

**Software Requirement Engineering**

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| **Features** | **Actors** | ***Functional Requirements*** |
| Register | User, Admin | * The website shall provide a registration form with fields for user's name, email, and password. * Upon submission, the system shall verify that all required fields are filled and that the email provided is in the correct format. * The system shall check if the email provided during registration is unique and not already associated with an existing account. * After successful registration, the system shall send a confirmation email to the provided email address for account activation. * Upon clicking the confirmation link in the email, the system shall activate the user's account and redirect them to the login page. |
| Login | User, Admin | * The website shall display a login form with fields for the user's email and password. * Upon submission, the system shall authenticate the user's credentials by checking them against the stored user data. * The system shall ensure that the user's account is active and not blocked or suspended before allowing login. * After successful authentication, the system shall redirect the user to their dashboard or the homepage. * In case of unsuccessful login attempts, the system shall display appropriate error messages and provide options for password recovery. |
| Book Ticket | User, Admin | * The website shall provide a search interface where users can enter their desired route, date, and number of seats. * Upon submission, the system shall retrieve and display available buses, schedules, and seat availability based on the user's input. * Users shall be able to select seats from the available options and proceed to the booking confirmation page. * The system shall calculate the total fare based on the selected seats and any applicable discounts or taxes. * After successful payment, the system shall generate a booking confirmation with a unique booking ID and send it to the user's email. |
| Search for Routes and Schedules | User, Admin | * The website shall provide a search functionality where users can enter their departure and destination locations, as well as the desired travel date. * The system shall retrieve and display available bus routes and schedules matching the user's search criteria. * Users shall be able to filter and sort the search results based on various parameters such as departure time, duration, and fare. * The system shall provide real-time updates on seat availability and any changes in the bus schedules. |
| View/Modify Booking | User, Admin | * Users shall have access to a section where they can view their booked tickets along with details such as the departure time, bus number, and seat numbers. * Users shall be able to modify booking details such as the date, time, or number of seats (if available) before the departure time. * The system shall update the booking information in real-time and reflect any changes made by the user. * Users shall receive confirmation notifications via email or SMS after successfully modifying their bookings. * The system shall provide an option for users to cancel their bookings within a specified timeframe and receive refunds if applicable. |
| Payment | User, Admin | * The website shall provide a secure payment gateway that supports credit/debit card, net banking, and digital wallet payments. * The payment gateway shall use encryption protocols (such as SSL) to secure users' payment information during transmission. * After successful payment, the system shall generate a payment confirmation message and send it to the user's registered email address or mobile number. * The payment confirmation message shall include details such as the transaction ID, booking details, and payment amount. * Users shall have the option to view their payment history and download payment receipts from their account dashboard. |
| Notification | User, Admin, Help Center | * + The website shall send notifications to users via email, SMS, or in-app notifications for booking confirmations, updates, or changes.   + Users shall be able to specify their preferred notification method (email, SMS, etc.) through their account settings.   + Notifications shall include clear and concise information about the booking status, changes in schedule, or any relevant updates.   + The system shall provide an option for users to opt-in or opt-out of receiving specific types of notifications.   + In case of critical updates or emergencies, the system shall send immediate notifications to users via all available channels. |
| Promo Code Redemption | User | * Users shall have the option to enter promo codes during the booking process through a designated field on the checkout page. * The website shall validate the entered promo code to ensure its authenticity and applicability. * Upon successful validation, the system shall apply the corresponding discount or offer to the total booking amount. * The system shall display the applied discount and the updated booking total before the user confirms the payment. * Users shall receive a confirmation message indicating the successful application of the promo code and the adjusted booking amount. |
| Real-time Bus Tracking | User | * Users shall have access to a real-time bus tracking feature that displays the live location of their booked bus. * The website shall use GPS or similar tracking technologies to retrieve and update the bus's current location on a map interface. * Users shall be able to view additional information such as the bus's estimated arrival time at their destination and any upcoming stops. * The system shall provide options to zoom in/out and pan across the map interface for better visualization of the bus's route. * Users shall receive notifications or alerts in case of delays, route diversions, or other relevant updates regarding their booked bus. |
| Helpline | User, Help center | * + Users shall have access to customer support services for assistance with bookings, payments, or other inquiries.   + Customer support shall be available through multiple channels, including phone, email, and live chat, during specified operating hours.   + The website shall display contact details for customer support prominently on the homepage and within the user account dashboard.   + Support agents shall respond promptly to user queries and provide helpful assistance in resolving issues or concerns.   + Users shall have the option to rate their support experience and provide feedback for continuous improvement.   Top of Form |
| Logout | User, Admin | * + The website shall provide a visible "Logout" button or link for users to log out of their accounts.   + When the user clicks the "Logout" button, the website shall prompt for confirmation before proceeding with the logout action.   + Upon confirmation, the website shall clear the user's session data stored on the server to invalidate the current session.   + After clearing the session, the website shall display a confirmation message confirming the successful logout.   + Upon confirmation, the website shall automatically redirect the user to the login page. |

