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Project Title: Bus Booking System

Course: (Your course name) : Programming in java

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Date:

1. Introduction

This project is a simple Java application that lets a user book bus tickets through a desktop interface. I used Swing for the GUI and text files for storing the ticket details. The main idea was to take a real-life scenario and try to implement it using the Java concepts we learned in class.

2. Problem Statement

Bus ticket booking done manually can be confusing and time-consuming. There is no proper way to maintain records, and cancellations become messy. I wanted to create a small system that organizes these tasks in a proper digital format.

3. Functional Requirements

1. Login to access the system

2. Book a ticket

3. View all tickets

4. Cancel a ticket

4. Non-Functional Requirements

1. The system should be easy to use (simple GUI).

2. It should store tickets reliably even after the program closes.

3. It should handle wrong inputs properly.

4. It should work smoothly without lag.

5. System Architecture

User Interface (Swing)

↓

Application Logic (Java)

↓

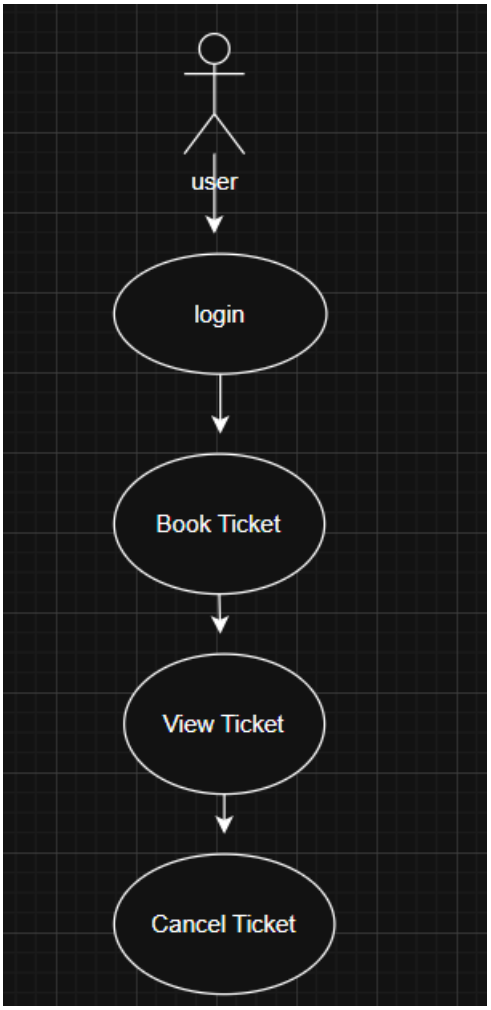
Text File Storage

6. Design Diagrams

Use Case Diagram :

