

# MovieTheatre Project Documentation

## Project Overview

The MovieTheatre program is a Java-based console application that allows users to:

1. Display the seating chart of the theatre.
2. Reserve a seat, suggesting an alternative if the chosen seat is unavailable.
3. Cancel a reservation.
4. Exit the application.

The program simulates a movie theatre with 25 rows and 20 seats per row.

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## Features

### 1. Display Seating Chart

- The seating chart is represented as a grid where:
  - 0 denotes an available seat.
  - X denotes a reserved seat.
- Users can view the current state of the theatre's seating.

### 2. Reserve a Seat

- Users provide the row and seat number they want to reserve.
- If the seat is already taken, the program suggests the nearest available seat.
- If the seat is valid and available, it is marked as reserved (X).

### 3. Cancel a Reservation

- Users provide the row and seat number they want to cancel.
- If the seat is reserved, the program cancels the reservation, marking the seat as available (0).
- If the seat is already available, the program notifies the user.

### 4. Exit

- Allows users to terminate the program gracefully.
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# Technical Details

## Class Structure

### MovieTheatre

- **Fields:**
  - ROWS (constant): Number of rows in the theatre (25).
  - SEATS\_PER\_ROW (constant): Number of seats per row (10).
  - AVAILABLE (constant): Character representing an available seat (O).
  - TAKEN (constant): Character representing a reserved seat (X).
  - seatingChart: 2D array representing the seating arrangement.
- **Methods:**
  - **MovieTheatre()**: Constructor initializing the seating chart.
  - **displaySeatingChart()**: Displays the seating chart.
  - **reserveSeat(int row, int seat)**: Reserves a specified seat or suggests an alternative.
  - **cancelSeat(int row, int seat)**: Cancels a specified seat reservation.
  - **suggestSeat()**: Suggests the nearest available seat.

### main() Method

- Provides a menu-driven interface for users to interact with the program.
- Allows users to:
  1. Display the seating chart.
  2. Reserve a seat.
  3. Cancel a reservation.
  4. Exit the program.

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## Example Run

Menu:

1. Display Seating Chart
2. Reserve a Seat
3. Cancel a Reservation
4. Exit

Choose an option: 1

Seating Chart:

```
O O O O O O O O O O
O O O O O O O O O O
```

... (remaining rows)

Choose an option: 2  
Enter row number (1-25): 1  
Enter seat number (1-10): 5  
Seat reserved successfully.

Choose an option: 3  
Enter row number (1-25): 1  
Enter seat number (1-10): 5  
Seat cancellation successful.

Choose an option: 4  
Exiting system. Goodbye!

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## How to Run

1. Save the program in a file named `MovieTheatre.java`.
  2. Open a terminal and navigate to the directory containing the file.
  3. Compile the program:  
`javac MovieTheatre.java`
  4. Run the program:  
`java MovieTheatre`
  5. Follow the on-screen menu for interaction.
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## Future Enhancements

1. Add support for dynamic theatre sizes based on user input.
  2. Implement a graphical user interface (GUI) for better user experience.
  3. Add options for group reservations.
  4. Include persistent storage to save the seating chart between runs.
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## License

This project is released under the MIT License.

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## Author

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