**LAB 4:**

**AIM:** To identify and document functional requirements for the project.

**R.1**: Authentication and Authorization System

**R.1.1**: Username/Password Authentication

**Input**:

**Input:** User enters their username and password to log in.

**Output**:

Success/Failure message

**R.1.2**: Account Lockout After Multiple Failed Attempts

**Input:** User tries to log in with incorrect credentials multiple times.

**Output**:

Error message (e.g., "Account locked due to multiple failed attempts")

**R.2**: User Profile Management

**R.2.1**: Personal Information Update

**Input:** User provides updated personal details like name, address, or date of birt

**Output**:

Success message (e.g., "Personal information updated successfully")

Failure message (if validation fails)

**R.2.2**: Contact Details Modification

**Input:** User enters a new email address or phone number.

**Output**:

Success message (e.g., "Contact details updated successfully")

Failure message (if validation fails)

**R.2.3**: Password Change

**Input:** User provides their current password and sets a new one.

**Output**:

Success message (e.g., "Password changed successfully")

Failure message (if current password is incorrect)

**R.3**: Search and Booking

**R.3.1**: Flight Search

**Input:** User enters departure city, arrival city, and travel dates.

**Output**:

List of available flights within the specified date range.

**R.3.2**: Filter Options (Price, Duration, Stops)

**Input:** User selects filters like ticket price, flight duration, or number of stops.

**Output**:

Filtered and sorted list of available flights matching the selected criteria.

**R.3.4**: Compare Flight Alternatives

**Input:** User chooses flights to compare based on airlines, departure times, or prices.

**Output**:

Comparison table displaying key differences between flight alternatives.

**R.4**: Reservation Management

**R.4.1**: Create Reservation

**Input:** User selects a flight, enters passenger details, and provides payment information.

**Processing**:

Verify flight availability and seat type.

Process payment.

Confirm reservation and generate booking.

**Output**:

Confirmation message (e.g., booking reference, e-ticket)

Error message (if booking fails)

**R.4.2**: Modify Existing Reservation

**Input:** User enters their booking reference and selects new flight details.

**Processing**:

Verify the modification request and flight availability.

Update the reservation with the new flight details.

Adjust pricing if applicable.

**Output**:

Success message (e.g., "Reservation updated successfully")

Error message (if the modification is not possible)

**R.4.3**: Cancel/Refund Booking

**Input:** User provides their booking reference and reason for cancellation (if needed).

**Processing**:

Verify the cancellation eligibility (e.g., cancellation policy).

Process refund (if applicable).

Update booking status in the system.

**Output**:

Confirmation of cancellation and refund (if applicable)

**R.4.4**: Seat Selection

**Input:** User selects a preferred seat (aisle, window, or class type).

**Processing**:

Check seat availability for the selected flight.

Update the reservation with the selected seat.

**Output**:

Confirmation message (seat selection successful)

Error message (if the seat is unavailable)

**R.5**: Reporting and Analytics

**R.5.1**: Booking History

**Input:** User requests to see their past bookings.

**Processing**:

Retrieve booking history from the database based on the user’s ID.

**Output**:

List of past bookings with relevant details (flight, dates, seat type)

**R.5.2**: Personal Travel Statistics

**Input:** User requests a summary of their travel history, such as frequent destinations.

**Processing**:

Retrieve user travel data and generate statistics (e.g., number of flights taken, most

frequent destinations)

**Output**:

Statistical report (numbers)