

Project Use-Case Specification

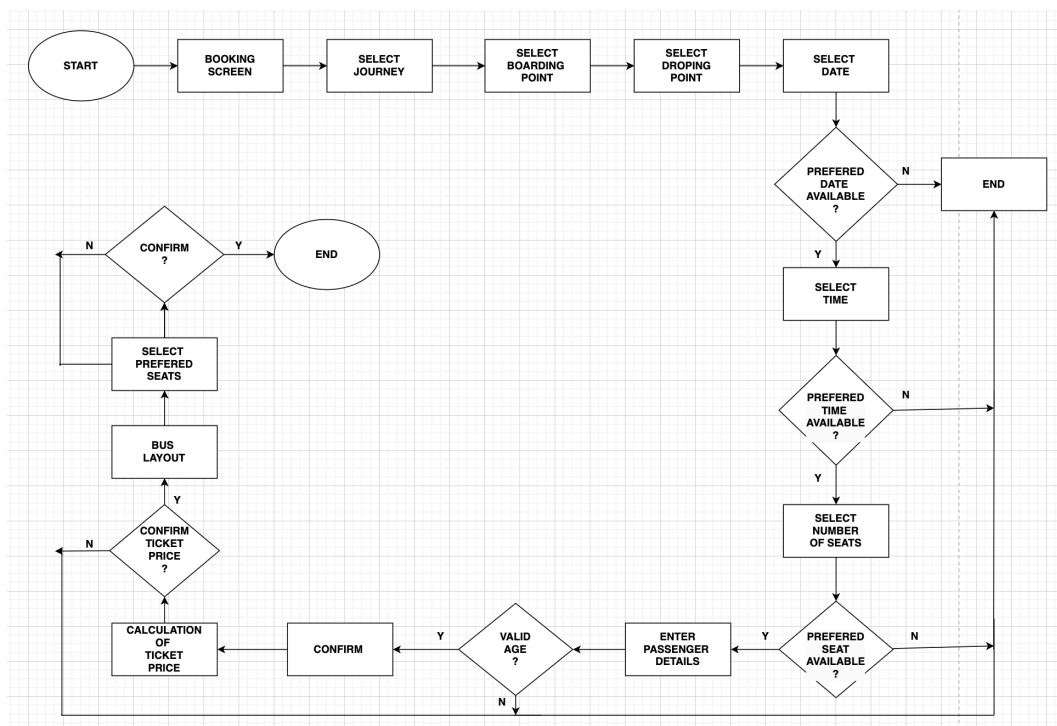
Project Name: BookMyTicket
Use Case Name: Booking Screen
Unique Identifier: UC-003

Revision History –

Date	Version	Description	Author
23/02/2025	1.0	Initial Draft	Gauri Paithankar

1. Description

The **Booking Screen** allows users to select a journey by choosing the boarding point, dropping point, journey date, and time. Users enter passenger details, including name, age, and gender, with an option to add up to 5 passengers at a time. The system calculates the total fare based on the per-seat fare multiplied by the number of passengers. After confirmation, the user is shown a bus layout where they can select preferred seats. Once seats are chosen, the user is directed to the checkout page to proceed further.



Use case diagram

2. Actors

1. User (Passenger) – Selects journey details and seats.
2. System (BookMyTicket Platform) – Displays available options and updates seat status.

3. Assumptions

1. The user has access to a stable internet connection.
2. The user is logged in.
3. The user is allowed to proceed as a guest.
4. The system has an updated database of available buses, routes, and fares.
5. Seat availability is updated in real time to prevent double booking.
6. The user can add up to five passengers in a single booking.
7. The fare calculation is based on the per-seat fare multiplied by the number of passengers.
8. The user must select at least one seat to proceed to checkout.