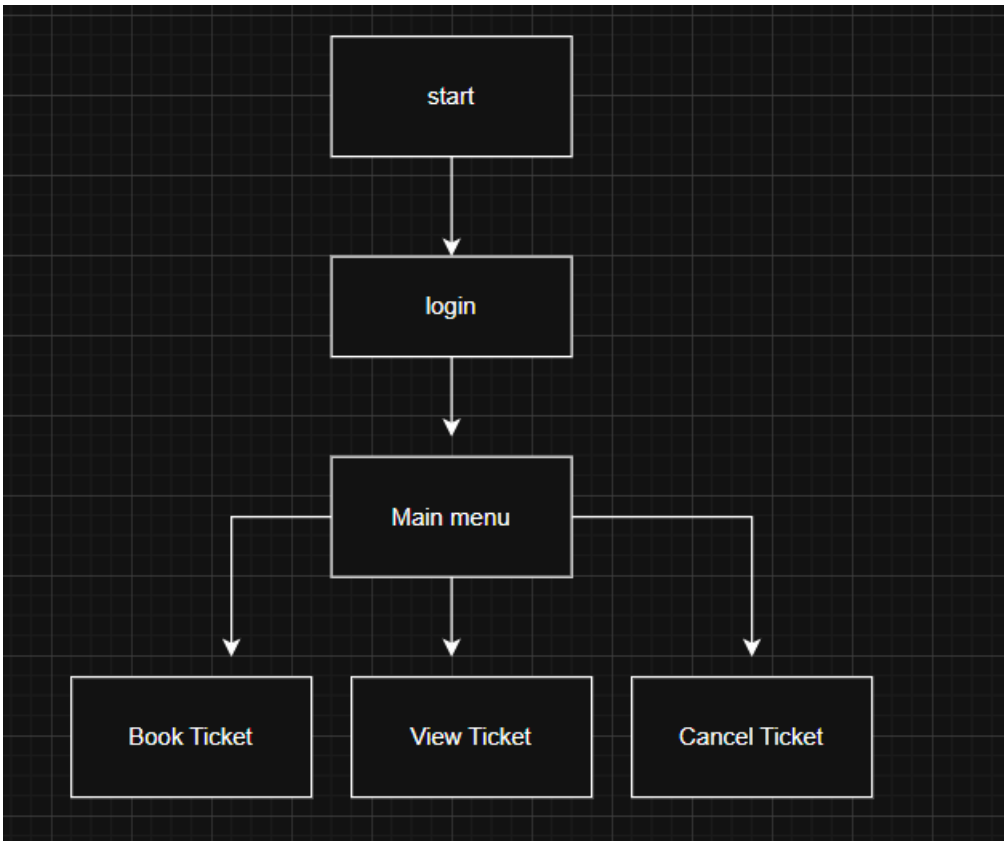
Actor: User

Use cases: Login, Book Ticket, View Tickets, Cancel Ticket



Sequence Diagram (Booking):

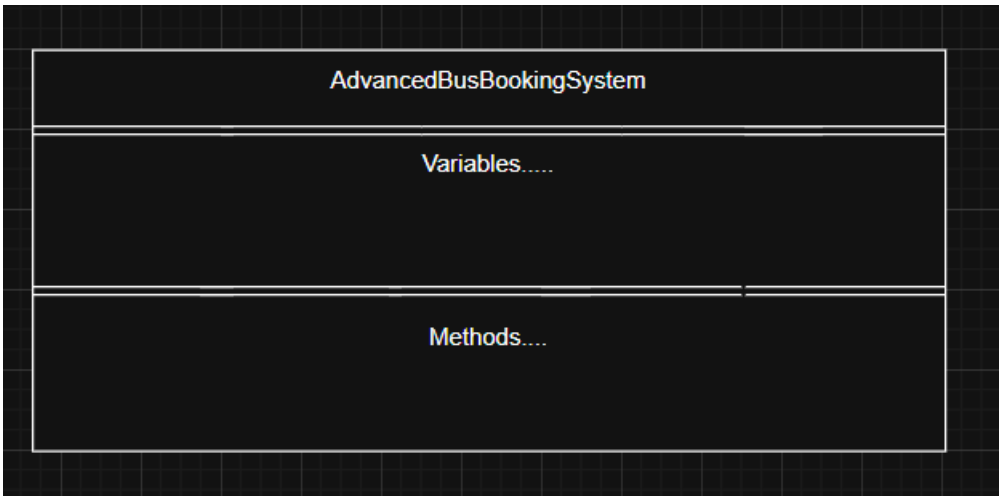
User → Fill Form → System checks seats → System saves ticket → System shows success



Workflow Diagram:

Start → Login → Choose action → Book / View / Cancel → End

Class Diagram (Simple):



AdvancedBusBookingSystem

- Variables for fields and components

- HashMap seatMap

+ booking()

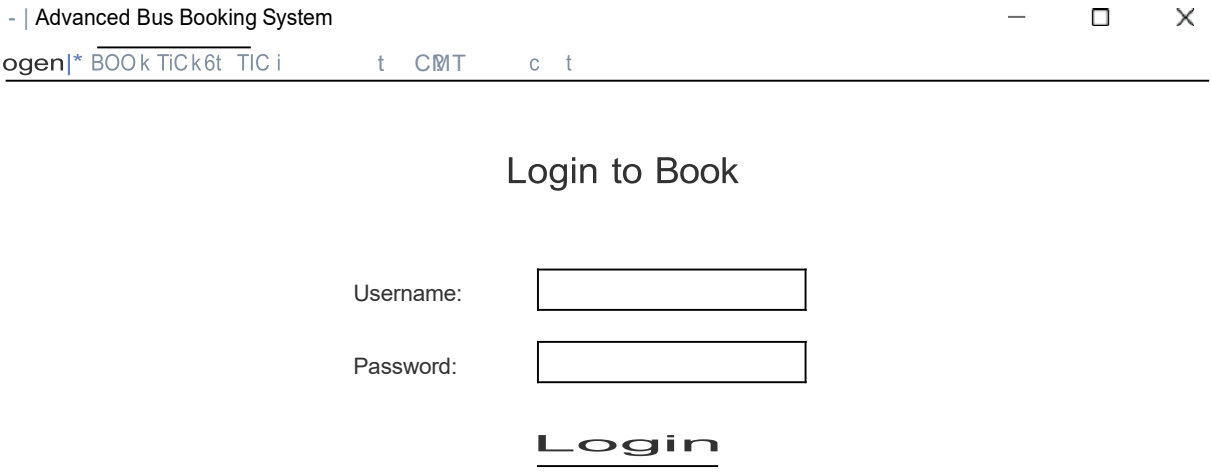
+ cancel()

