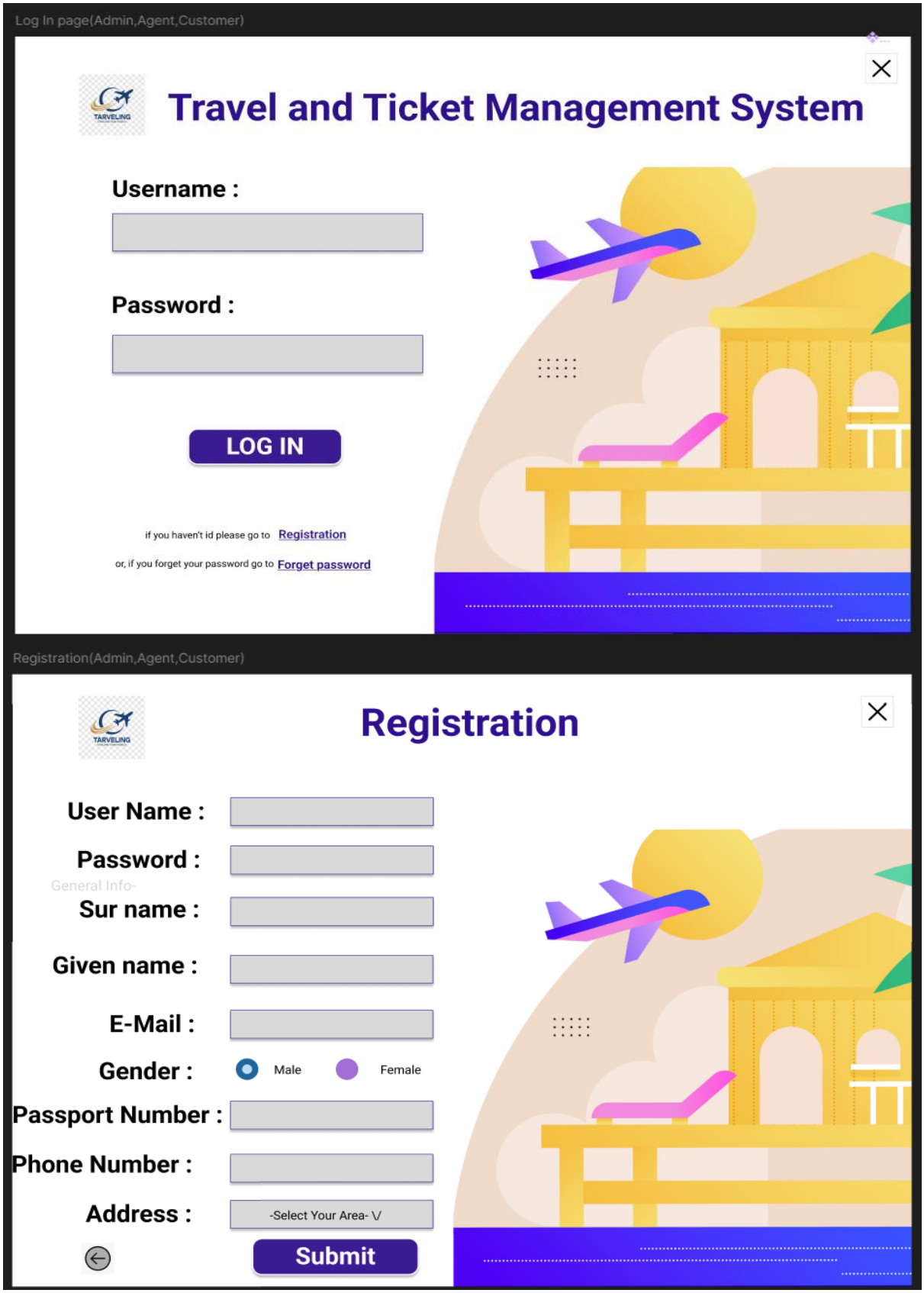
Class Diagram



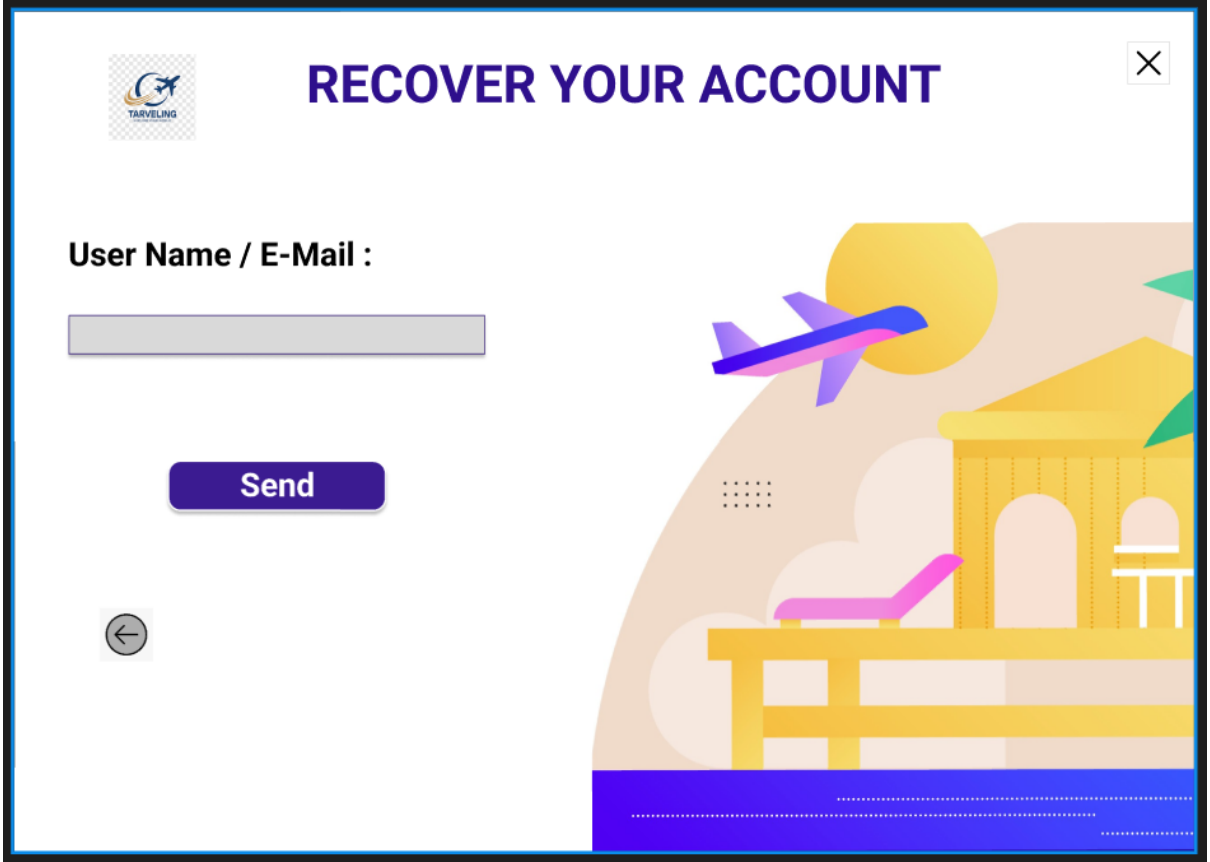
Activity Diagram



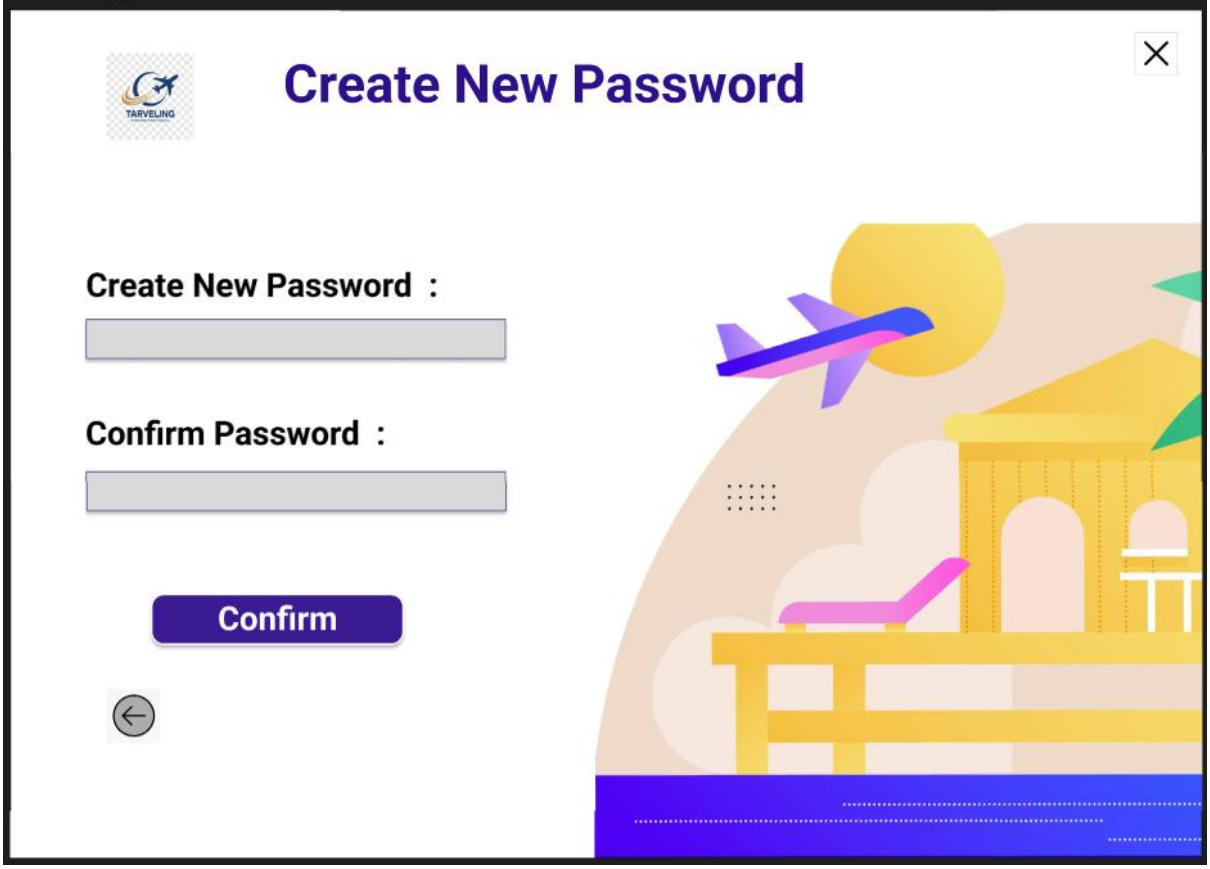
3.2 UI / Wireframe Design using Figma