***Use Case Scenarios***

## 1.1. Use Case Scenario

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| MKB\_UC-01: | | | | |
| **Actors:**  User, Admin | | | | |
| **Feature:** Registration | | | | |
| **Use case Id:** | | MKB\_UC-01 | | |
| **Description:** | | Allows Users to create a new account easily. | | |
| **Pre-condition:** | | None | | |
| **Scenarios** | | | | |
| **Step#** | **Action** | | | **Software Reaction** |
| **1.1.1** | User navigate to the registration page. | | |  |
| **1.1.2** | User provides necessary details (name. Email,password,etc) | | |  |
| **1.1.3** | User Click on the “register” button. | | | System validates the information and creates a new account. |
| **Alternate Scenarios:** | | | | |
| None | | | | |
| **Post Conditions** | | | | |
| **Step#** | **Description** | | | |
| **1** | User’s account is successfully created. | | | |
|  |  | | | |
| **User Interface reference** | | | Registration Page | |

#### 1.2. Use Case Scenario 2

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| MKB\_UC-02: Login | | | | |
| **Actors:**  user , Admin | | | | |
| **Feature:** Login | | | | |
| **Use case Id:** | | MKB\_UC-02 | | |
| **Description:** | | Allows Users to create a new account easily. | | |
| **Pre-condition:** | | User register/ create account to the system. | | |
| **Scenarios** | | | | |
| **Step#** | **Action** | | | **Software Reaction** |
| **1.2.1** | User Navigates into login page. | | |  |
| **1.2.2**  **1.2.3** | User enter the already given details (name, Email, password etc.).  User Click on the “Login” button. | | | System validates the information and creates and login into the account. |
| **Alternate Scenarios:** | | | | |
| None | | | | |
| **Post Conditions** | | | | |
| **Step#** | **Description** | | | |
| **1** | User’s account is successfully Logged in. | | | |
| **User Interface reference** | | | Login Page | |

#### 1.3. Use Case Scenario 3

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| MKB\_UC-03: Book Ticket | | | | |
| **Actors:**  User , Admin | | | | |
| **Feature:** Book Ticket | | | | |
| **Use case Id:** | | MKB\_UC-03 | | |
| **Description:** | | Allows User to book the ticket. | | |
| **Pre-condition:** | | User should have account on the website for ticket booking. | | |
| **Scenarios** | | | | |
| **Step#** | **Action** | | | **Software Reaction** |
| **1.3.1** | User navigates to the ticket booking section. | | | Display the ticket booking interface. |
| **1.3.2** | User selects the desired route, date, and number of seats. | | | Retrieve and display available buses, schedules, and seats. |
| **1.3.3** | User selects seats and proceeds to booking confirmation. | | | Allow users to select seats and proceed to confirmation. |
| **1.3.4** | System generates a booking confirmation with a unique ID. | | | Display confirmation message with booking details. |
| **Alternate Scenarios:** | | | | |
| None. | | | | |
| **Post Conditions** | | | | |
| **Step#** | **Description** | | | |
| **1** | Ticket is successfully booked. | | | |
| **User Interface reference** | | | Ticket Booking Section | |