4. Constraints

1. Users can only book available seats; once a seat is booked, it cannot be selected by another user.
2. Selecting a journey is mandatory before choosing seats.
3. Selecting a boarding point is mandatory before choosing seats.
4. Selecting a dropping point is mandatory before choosing seats.
5. Selecting a date is mandatory before choosing seats.
6. Selecting a time is mandatory before choosing seats.
7. A maximum of 5 passengers can be added per booking.
8. The system only displays buses operating on the selected route and date.
9. The fare calculation is based on the per-seat fare multiplied by the number of passengers, and cannot be manually modified.
10. The system must ensure real-time seat availability updates to prevent double booking.
11. Users cannot proceed to checkout without selecting at least one seat.

5. Priority

High - The Booking Screen is a core functionality of the system.

6. Pre - Conditions

1. The system has an updated list of available buses.
2. The system has an updated routes.
3. The system is connected to the seat availability database to show real-time updates.
4. The user is either logged in or allowed to proceed as a guest.

7. Basic Flow

Step	User Action	System Response
1	User selects the journey from a dropdown list.	System prompts the user to enter additional details.
2	User selects the boarding point from a dropdown list.	System updates the selected boarding point.
3	User selects the dropping point from a dropdown list.	System updates the selected dropping point.
4	User selects the journey date from a calendar picker.	System updates the selected date.
5	User selects the preferred time from a dropdown list.	System updates the selected time.
6	User selects the number of seats from a dropdown list (maximum 5).	System updates the seat selection count.
7	User selects gender for each passenger from a dropdown list.	System updates passenger details.
8	User enters name for each passenger.	System updates the entered details.
9	User enters age for each passenger.	System updates the entered details.
10	System calculates the total fare (per-seat fare \times number of passengers).	System displays the total fare.
11	User reviews and confirms journey and passenger details.	System saves the details temporarily and loads the seat selection layout.
12	User selects preferred seats from the available options.	System updates seat availability in real-time.
13	User completes the booking selection process.	System redirects the user to the checkout page.

8. Alternate Flow

Step	User Action	System Response
1	User remains inactive on the screen for 2 minutes.	The system will abort the session and return to the previous screen or logout if no activity is detected.
2	User attempts to edit booking details.	Edits are only allowed within 2 minutes of the initial selection; after that, modifications are restricted.

9. Error Messages

Step	User Action	System Response
1	User tries to proceed without selecting a journey from the dropdown.	System prompts: "Please select a valid journey."
2	User tries to proceed without selecting a boarding point from the dropdown.	System prompts: "Please select a valid boarding point."
3	User tries to proceed without selecting a dropping point from the dropdown.	System prompts: "Please select a valid dropping point."
4	User tries to select a past date from the calendar.	System disables past dates and restricts selection.
5	User tries to select a date beyond the next 1 month.	System restricts selection and displays an error: "You can only book tickets for the next 30 days."
6	User tries to select more than 5 passengers from the dropdown.	System displays an error message: "You can add up to 5 passengers per booking."
7	User selects a seat, but it gets booked by another user before confirmation.	System prompts: "Selected seat is no longer available. Please choose another seat."
8	User tries to proceed without selecting gender for one or more passengers.	System prompts: "Please select a gender for all passengers."
9	User tries to proceed without entering name for one or more passengers.	System prompts: "Please select a name for all passengers."
10	User tries to proceed without entering age for one or more passengers.	System prompts: "Please select a age for all passengers."

10. Exception Flow

Step	User Action	System Response
1	System takes too long to respond due to a network issue	System displays: "Request timed out. Please check your internet connection and try again."
2	User selects a seat, but another user books it before confirmation.	System prompts: "Selected seat is no longer available. Please choose another seat."
3	System fails to fetch bus details, seating layout, or fare calculation.	System displays: "Unable to load booking details. Please refresh and try again."
4	System fails to retrieve or update journey details due to database failure.	System displays: "Unable to process booking due to a system issue. Please try again later."