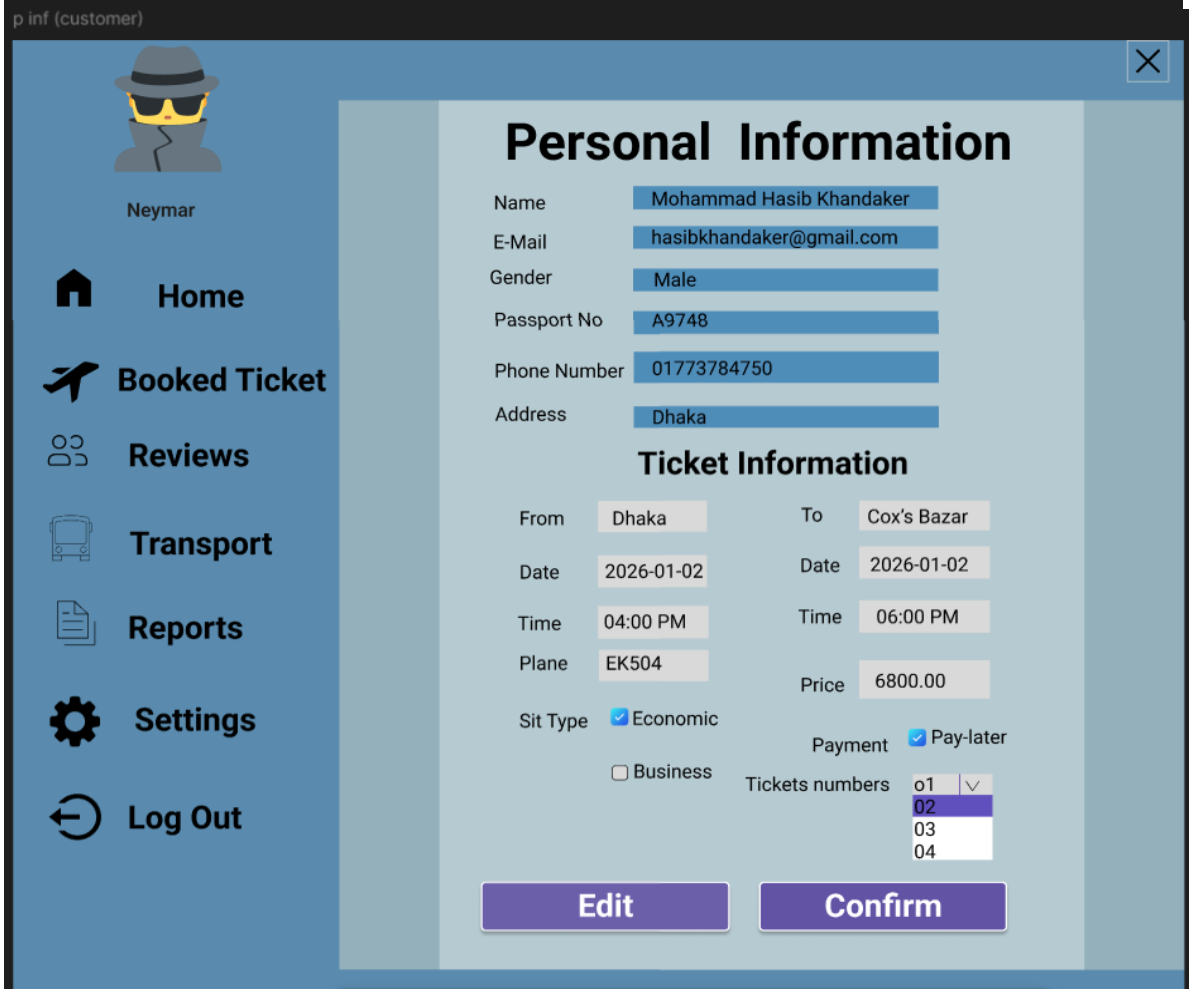
Recover(Admin,Agent,Customer)

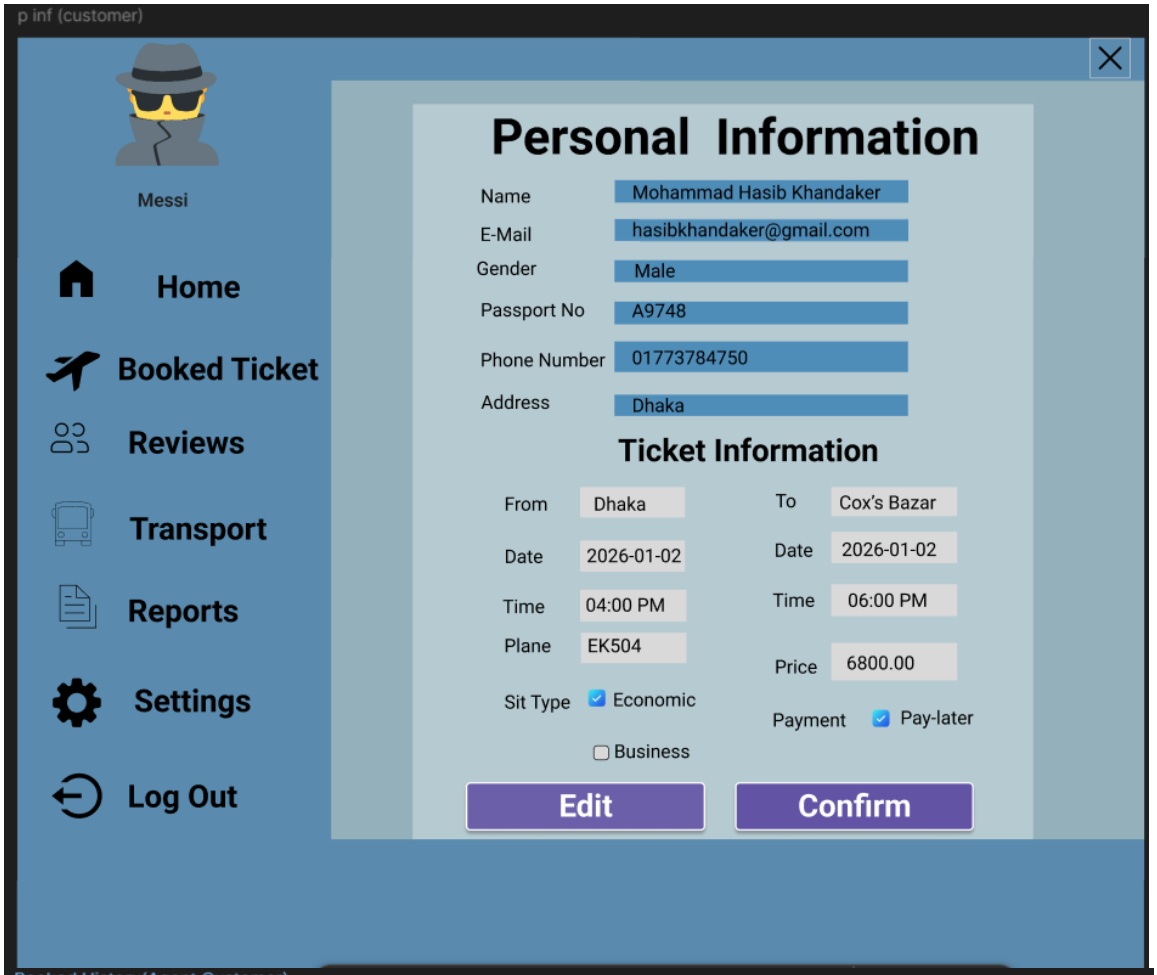


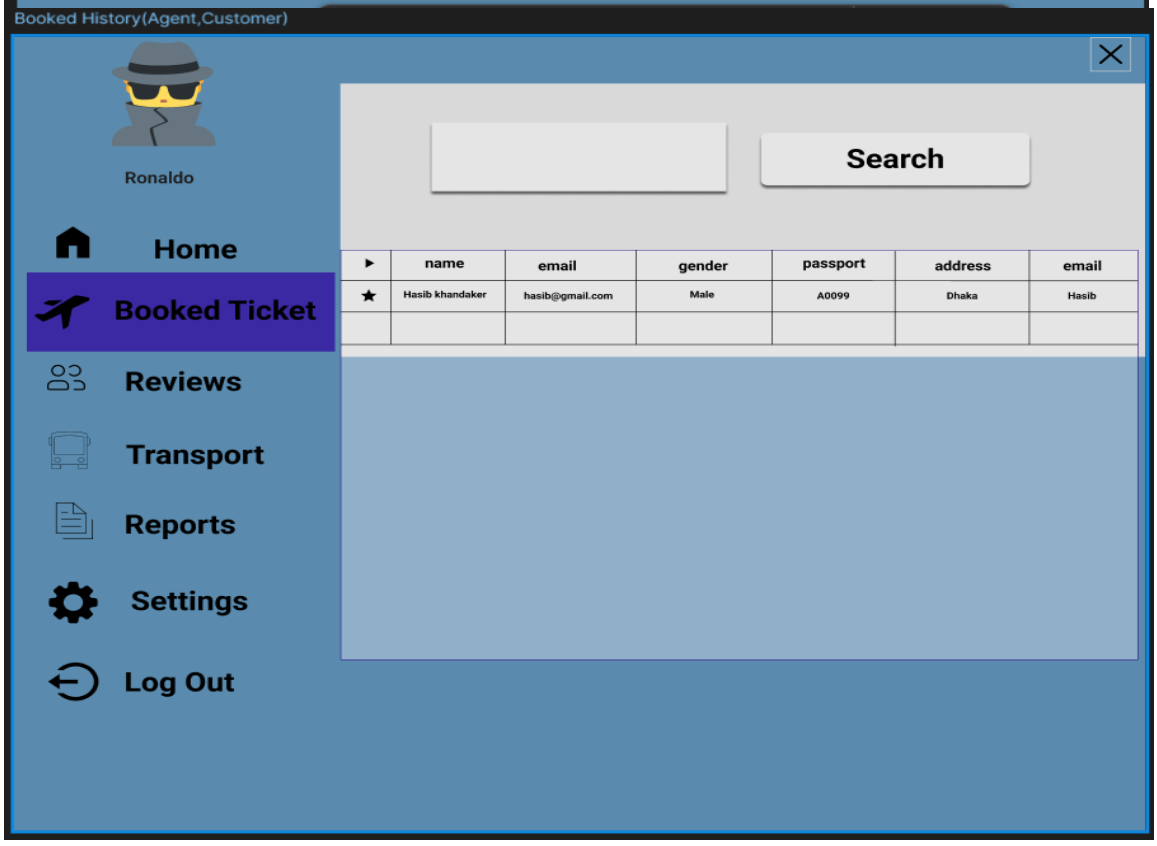
CNP(Admin,Agent,Customer)