#### 1.4. Use Case Scenario 4

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| MKB\_UC-04:Search for Routes And Schedule | | | | |
| **Actors:**    User | | | | |
| **Feature:** Search for routes and schedules | | | | |
| **Use case Id:** | | MKB\_UC-04 | | |
| **Description:** | | Allows User to pay utility bills online. | | |
| **Pre-condition:** | | None | | |
| **Scenarios** | | | | |
| **Step#** | **Action** | | | **Software Reaction** |
| **1.1** | User selects the bill payment option. | | |  |
| **2.2** | User chooses the utility bill category. | | |  |
| **3.3** | User provides necessary bill details and confirms the payment. | | | System processes the transaction and updates the payment history. |
| **Alternate Scenarios:** | | | | |
| None | | | | |
| **Post Conditions** | | | | |
| **Step#** | **Description** | | | |
| **1** | Utility bills are successfully paid online. | | | |
| **User Interface reference** | | | Bill Payment Section | |

#### 1.5. Use Case Scenario 5

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| MKB\_UC-05:View and Modify Booking | | | | |
| **Actors:**  User , Admin | | | | |
| **Feature:** View and Modify Booking | | | | |
| **Use case Id:** | | MKB\_UC-05 | | |
| **Description:** | | Allows users to view and modify their bookings. | | |
| **Pre-condition:** | | None | | |
| **Scenarios** | | | | |
| **Step#** | **Action** | | | **Software Reaction** |
| **1.1** | User navigate to view and modify booking page, user view and modify bookings. | | | Allow user to modify booking details such as date, time, or seats. |
| **2.2** | User confirm and modify the bookings. | | | System updates the booking with the modifications. |
| **Alternate Scenarios:** | | | | |
| None | | | | |
| **Post Conditions** | | | | |
| **Step#** | **Description** | | | |
| **1** | Booking is successfully modified according to user's changes. | | | |
| **User Interface reference** | | | Booking management section | |

#### 1.6. Use Case Scenario 6

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| MKB\_UC-06:  Payment | | | | |
| **Actors:**  User , Admin | | | | |
| **Feature:** Payment | | | | |
| **Use case Id:** | | MKB\_UC-06 | | |
| **Description:** | | Allows User to make payment. | | |
| **Pre-condition:** | | Admin provider is logged in to the system. | | |
| **Scenarios** | | | | |
| **Step#** | **Action** | | | **Software Reaction** |
| **1.6.1** | User navigates to the “Payment” section. | | | Display the payment interface. |
| **1.6.2** | User select payment details and method. | | | Show available payment options (credit/debit card, etc.) |
| **1.6.3** | User confirms the payment. | | | System processes the payment transaction. |
| **Alternate Scenarios:** | | | | |
| None | | | | |
| **Post Conditions** | | | | |
| **Step#** | **Description** | | | |
| **1** | Payment is successfully processed. | | | |
| **User Interface reference** | | | Payment section. | |

#### 1.7. Use Case Scenario 7

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| MKB\_UC-07: Notifications | | | | |
| **Actors:** User , Admin , help center | | | | |
| **Feature:** Notifications | | | | |
| **Use case Id:** | | MKB\_UC-07 | | |
| **Description:** | | Allows User to receive notifications for booking, payment and any important notification of real time tracking. | | |
| **Pre-condition:** | | None | | |
| **Scenarios** | | | | |
| **Step#** | **Action** | | | **Software Reaction** |
| **1.1** | User sets up booking, real time tracking, and payment notification preferences. | | | System sends the notifications. |
| **Alternate Scenarios:** | | | | |
| None | | | | |
| **Post Conditions** | | | | |
| **Step#** | **Description** | | | |
| **1** | User receives timely notifications. | | | |
| **User Interface reference** | | | Notification Preferences | |

