Functional Requirements

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| **Requirement #** | **Functional Feature** | **Remarks** |
| Req-1 | Maintain Bookings | This functionality will maintain all types of booking. |
| Req-1/1 | Checkout Room By Admin | The staff shall be able to checkout a customer from a room booked under the customer’s name. |
| Req-1/2 | Search Bookings | The staff shall be able to view the current bookings in the hotel. |
| Req-1/3 | Checkout Of One Room | The customer shall be able to checkout of any one room booked under his id. |
| Req-1/4 | Checkout Of All Rooms | The customer shall be able to checkout of all rooms booked under his id. |
| Req-1/5 | Automatic Checkout | The system shall be able to automatically checkout customer after his booking duration has expired. |
| Req-2 | Maintain Branches | This functionality will maintain all branches of the hotel. |
| Req-2/1 | Add Branch | The admin shall be able to add a new (unique) branch of the hotel. |
| Req-2/2 | Search Branch | The admin shall be able to search from the existing branches of the hotel. |
| Req-2/3 | Update Branch | The admin shall be able to update a branch information – location and id are non-updateable. |
| Req-2/4 | Delete Branch | The admin shall be able to delete an existing branch of the hotel. |
| Req-3 | Maintain Room Types | This functionality will maintain all room types of the hotel. |
| Req-3/1 | Add Room Type | The admin shall be able to add a new (unique) room type to the hotel. |
| Req-3/2 | Search Room Type | The admin shall be able to search from existing room type in the hotel. |
| Req-3/3 | Delete Room Type | The admin shall be able to delete an existing room type from the hotel. – Room types can only be deleted if no room of such type is booked at that moment. |
| Req-3/4 | Update Room Type | The admin shall be able to update information about a room type – can only update room number. |
| Req-4 | Maintain Rooms | This functionality will maintain information of all rooms of the hotel. |
| Req-4/1 | Add Room | The admin shall be able to add a new room to a hotel – all rooms in a branch must have unique room numbers. |
| Req-4/2 | Search Rooms | The admin shall be able to search an existing room in the hotel. |
| Req-4/3 | Update Room | The admin shall be able to update information about an existing room in the hotel. – only room number can be updated. |
| Req-4/4 | Delete Room | The admin shall be able to delete an existing room from the hotel. – Room can only be deleted if it is not booked at that moment. |
| Req-5 | Maintain Payments And Bills | This functionality will maintain the payments and bills of the customers of the hotel. |
| Req-5/1 | Search Payments | The admin shall be able to search the paid and unpaid bills of customers by customer id or bill id. |
| Req-5/2 | Mark As Paid | The staff shall be able to mark a bill Paid via its id and checkout all rooms booked under that bill. |
| Req-5/3 | Generate Bill | The customer shall be able to generate the total bill for a customer using their id. |
| Req-5/4 | View Bill Details | The customer shall be able to view the detailed breakdown of a bill |
| Req-6 | Manage Authentication | This functionality manages user login. |
| Req-6/1 | Admin Login | The admins shall be able to login securely using valid credentials – username and password. |
| Req-6/2 | User Login | The users shall be able to login securely using valid credentials – cnic and password |
| Req-6/3 | Session Maintenance | Sessions shall be managed to maintain user states across different pages |
| Req-6/4 | Logout | The users shall be able to logout of the system securely |
| Req-6/5 | Signup | New users shall be able to sign up to use the website. |
| Req-7 | Search Customer | The admin shall be able to search the information about a customer using their id. |
| Req-8 | Manage Booking | This functionality manages the booking procedure. |
| Req-8/1 | Check Availability | This functionality allows users to check for availability of rooms based on location, room number and number of beds |
| Req-8/2 | Book Room | Users shall be able to book any one of the available rooms for a set number of days. |
| Req-8/3 | Search Bookings | Admin shall be able to search for bookings based on user CNIC, location, and room number. |

Non-Functional Requirements

**Performance:**

The system should respond to user actions (e.g., room booking, check availability) within 2 seconds under normal load conditions.

The automatic checkout process should be completed in a timely manner without causing delays in the overall system performance.

**Security:**

User authentication and authorization mechanisms should be implemented to ensure secure access to the system.

**Scalability:**

The system should be able to handle an increasing number of users, bookings, and transactions without a significant degradation in performance.

Scalability should be considered for both user-facing functionalities and administrative tasks.

**Usability:**

The user interface should be intuitive and user-friendly, allowing both customers and administrators to perform tasks with minimal training.

**Maintainability:**

The system codebase should be well-documented, and any updates or changes should be easily traceable.

Regular maintenance activities, such as database updates and software patches, should be performed with minimal disruption to the overall system.