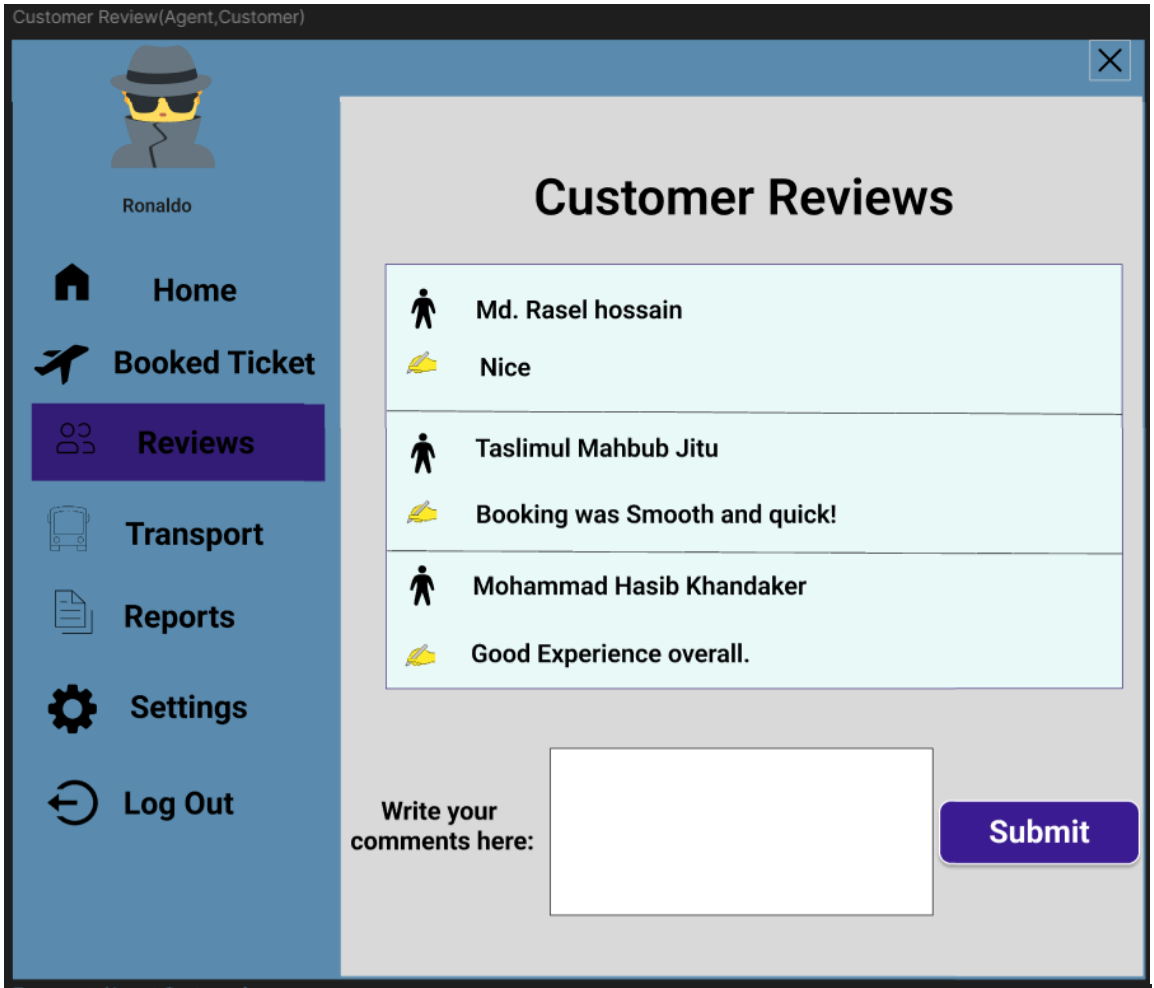


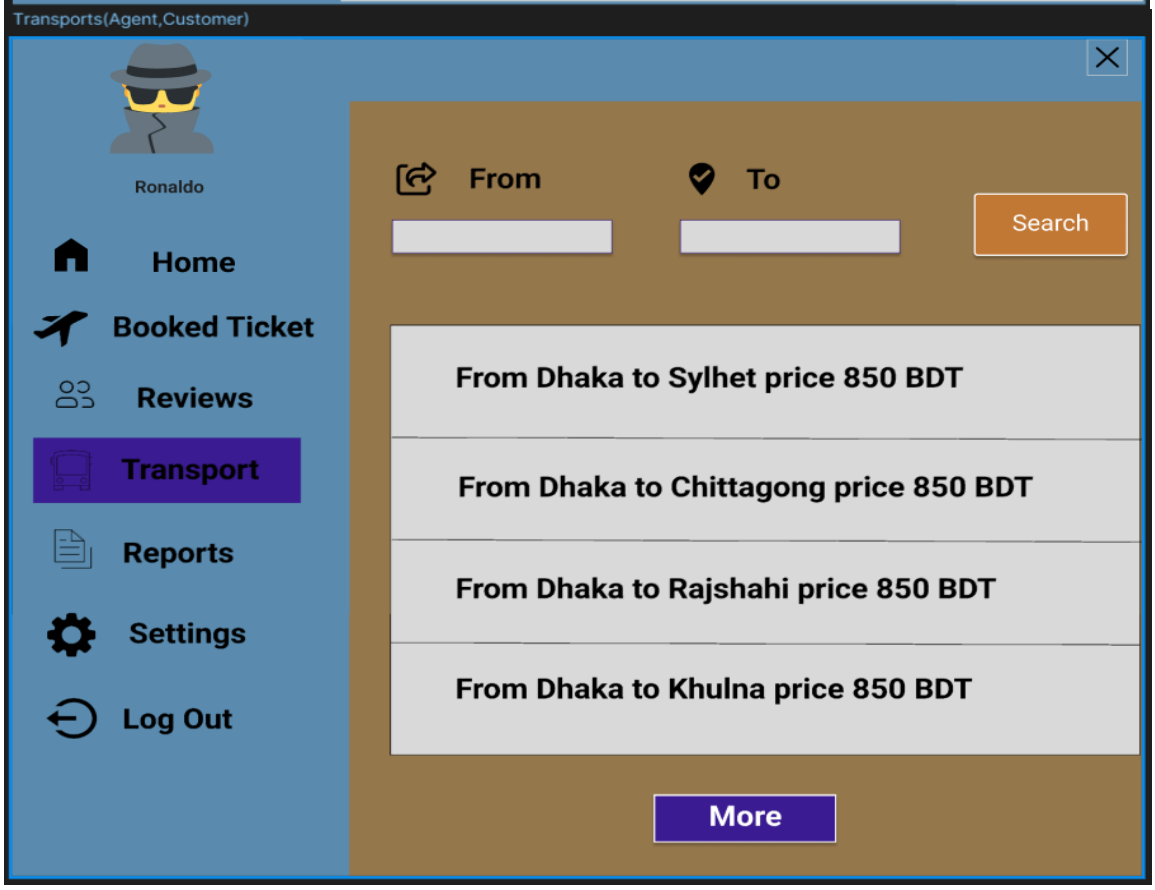

Home Page(Admin,Agent,Customer)
Mohammad Hasib Khandaker
Home
Booked Ticket
Reviews
Transport
Reports
Settings
Log Out
From
To
Search
From : Dhaka
To: Sylhet
Departure : 3/1/2026
Arrival : 3/1/2026
Time : 12:34 AM
Time : 2:34 AM
US Bangla
Price : 7000 BDT
From : Dhaka
To: Cox's Bazar
Departure : 2/1/2026
Arrival : 2/1/2026
Time : 12:30 AM
Time : 3:00 AM
Biman Bangla
Price : 7000 BDT
More