#### 1.8. Use Case Scenario 8

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| MKB\_UC-08: Help Center | | | | |
| **Actors:** User , Help center | | | | |
| **Feature:** Help Center | | | | |
| **Use case Id:** | | MKB\_UC-08 | | |
| **Description:** | | Allows users to contact the Help Center for assistance. | | |
| **Pre-condition:** | | none | | |
| **Scenarios** | | | | |
| **Step#** | **Action** | | | **Software Reaction** |
| **1.8.1** | User selects the type of assistance needed. User submit their inquiry or request. | | | Provide option for different types of support, by provided the inadequate support to user inquires. |
| **Alternate Scenarios:** | | | | |
| None | | | | |
| **Post Conditions** | | | | |
| **Step#** | **Description** | | | |
| **1** | User's inquiry or request is successfully received and answered. | | | |
| **User Interface reference** | | | Help Center Section | |

#### 1.9. Use Case Scenario 9

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| --- | --- | --- | --- | --- |
| MKB\_UC-09:Promo Code Redemption | | | | |
| **Actors:**  User | | | | |
| **Feature:** Promo Code Redemption | | | | |
| **Use case Id:** | | MKB\_UC-09 | | |
| **Description:** | | Allows users to redeem promo codes for discounts. | | |
| **Pre-condition:** | |  | | |
| **Scenarios** | | | | |
| **Step#** | **Action** | | | **Software Reaction** |
| **1.9.1** | User navigates to the promo code redemption section. | | | Display the promo code redemption interface. |
| **1.9.1** | User enter the promo code user confirm the redemption. | | | System validate the promo code, apply discount and display total amount. |
| **Alternate Scenarios:** | | | | |
| None | | | | |
| **Post Conditions** | | | | |
| **Step#** | **Description** | | | |
| **1** | Promo code is successfully redeemed and discount applied. | | | |
| **User Interface reference** | | | Promo Code Redemption Section | |

#### 1.10. Use Case Scenario 10

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| MKB\_UC-10:Real Time Bus Tracking | | | | |
| **Actors:**  User | | | | |
| **Feature:** Real Time Bus Tracking | | | | |
| **Use case Id:** | | MKB\_UC-10 | | |
| **Description:** | | Allows customers to track the real-time location of buses. | | |
| **Pre-condition:** | |  | | |
| **Scenarios** | | | | |
| **Step#** | **Action** | | | **Software Reaction** |
| **1.10.1** | User checks the status of real time bus tracking status. | | | System provides real-time updates. |
| **Alternate Scenarios:** | | | | |
| None | | | | |
| **Post Conditions** | | | | |
| **Step#** | **Description** | | | |
| **1** | User receives current information of real time bus tracking status. | | | |
| **User Interface reference** | | | Real time bus tracking Page | |

#### 1.11. Use Case Scenario 11

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| MKB\_UC-011:Logout | | | | |
| **Actors:** User, Admin | | | | |
| **Feature:** Logout | | | | |
| **Use case Id:** | | MKB\_UC-11 | | |
| **Description:** | | Allows user to logout securely. | | |
| **Pre-condition:** | | None. | | |
| **Scenarios** | | | | |
| **Step#** | **Action** | | | **Software Reaction** |
| **1.11.1** | User clicks on the "Logout" button. | | | Ask the user to confirm their intention to logout. |
| **1.11.2** | System prompts for confirmation. User confirm logout. | | | Log the user out of their account. |
| **Alternate Scenarios:** | | | | |
| None | | | | |
| **Post Conditions:** | | | | |
| **Step#** | **Description** | | | |
| **1** | User is successfully logged out of their account. | | | |
| **User Interface reference** | | | Logout | |