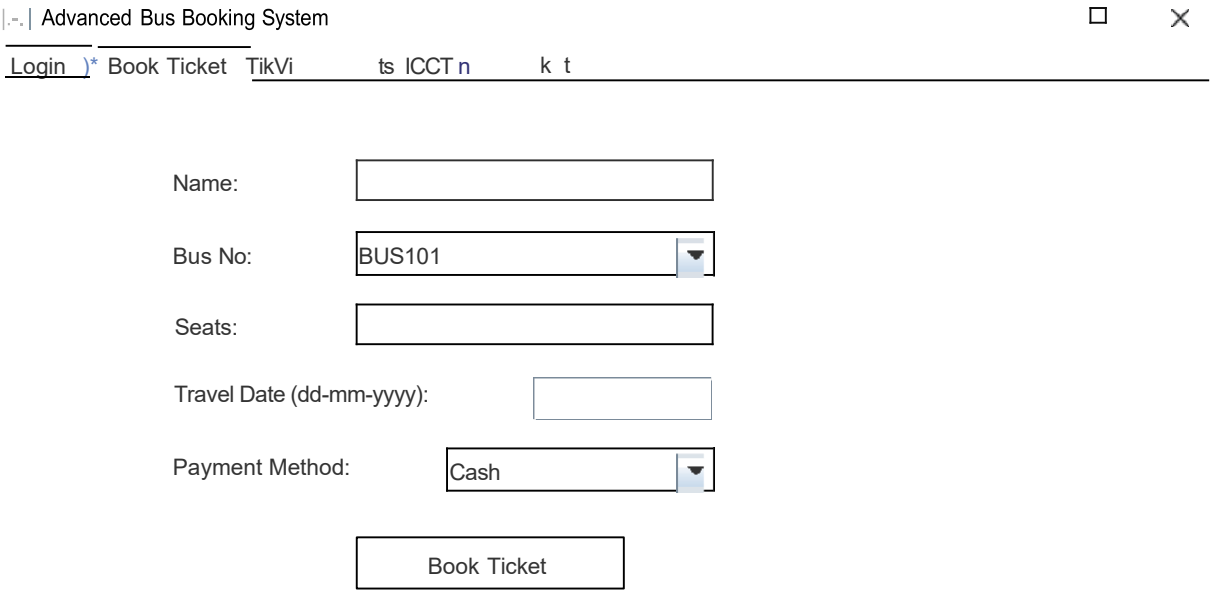
+ loadTickets()