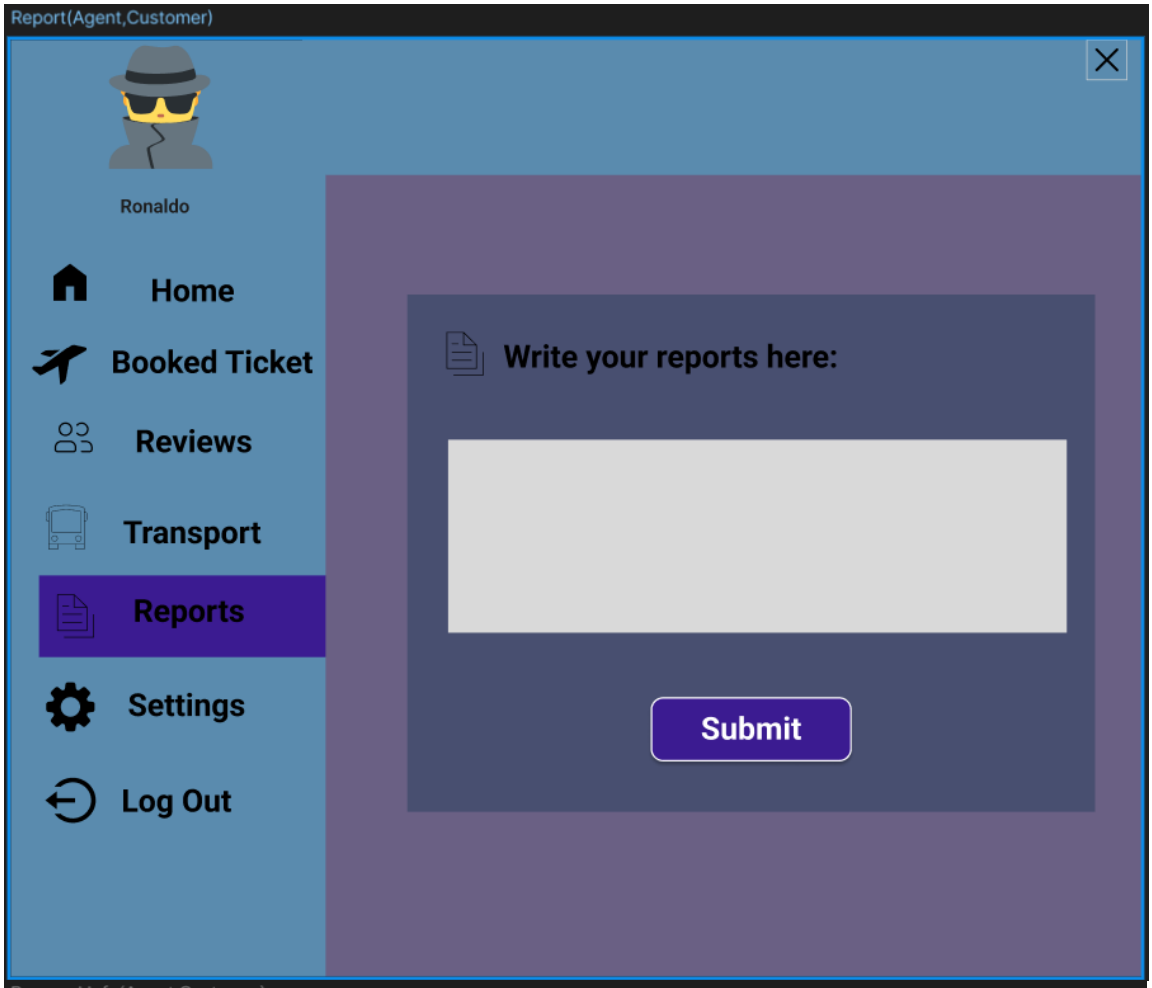

p inf (customer)
Neymar
Home
Booked Ticket
Reviews
Transport
Reports
Settings
Log Out
Personal Information
Name Mohammad Hasib Khandaker
E-Mail hasibkhandaker@gmail.com
Gender Male
Passport No A9748
Phone Number 01773784750
Address Dhaka
Ticket Information
From Dhaka
To Cox's Bazar
Date 2026-01-02
Date 2026-01-02
Time 04:00 PM
Time 06:00 PM
Plane EK504
Price 6800.00
Sit Type Economic
Business
Payment Pay-later
Tickets numbers o1
02
03
04
Edit
Confirm

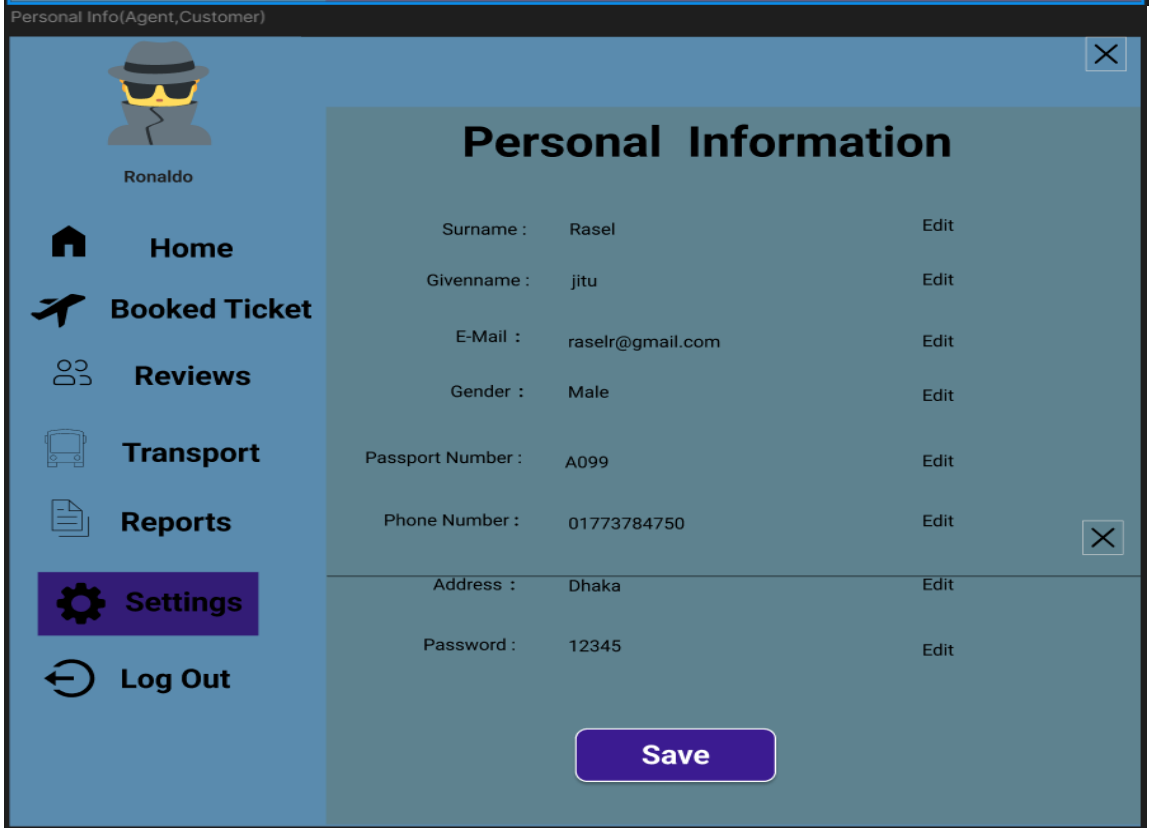

p inf (customer)
Messi
Home
Booked Ticket
Reviews
Transport
Reports
Settings
Log Out
Personal Information
Name
Mohammad Hasib Khandaker
E-Mail
hasibkhandaker@gmail.com
Gender
Male
Passport No
A9748
Phone Number
01773784750
Address
Dhaka
Ticket Information
From
Dhaka
To
Cox's Bazar
Date
2026-01-02
Date
2026-01-02
Time
04:00 PM
Time
06:00 PM
Plane
EK504
Price
6800.00
Sit Type
Economic
Business
Payment
Pay-later
Edit
Confirm

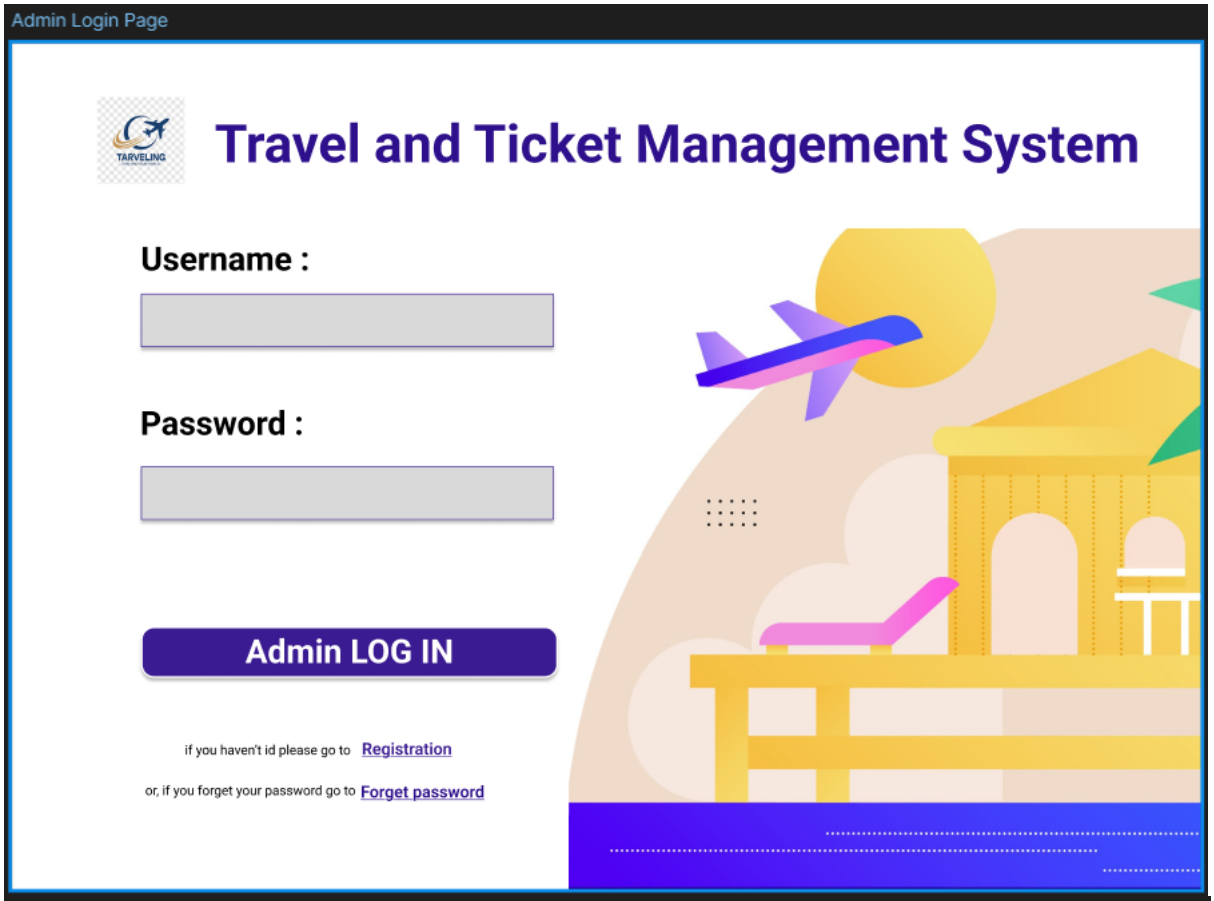

Booked History(Agent,Customer)
Ronaldo
Home
Booked Ticket
Reviews
Transport
Reports
Settings
Log Out
Search
name
email
gender
passport
address
email
Hasib khandaker
hasib@gmail.com
Male
A0099
Dhaka
Hasib