11. "Includes" Use-Cases –

1. UC 01 - Login for Users.
2. UC 04 - Amendment and Cancellation.

12. Post-Condition –

1. The user has successfully selected journey details, passenger details, and seats, and is redirected to the checkout page.
2. The system has updated the selected seats as reserved to prevent double booking.
3. If the user does not complete checkout, the booking remains incomplete, and seats may be released after a timeout.
4. If the session times out before proceeding to checkout, the user must restart the booking process.

13. Business Rule –

Rule ID	Business Rule	Description
BR-001	Predefined Routes Only	Users can only select from 10 predefined routes.
BR-002	Mandatory Boarding point Selection	Users must select a boarding point before proceeding.
BR-003	Mandatory Dropping point Selection	Users must select a dropping point before proceeding.
BR-004	Mandatory Date Selection	Users must select a date before proceeding.
BR-005	Mandatory Time Selection	Users must select a time before proceeding.
BR-006	Valid Date Range	Users can only select date up to the next 30 days; past dates and dates beyond 30 days are restricted.
BR-007	Passenger Limit	A maximum of 5 passengers can be added per booking.
BR-008	Seat Selection Required	Users must select at least one seat to proceed.
BR-009	Real-Time Seat Availability	Seats are allocated on a first-come, first-served basis, and availability is updated in real-time.
BR-010	Fare Calculation	Total fare is calculated as (per-seat fare × number of passengers).
BR-011	Session Timeout	If a user is inactive for too long, the session will expire, and they must restart the booking process.
BR -012	Gender-Based Seat Selection	Male passengers cannot select seats next to female passengers unless no other seats are available.

14. Special Requirements

Requirement ID	Special Requirement	Description
SR-001	Calendar Date Picker	The date selection must use a calendar widget, restricting past dates and dates beyond 30 days.
SR-002	Real-Time Seat Updates	The system must ensure real-time seat availability updates to prevent double bookings.

Requirement ID	Special Requirement	Description
SR-003	Dropdown Selections	Journey, boarding point, dropping point, time, number of seats, and gender must be selected using dropdown menu.
SR-004	Error Handling & Alerts	The system must provide clear error messages for invalid inputs, session timeouts, and seat unavailability.
SR-005	Multi-Passenger Support	Users must be able to add up to 5 passengers in a single booking.
SR-006	Auto-Logout on Inactivity	The system should automatically log out inactive users and refresh the booking screen after session timeout.

15. Artifacts

1. Stores user-selected boarding point, dropping point, date, and time.
2. Contains name, age, and gender details for up to 5 passengers.
3. Stores selected seat numbers for the journey.
4. Displays the per-seat fare \times number of passengers.
5. Stores booking details until the user proceeds to checkout.
6. Records system errors, seat conflicts, and session timeouts.

16. Use - Case Glossary

Term	Definition
Journey Selection	The process of choosing the journey from 10 pre-defined routes.
Boarding Point	The location where the passenger starts their journey.
Dropping Point	The location where the passenger ends their journey.
Date Picker	A calendar-based selection tool that allows users to pick a valid travel date within the next 30 days.
Seat Selection	The process of choosing available seats from the displayed bus layout.
Passenger Details	Information entered by the user, including name, age, and gender for up to 5 passengers.
Fare Calculation	The system computes the total cost based on (per-seat fare \times number of passengers).
Real-Time Seat Availability	The system dynamically updates seat availability to prevent double bookings.
Error Handling	The system provides alerts when invalid inputs occur, such as unavailable seats, missing passenger details, or expired sessions.

17. Comments/Concerns/Issues/Notes

Category	Details
Note	Ensure that the calendar picker does not allow past dates and restricts selection to the next 30 days only.
Note	Dropdown menus should have predefined options only to avoid incorrect user inputs.
Issue	If multiple users select the same seat simultaneously, how does the system handle conflicts efficiently?
Issue	How will the system handle network failures during seat selection or fare calculation? Will it retry automatically?
Concern	What happens if the user selects seats but does not proceed to checkout? Should the seats be temporarily held or released immediately?
Concern	Should there be a time limit for seat selection before the session expires?