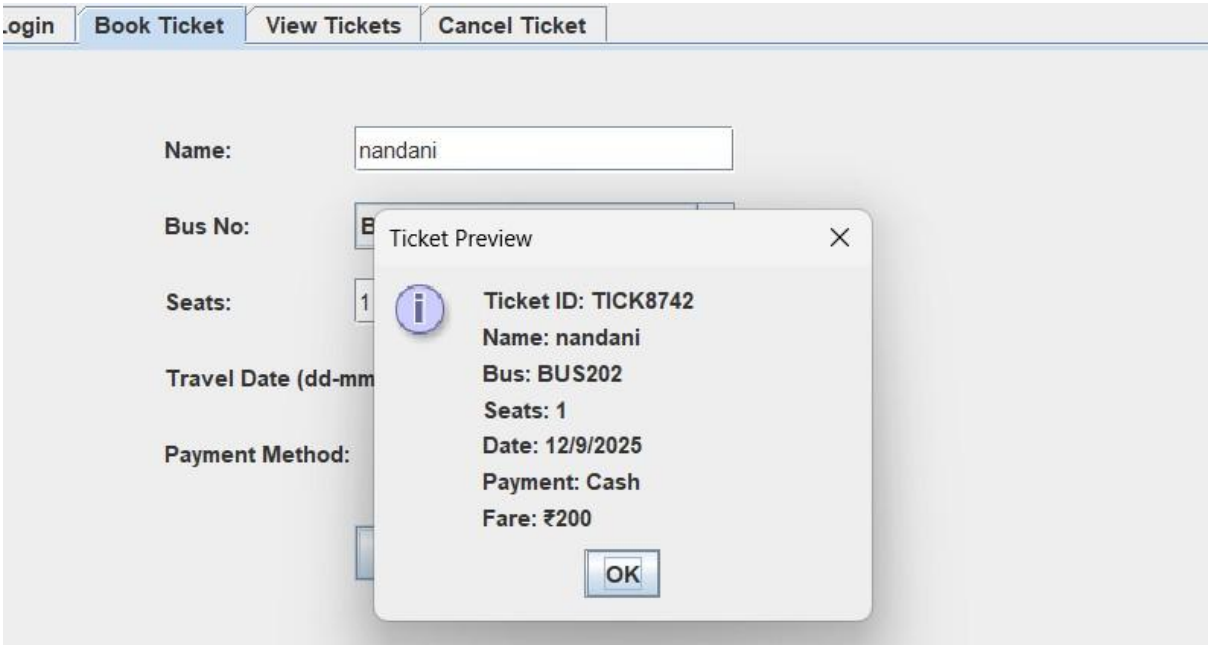
7. Implementation Details

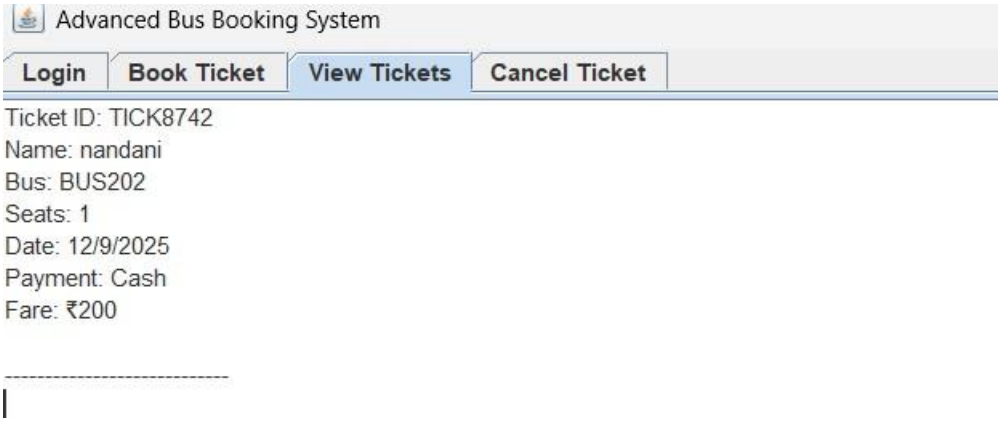
I used Swing components like JFrame, JTextField, JLabel, JButton and JTabbedPane to design the interface. For storing tickets, I used FileWriter and BufferedReader. I also used a HashMap to track how many seats are already booked for each bus.

8. Screenshots / Results


- | Advanced Bus Booking System
Login
Login to Book
Username:
Password:
Login


Advanced Bus Booking System
Login
Book Ticket
Name:
Bus No:
BUS101
Seats:
Travel Date (dd-mm-yyyy):
Payment Method:
Cash
Book Ticket





9. Testing Approach

Entered wrong login to check validation

Tried booking more seats than allowed

Entered text in seat field to check error

Cancelled a ticket and checked if file was deleted

Viewed tickets multiple times to check refresh

10. Challenges Faced

Getting the layout right in Swing required a lot of trial and error

File reading/writing sometimes gave errors

Handling user inputs without the program crashing

11. Learnings

Better understanding of Swing components

How file handling works in Java

How to structure simple modules

Importance of error checking in user inputs

12. Future Enhancements

Adding a database (MySQL)

Adding seat layout view

Adding proper admin and user accounts

Online ticket download as PDF

13. References

Java Documentation

Classroom notes

StackOverflow for syntax doubts