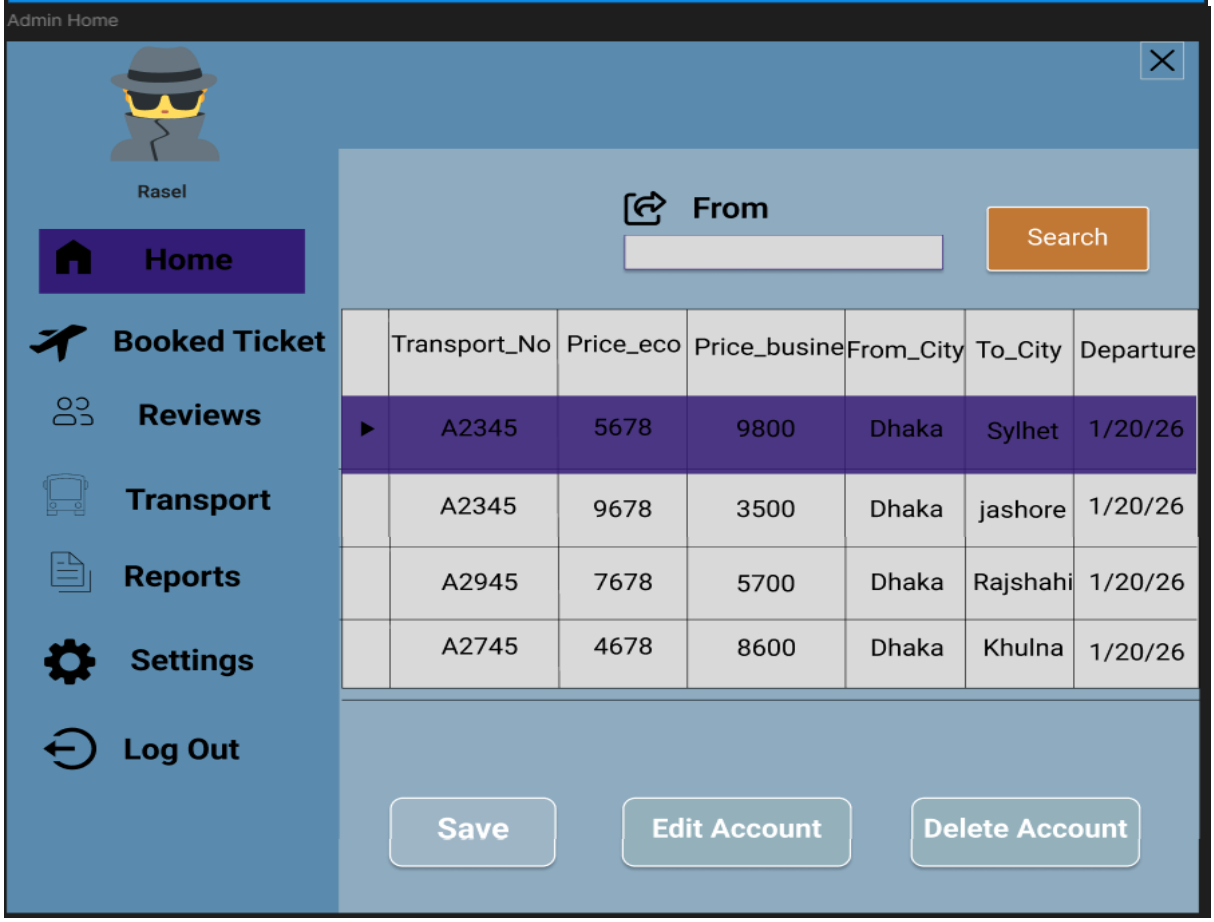

Customer Review(Agent,Customer)
Ronaldo
Home
Booked Ticket
Reviews
Transport
Reports
Settings
Log Out
Customer Reviews
Md. Rasel hossain
Nice
Taslimul Mahbub Jitu
Booking was Smooth and quick!
Mohammad Hasib Khandaker
Good Experience overall.
Write your comments here:
Submit


Transports(Agent,Customer)
Ronaldo
Home
Booked Ticket
Reviews
Transport
Reports
Settings
Log Out
From
To
Search
From Dhaka to Sylhet price 850 BDT
From Dhaka to Chittagong price 850 BDT
From Dhaka to Rajshahi price 850 BDT
From Dhaka to Khulna price 850 BDT
More


Report(Agent,Customer)
Ronaldo
Home
Booked Ticket
Reviews
Transport
Reports
Settings
Log Out
Write your reports here:
Submit


Personal Info(Agent,Customer)
Ronaldo
Home
Booked Ticket
Reviews
Transport
Reports
Settings
Log Out
Personal Information
Surname : Rasel Edit
Givenname : jitu Edit
E-Mail : raselr@gmail.com Edit
Gender : Male Edit
Passport Number : A099 Edit
Phone Number : 01773784750 Edit
Address : Dhaka Edit
Password : 12345 Edit
Save


Admin Login Page
Travel and Ticket Management System
Username :
Password :
Admin LOG IN
if you haven't id please go to Registration
or, if you forget your password go to Forget password


Admin Home
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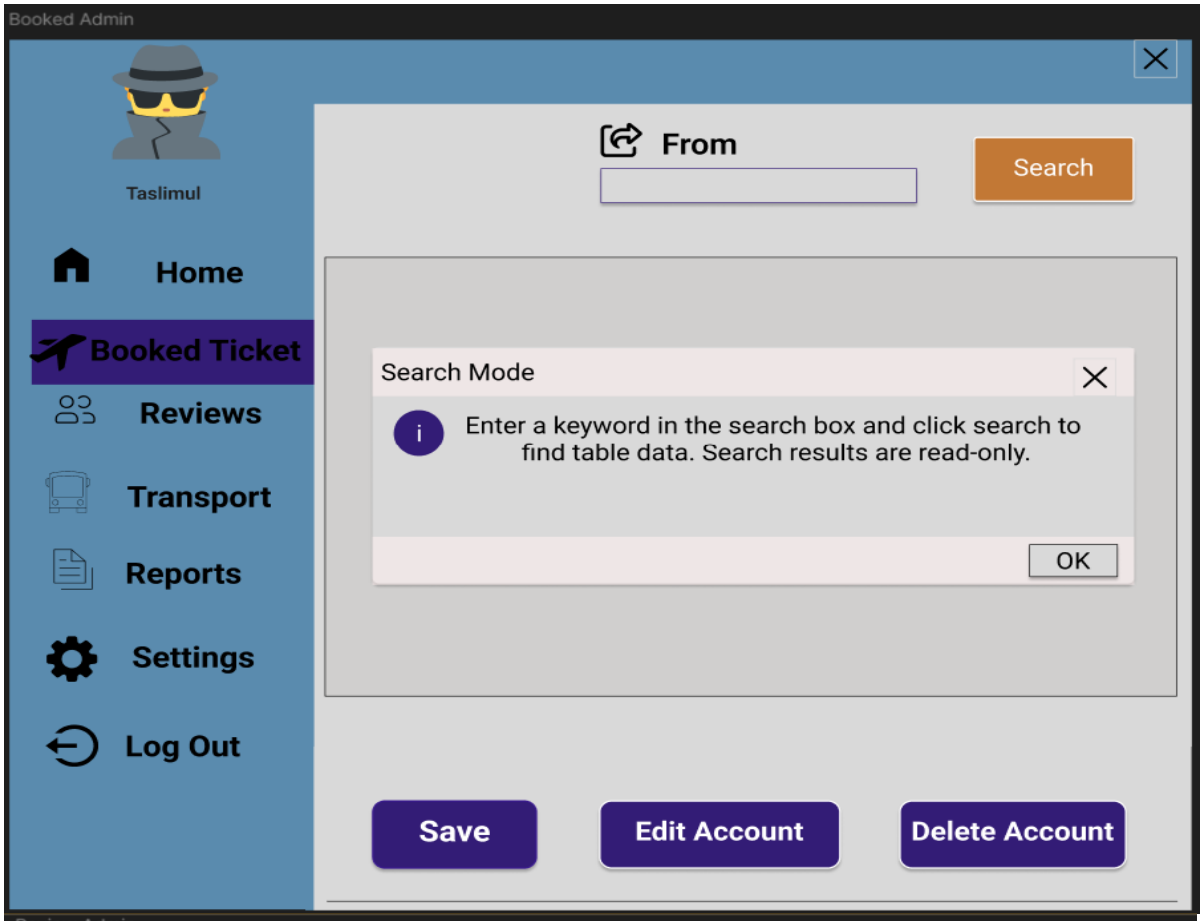
A2345 9678 3500 Dhaka jashore 1/20/26
A2945 7678 5700 Dhaka Rajshahi 1/20/26
A2745 4678 8600 Dhaka Khulna 1/20/26
Save
Edit Account
Delete Account


Booked Admin
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Home
Booked Ticket
Reviews
Transport
Reports
Settings
Log Out
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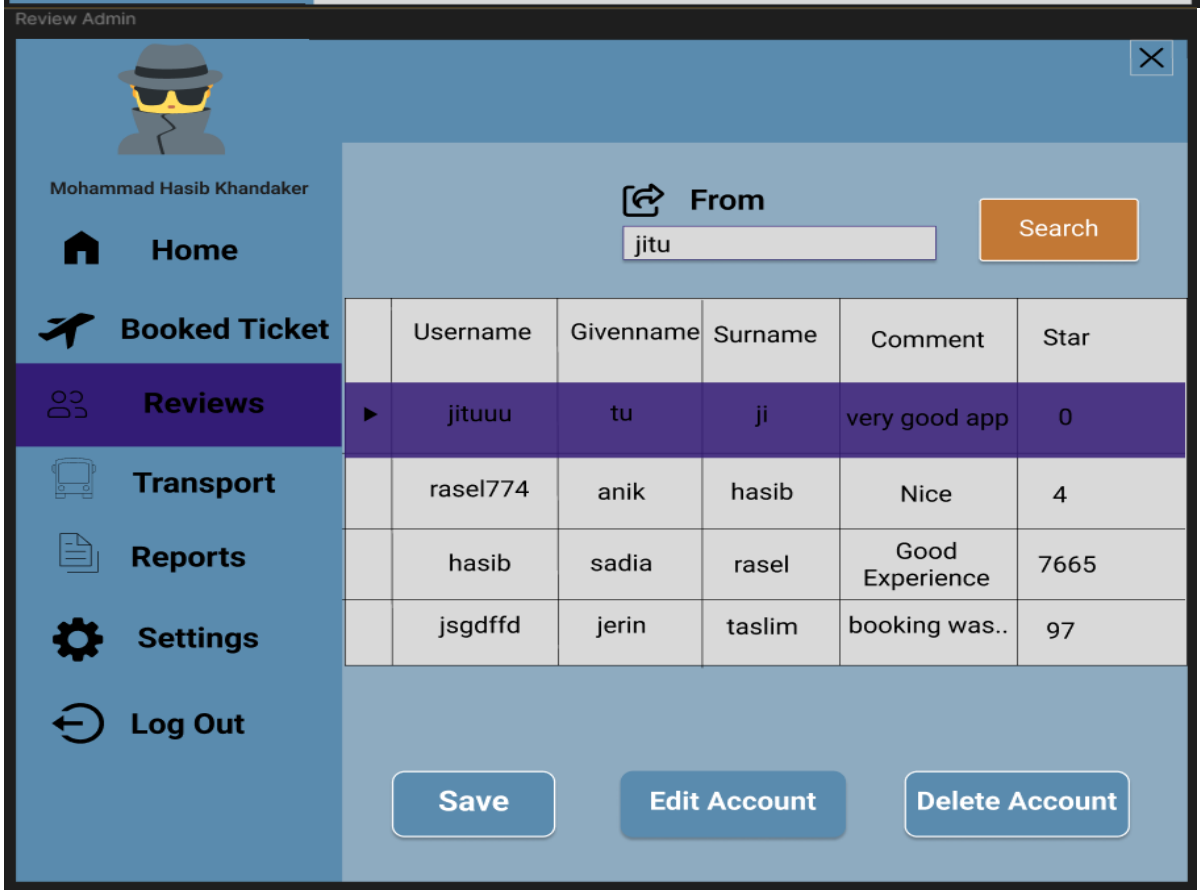
Search
Search Mode
Enter a keyword in the search box and click search to find table data. Search results are read-only.
OK
Save
Edit Account
Delete Account


Review Admin
Mohammad Hasib Khandaker
Home
Booked Ticket
Reviews
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Star
jituuu
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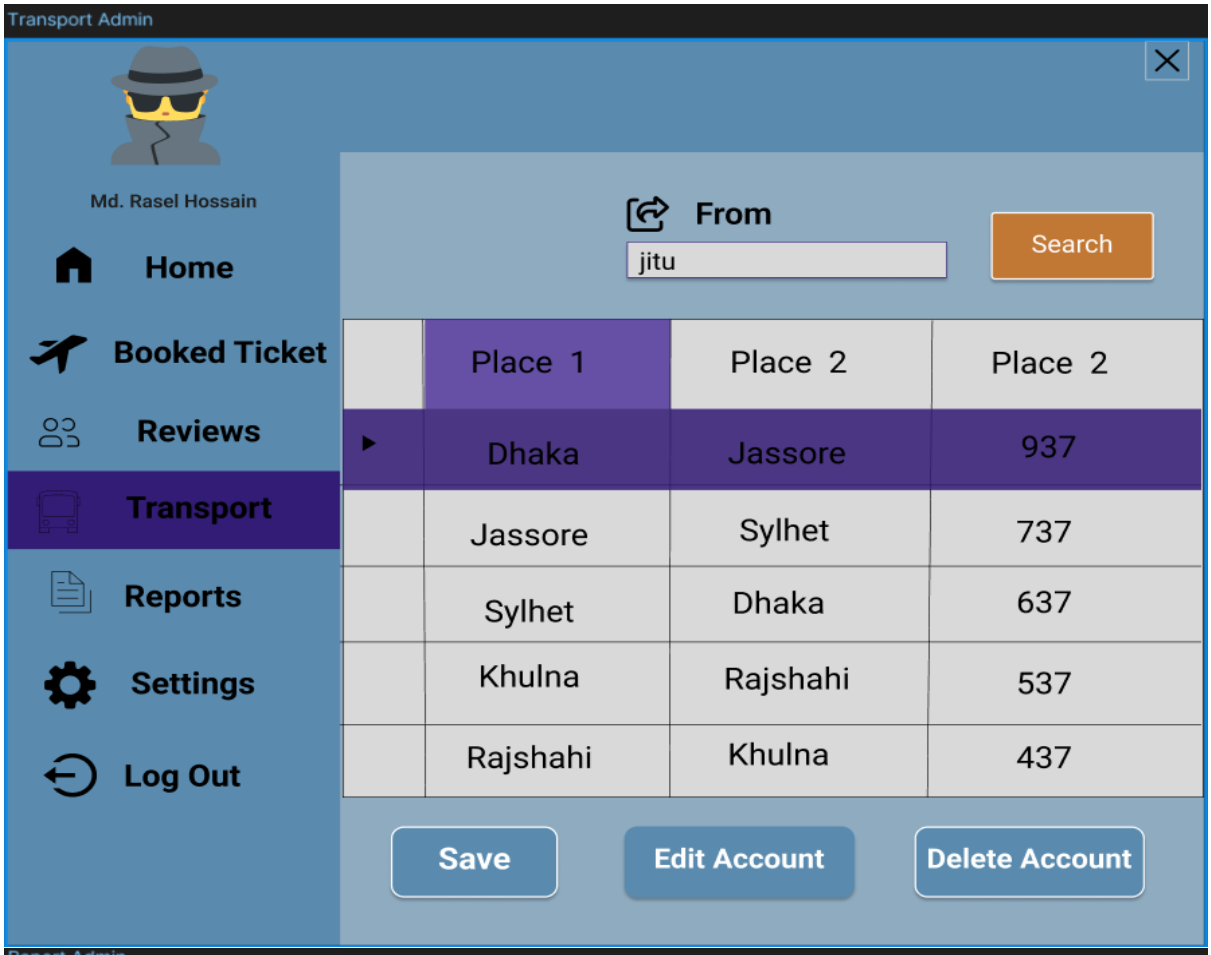
Save
Edit Account
Delete Account


Transport Admin
Md. Rasel Hossain
Home
Booked Ticket
Reviews
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Reports
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jitu
Search
Place 1
Place 2
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Dhaka
Jassore
937
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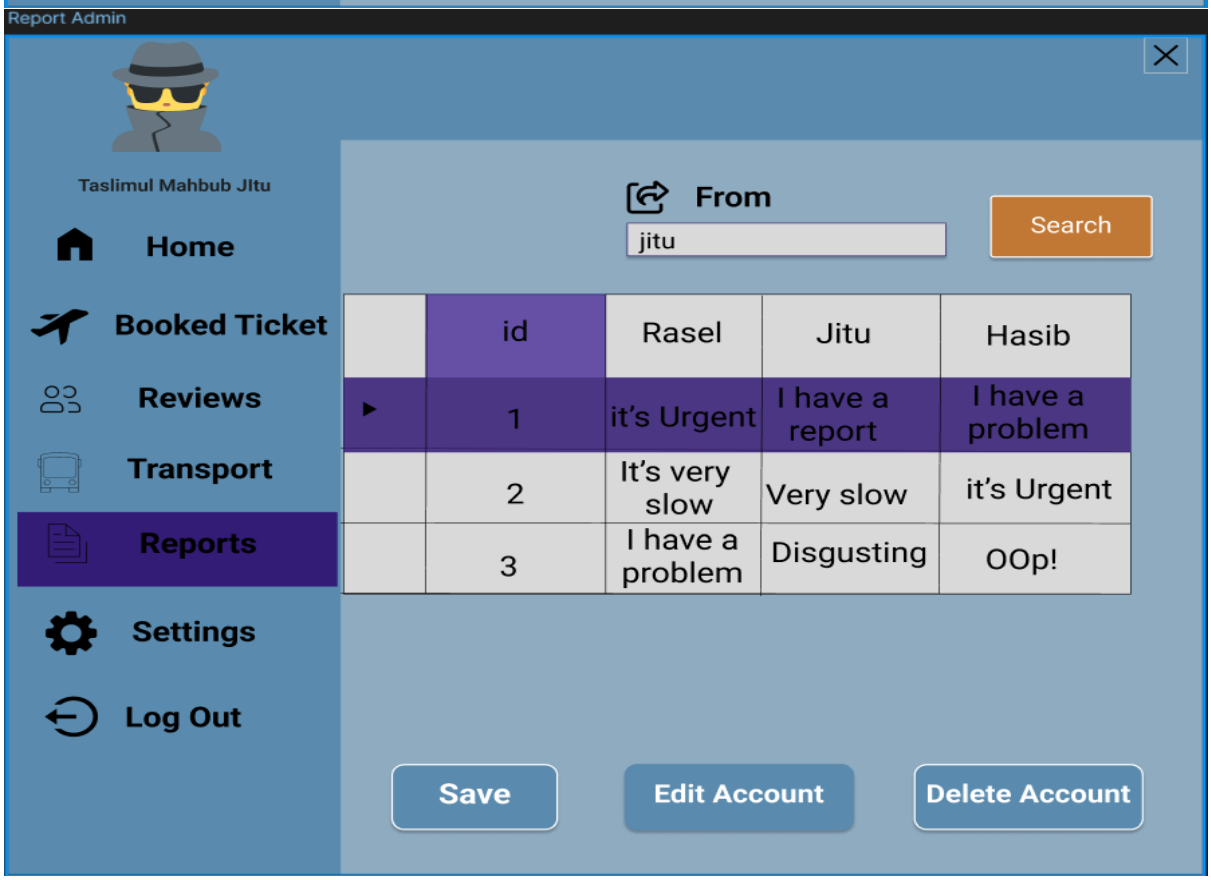
Dhaka
637
Khulna
Rajshahi
537
Rajshahi
Khulna
437
Save
Edit Account
Delete Account


Report Admin
Taslimul Mahbub Jitu
Home
Booked Ticket
Reviews
Transport
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Log Out
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id
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Jitu
Hasib
1
it's Urgent
I have a report
I have a problem
2
It's very slow
Very slow
it's Urgent
3
I have a problem
Disgusting
OOp!
Save
Edit Account
Delete Account

4. GIT WORKFLOW

1. Create a central repository for the project on GitHub and set the master (or main) branch as the primary branch for integration.
2. Each member should clone the repository and create their own feature branches for assigned tasks. Work on new features or fixes within these branches.
3. Add files, stage them and commit changes with clear messages that describe the purpose of each update.
4. Push commits from the feature branches to the remote repository so other members can see progress.
5. Use pull to fetch and integrate changes from the remote repository into local copies, ensuring everyone stays updated.
6. Merge feature branches into the master/main branch only after the work is tested and reviewed, resolving any conflicts that occur.
7. Show evidence of collaboration by maintaining a clear commit history (using logs) with multiple commits, merges and contributions from all group members.
8. Keep the repository organized with a clean history that tracks the project workflow from initialization to completion.

5. SOFTWARE TESTING (Travel & Ticket Management System)

5.1 Testing Methods to Use in the Testing Phase

To ensure the **Travel & Ticket Management System** is correct, secure, and reliable, the following testing methods will be used during the testing phase:

1) Unit Testing

Unit testing will be performed on individual functions and methods to ensure each small unit works correctly in isolation.
Example: password validation, seat limit check (agent max 10), fare calculation, input validation methods.

2) Integration Testing

Integration testing will verify that different modules work correctly when combined.
Example: UI forms (WinForms) → Business Logic Layer → SQL Server database operations (insert booking, update seat count, show booking history).

3) Smoke Testing

Smoke testing (build verification testing) will be executed after each new build to confirm that the main features run without crashing.
Example: app launches, login works, flight search opens, booking form loads, admin dashboard loads.

4) Black-Box Testing

Black-box testing will validate system behavior based on inputs and expected outputs without considering internal code structure.
Example: login with correct/incorrect credentials, booking with available/unavailable seats, registration with duplicate email/username.

5) White-Box Testing

White-box testing will be used to test internal code logic, conditions, loops, and paths to ensure correctness.
Example: validation logic branches (empty fields, invalid format), role-based checks (Customer cannot open Admin panel), booking conditions.

6) Higher Order Testing

Higher order testing will include system-level evaluations such as **System Testing** and **Acceptance Testing** to confirm the complete system meets requirements.
Example: end-to-end workflow: Register → Login → Search → Book → Booking Summary → History → Logout.

7) Regression Testing

Regression testing will be conducted after bug fixes or feature updates to ensure existing modules still work correctly.
Example: after improving booking module, re-test login, search, history, admin CRUD.

8) OO Testing (Object-Oriented Testing)

Object-oriented testing will focus on class behavior, object interaction, inheritance, and method correctness in the OOP architecture.
Example: testing classes like User, Customer, Agent, Admin, Booking, Flight, Review; verifying object interactions and data passing.

9) Validation and Verification (V & V)

- **Verification:** Ensures we built the system correctly according to SRS (checking design, code, and test results).
- **Validation:** Ensures we built the correct system that satisfies user needs (checking usability and real workflow).
  Example: verifying role-based access matches SRS; validating that users can easily complete booking and see confirmation/history.

TEST CASE – TC_01

Project Name: Travel & Ticket Management System	**Test Designed by:** Md. Rasel Hossain
Test Case ID: TC_01	**Test Designed date:** 02/07/2025
Test Priority (Low, Medium, High): High	**Test Executed by:** Md. Rasel Hossain
Module Name: Login Session	**Test Execution date:** 22/08/2025
Test Title: Verify login with valid username and password	
Description: Test customer login page	
Precondition: The user has a valid username and password	
Dependence: Database connection available	

Test Steps	Test Data	Expected Results	Actual Results	Status
1. Open application 2. Enter username 3. Enter password 4. Click Login	Username: user01 Password: User@123	User should successfully log in	As expected	Pass

TEST CASE – TC_02

Project Name: Travel & Ticket Management System	**Test Designed by:** Hasib
Test Case ID: TC_02	**Test Designed date:** 02/07/2025
Test Priority (Low, Medium, High): High	**Test Executed by:** Hasib
Module Name: Login Session	**Test Execution date:** 22/08/2025
Test Title: Verify login fails with invalid password	
Description: Test login with wrong password	

Precondition: User exists in database	
Dependencies: Authentication module	

Test Steps	Test Data	Expected Results	Actual Results	Status
1. Open login page 2. Enter username 3. Enter wrong password 4. Click Login	Username: user01 Password: wrong123	Login denied with error message	As expected	Pass

TEST CASE – TC_03

Project Name: Travel & Ticket Management System	**Test Designed by:** Hasib
Test Case ID: TC_03	**Test Designed date:** 02/07/2025
Test Priority (Low, Medium, High): Medium	**Test Executed by:** Hasib
Module Name: User Registration	**Test Execution date:** 22/08/2025
Test Title: Verify new user registration with valid details	
Description: Test customer registration	
Precondition: Email and username must be unique	
Dependencies: Database validation	

Test Steps	Test Data	Expected Results	Actual Results	Status
1. Open registration form 2. Enter details 3. Click Register	Email: test@mail.com Username: test01 Password: Test@123	Registration successful	As expected	Pass

TEST CASE – TC_04

Project Name: Travel & Ticket Management System	**Test Designed by:** Hasib
Test Case ID: TC_04	**Test Designed date:** 02/07/2025
Test Priority (Low, Medium, High): High	**Test Executed by:** Hasib
Module Name: User Registration	**Test Execution date:** 22/08/2025
Test Title: Verify duplicate registration is not allowed	
Description: Prevent duplicate username/email	
Precondition: User already registered	
Dependencies: Database unique constraint	

Test Steps	Test Data	Expected Results	Actual Results	Status
1. Open registration 2. Enter duplicate email 3. Submit	Email: test@mail.com Username: test01	Error message displayed	As expected	Pass

TEST CASE – TC_05

Project Name: Travel & Ticket Management System	**Test Designed by:** Hasib
Test Case ID: TC_05	**Test Designed date:** 10/07/2025
Test Priority (Low, Medium, High): Medium	**Test Executed by:** Hasib
Module Name: Forgot Password	**Test Execution date:** 22/08/2025
Test Title: Verify password recovery using username/email	
Description: Test forgot password functionality	
Precondition: User exists	
Dependencies: Password recovery module	

Test Steps	Test Data	Expected Results	Actual Results	Status
1. Click Forgot Password 2. Enter username 3. Submit	Username: test01	Password recovery successful	As expected	Pass

TEST CASE – TC_06

Project Name: Travel & Ticket Management System	**Test Designed by:** Hasib
Test Case ID: TC_06	**Test Designed date:** 10/07/2025
Test Priority (Low, Medium, High): Medium	**Test Executed by:** Hasib
Module Name: Flight Search	**Test Execution date:** 22/08/2025
Test Title: Verify flight search by source and destination	
Description: Search available flights	
Precondition: User logged in	
Dependencies: Flight database	

Test Steps	Test Data	Expected Results	Actual Results	Status

1. Login 2. Enter From & To 3. Click Search	From: Dhaka To: Chittagong	Flight list displayed	As expected	Pass

TEST CASE – TC_07

Project Name: Travel & Ticket Management System	**Test Designed by:** Jitu
Test Case ID: TC_07	**Test Designed date:** 10/07/2025
Test Priority (Low, Medium, High): Low	**Test Executed by:** Jitu
Module Name: Flight Search	**Test Execution date:** 22/08/2025
Test Title: Verify no flight available message	
Description: Handle empty search result	
Precondition: User logged in	
Dependencies: Search module	

Test Steps	Test Data	Expected Results	Actual Results	Status
1. Enter invalid route 2. Click Search	From: CityA To: CityB	"No flights found" message	As expected	Pass

TEST CASE – TC_08

Project Name: Travel & Ticket Management System	**Test Designed by:** Jitu
Test Case ID: TC_08	**Test Designed date:** 14/07/2025
Test Priority (Low, Medium, High): High	**Test Executed by:** Jitu
Module Name: Ticket Booking	**Test Execution date:** 30/08/2025
Test Title: Verify ticket booking with available seat	
Description: Book ticket successfully	
Precondition: Seats available	
Dependencies: Booking module	

Test Steps	Test Data	Expected Results	Actual Results	Status
1. Select flight 2. Enter passenger info 3. Confirm	Passenger: Rahim Seat: 1	Booking confirmed	As expected	Pass

TEST CASE – TC_09

Project Name: Travel & Ticket Management System	**Test Designed by:** Jitu
Test Case ID: TC_09	**Test Designed date:** 14/07/2025
Test Priority (Low, Medium, High): High	**Test Executed by:** Jitu
Module Name: Ticket Booking	**Test Execution date:** 30/08/2025
Test Title: Verify booking blocked when no seats available	
Description: Prevent overbooking	
Precondition: Seats = 0	
Dependencies: Seat validation	

Test Steps	Test Data	Expected Results	Actual Results	Status
1. Select full flight 2. Book ticket	Seats: 0	Booking denied	As expected	Pass

TEST CASE – TC_10

Project Name: Travel & Ticket Management System	**Test Designed by** Jitu
Test Case ID: TC_10	**Test Designed date:** 14/07/2025
Test Priority (Low, Medium, High): Medium	**Test Executed by:** Jitu
Module Name: Booking History	**Test Execution date:** 30/08/2025
Test Title: Verify booking history display	
Description: View previous bookings	
Precondition: Booking exists	
Dependencies: History module	

Test Steps	Test Data	Expected Results	Actual Results	Status
1. Login 2. Open Booking History	User: user01	Booking history displayed	As expected	Pass

TEST CASE – TC_11

Project Name: Travel & Ticket Management System	**Test Designed by:** Jitu
Test Case ID: TC_11	**Test Designed date:** 16/07/2025
Test Priority (Low, Medium, High): High	**Test Executed by:** Jitu
Module Name: Agent Login Session	**Test Execution date:** 02/09/2025
Test Title: Verify agent login with valid credentials	
Description: Test agent login functionality	
Precondition: Agent account exists and is active	

Dependencies: Database connection available				
Test Steps	**Test Data**	**Expected Results**	**Actual Results**	**Status**
1. Open application 2. Enter agent username 3. Enter password 4. Click Login	Username: agent01 Password: Agent@123	Agent dashboard displayed successfully	As expected	Pass

TEST CASE – TC_12

Project Name: Travel & Ticket Management System			**Test Designed by:** Jitu	
Test Case ID: TC_12			**Test Designed date:** 16/07/2025	
Test Priority (Low, Medium, High): High			**Test Executed by:** Jitu	
Module Name: Agent Ticket Booking			**Test Execution date:** 02/09/2025	
Test Title: Verify agent can book up to 10 tickets				
Description: Test agent group booking limit				
Precondition: Agent logged in and seats available				
Dependencies: Booking module				
Test Steps	**Test Data**	**Expected Results**	**Actual Results**	**Status**
1. Login as agent 2. Select flight 3. Enter 10 passengers 4. Confirm booking	Seats: 10	Booking completed successfully	As expected	Pass

TEST CASE – TC_13

Project Name: Travel & Ticket Management System	**Test Designed by:** Jitu
Test Case ID: TC_13	**Test Designed date:** 16/07/2025
Test Priority (Low, Medium, High): High	**Test Executed by:** Jitu
Module Name: Agent Ticket Booking	**Test Execution date:** 04/09/2025
Test Title: Verify agent booking blocked for more than 10 tickets	
Description: Prevent agent from booking more than 10 tickets	
Precondition: Agent logged in	
Dependencies: Booking validation logic	

Test Steps	Test Data	Expected Results	Actual Results	Status
1. Select flight 2. Enter 11 passengers 3. Confirm booking	Seats: 11	Error message shown and booking denied	As expected	Pass

TEST CASE – TC_14

Project Name: Travel & Ticket Management System	**Test Designed by:** Jitu
Test Case ID: TC_14	**Test Designed date:** 18/07/2025
Test Priority (Low, Medium, High): Medium	**Test Executed by:** Jitu
Module Name: Review System	**Test Execution date:** 12/09/2025
Test Title: Verify customer can submit a travel review	
Description: Test review submission functionality	
Precondition: Customer logged in	
Dependencies: Review module	

Test Steps	Test Data	Expected Results	Actual Results	Status
1. Login as customer 2. Open review form 3. Write review 4. Submit	Review: “Good service”	Review saved successfully	As expected	Pass

TEST CASE – TC_15

Project Name: Travel & Ticket Management System	**Test Designed by:** Rasel
Test Case ID: TC_15	**Test Designed date:** 02/07/2025
Test Priority (Low, Medium, High): Medium	**Test Executed by:** Rasel
Module Name: Complaint System	**Test Execution date:** 22/08/2025
Test Title: Verify customer can submit complaint/report	
Description: Test complaint submission	
Precondition: Customer logged in	
Dependencies: Report module	

Test Steps	Test Data	Expected Results	Actual Results	Status
1. Open complaint form 2. Enter issue 3. Submit	Issue: “Flight delay”	Complaint recorded successfully	As expected	Pass

TEST CASE – TC_16

Project Name: Travel & Ticket Management System	**Test Designed by:** Rasel
Test Case ID: TC_16	**Test Designed date:** 02/07/2025
Test Priority (Low, Medium, High): High	**Test Executed by:** Rasel
Module Name: Admin Login Session	**Test Execution date:** 22/08/2025
Test Title: Verify admin login with valid credentials	
Description: Test admin login functionality	
Precondition: Admin account exists	
Dependencies: Authentication module	

Test Steps	Test Data	Expected Results	Actual Results	Status
1. Open login page 2. Enter admin username 3. Enter password 4. Click Login	Username: admin Password: Admin@123	Admin dashboard opens	As expected	Pass

TEST CASE – TC_17

Project Name: Travel & Ticket Management System	**Test Designed by:** Rasel
Test Case ID: TC_17	**Test Designed date:** 02/07/2025
Test Priority (Low, Medium, High): High	**Test Executed by:** Rasel
Module Name: Admin User Management	**Test Execution date:** 22/08/2025
Test Title: Verify admin can add new agent	
Description: Test agent creation by admin	
Precondition: Admin logged in	
Dependencies: User management module	

Test Steps	Test Data	Expected Results	Actual Results	Status
1. Open user management 2. Click Add Agent 3. Enter details 4. Save	Username: agent02 Email: agent02@mail.com	Agent account created	As expected	Pass

TEST CASE – TC_18

Project Name: Travel & Ticket Management System	**Test Designed by:** Rasel
Test Case ID: TC_18	**Test Designed date:** 14/07/2025
Test Priority (Low, Medium, High): Medium	**Test Executed by:** Md. Rasel Hossain
Module Name: Admin User Management	**Test Execution date:** 12/09/2025
Test Title: Verify admin can edit user information	
Description: Test updating user data	

Precondition: User exists	
Dependencies: Database update	

Test Steps	Test Data	Expected Results	Actual Results	Status
1. Select user 2. Edit email 3. Save	Email: new@mail.com	User information updated	As expected	Pass

TEST CASE – TC_19

Project Name: Travel & Ticket Management System	**Test Designed by:** Rasel
Test Case ID: TC_19	**Test Designed date:** 16/07/2025
Test Priority (Low, Medium, High): High	**Test Executed by:** Rasel
Module Name: Admin Booking Management	**Test Execution date:** 12/09/2025
Test Title: Verify admin can cancel booking	
Description: Cancel any booking by admin	
Precondition: Booking exists	
Dependencies: Booking management module	

Test Steps	Test Data	Expected Results	Actual Results	Status
1. View bookings 2. Select booking 3. Click Cancel	Booking ID: BK101	Booking status changed to cancelled	As expected	Pass

TEST CASE – TC_20

Project Name: Travel & Ticket Management System	**Test Designed by:** Md. Rasel Hossain
Test Case ID: TC_20	**Test Designed date:** 22/07/2025
Test Priority (Low, Medium, High): Medium	**Test Executed by:** Rasel
Module Name: Role-Based Access Control	**Test Execution date:** 12/09/2025
Test Title: Verify customer cannot access admin panel	
Description: Test role-based access restriction	
Precondition: Customer logged in	
Dependencies: Access control logic	

Test Steps	Test Data	Expected Results	Actual Results	Status
1. Login as customer 2. Try to open admin panel	Customer role	Access denied message shown	As expected	Pass

TEST CASE – TC_21

Project Name: Travel & Ticket Management System	**Test Designed by:** Rasel
Test Case ID: TC_21	**Test Designed date:** 22/07/2025
Test Priority (Low, Medium, High): Medium	**Test Executed by:** Rasel
Module Name: Database Validation	**Test Execution date:** 23/09/2025
Test Title: Verify booking data stored in database	
Description: Check booking record persistence	
Precondition: Booking completed	
Dependencies: SQL Server database	

Test Steps	Test Data	Expected Results	Actual Results	Status
1. Complete booking 2. Check database record	Booking details	Booking data saved correctly	As expected	Pass

TEST CASE – TC_22

Project Name: Travel & Ticket Management System	**Test Designed by:** Md. Rasel Hossain
Test Case ID: TC_22	**Test Designed date:** 25/07/2025
Test Priority (Low, Medium, High): Low	**Test Executed by:** Md. Rasel Hossain
Module Name: Logout Session	**Test Execution date:** 19/09/2025
Test Title: Verify logout ends user session	
Description: Test logout functionality	
Precondition: User logged in	
Dependencies: Session management	

Test Steps	Test Data	Expected Results	Actual Results	Status
1. Click Logout 2. Try to access dashboard	N/A	Redirected to login page	As expected	Pass

6. CONCLUSION

- Write a conclusion within 180 to 200 words.

Instructions:

- Minimum of 3 members and Maximum of 5 members per group.
- Font: Times New Roman ; Size: 12; Justify the para [Ctrl + J].
- Delete the highlighted part after completing this project report.
- The completed report should be within the range of 40 to 50 pages.

- **Submission:** Bring a hard copy of this report [per group] on the project evaluation day. Also, you will need to upload the soft copy later.