Test Plan Document

1. Scope of Testing

2.1 Features to be Tested

The following features will be covered in testing:

1. User Authentication (Login, Signup, Profile Management)

- User registration & login with valid/invalid credentials
- Password reset functionality
- Role-based access control (Customer, Admin, Agent)
- Session management & security
- **Manual Testing:** UI validation, form inputs, authentication scenarios
- **Automation Testing:** Login/logout, session management, role-based access
- **API Testing:** Authentication API, session handling, security checks

2. Hotel Booking System

- Search functionality (location, price, rating filters)
- Hotel details page (room availability, images, pricing)
- Booking process (room selection, guest details, payment validation)
- Cancellation & modification policies
- **Manual Testing:** Search functionality, UI validation, room selection
- **Automation Testing:** End-to-end booking flow, price validation, confirmation process
- **API Testing:** Hotel availability, booking API, cancellation API

3. Flight Booking System

- Flight search with filters (date, price, stops, airline)
- Booking process (seat selection, passenger details, payment integration)
- E-ticket generation & notifications

- **Manual Testing:** Flight search, seat selection, ticket confirmation
- **Automation Testing:** End-to-end flight booking, validation of filters, price updates
- **API Testing:** Fetching flights, booking flights, retrieving ticket details

4. Car Rentals

- Search & compare available cars
- Booking process & payment validation
- Rental duration & cancellation policies
- **Manual Testing:** Search & compare available cars, UI validation
- **Automation Testing:** Rental booking flow, payment validation, order confirmation
- **API Testing:** Car availability, booking API, pricing updates

5. Tours & Activities

- Tour listings & search filters
- Booking confirmation process
- Cancellation & refund handling
- **Manual Testing:** Tour search, filters, UI validation
- **Automation Testing:** Booking confirmation, refund processing, user journey validation
- **API Testing:** Fetching tours, booking a tour, managing cancellations

6. Payment System (Checkout & Transactions)

- Different payment methods (Credit Card, PayPal, Bank Transfer)
- Payment gateway validation & error handling
- **Manual Testing:** UI validation, form handling, transaction checks
- **Automation Testing:** Payment gateway validation, error handling, refund process
- **API Testing:** Payment processing, transaction history, validation of error handling

7. API Testing

- Hotels API: Fetch hotel details & availability
- Flights API: Retrieve flight data

- Booking API: Create, modify, cancel bookings
- **Manual Testing:** Basic API request testing via Postman
- **Automation Testing:** Automated API validation & response verification
- **API Testing:** Validate endpoints for Hotels, Flights, Bookings, Payments

8. Admin Panel (Back-office Testing)

- User & Role Management
- Inventory & Pricing Updates
- Reporting & Analytics
- **Manual Testing:** User & Role Management, UI validation
- **Automation Testing:** Inventory & Pricing Updates, Reporting & Analytics workflows
- **API Testing:** Admin API functionalities, database interactions

9. Security & Performance Testing

- Data Protection & Encryption validation
- Load Testing on Booking & Search Systems
- **Manual Testing:** Basic security checks, role-based access testing
- **Automation Testing:** Load testing for peak traffic, security vulnerability scans
- **API Testing:** Security testing for authentication, data encryption validation

2.2 Out of Scope

- 3rd Party Integrations (unless explicitly required)
- UI/UX Design Consistency (unless requested separately)
- Data Migration & Back-end Database Queries

2. Pages to Test

General Pages

- **Home Page**
  - Display top destinations, deals, and featured hotels
  - Search bar for flights, hotels, and cars
- **Login & Registration**

- o User authentication system
- **Dashboard**
  - o Customer dashboard for managing bookings
  - o Admin dashboard for monitoring sales and activity
- **Contact & Support**
  - o Contact form and customer support chat

Booking Pages

- **Hotels Page**
- **Flights Page**
- **Car Rentals Page**
- **Tours Page**
- **Payment Page**

3. Testing Risks & Challenges

1. **Browser & Device Compatibility**
   a. The website may behave differently on Chrome, Firefox, Safari, and Edge.
   b. Mobile responsiveness issues on Android and iOS devices.
2. **Third-Party API Failures**
   a. Payment gateways (PayPal, Credit Card) may have downtime or unexpected errors.
   b. Hotel and flight booking APIs may return incorrect data or fail under load.
3. **Security Vulnerabilities**
   a. Weak authentication could allow unauthorized access.
   b. Data leaks if personal or payment information isn't properly encrypted.
4. **Performance & Load Handling**
   a. High traffic on search and booking pages could slow down the system.
   b. API rate limits might cause failures when multiple users book at once.
5. **Automation Test Flakiness**
   a. Dynamic UI elements may cause tests to fail randomly.
   b. API responses may change due to server delays, affecting automated scripts.
6. **Data Consistency Issues**
   a. Booking records might not sync properly between front-end and back-end.

b. Inventory updates (hotel availability, flight pricing) could be delayed.

7. **Edge Cases in User Actions**
   a. Users may enter unexpected inputs (invalid email, incorrect dates).
   b. Booking modifications and cancellations might cause conflicts.

8. **Time Zone & Localization Issues**
   a. Date and time differences could affect booking confirmations.
   b. Currency conversions may not be accurate across different regions.

9. **Regression Testing Overhead**
   a. Frequent updates to the system may break existing functionality.
   b. Maintaining automation scripts for UI changes requires constant updates

4. Testing roles

Mariam:

- Validate flight search (date, price, stops, airline).
- Test seat selection, passenger details, e-ticket generation.
- Verify payment options (Credit Card, PayPal, Bank Transfer).
- API Testing: Flight availability, booking API, payment gateway.
- Automation: Flight booking, payment processing, refund workflow.

Esraa:

- Test user registration, login/logout, password reset.
- Verify session management, role-based access (Admin, Customer, Agent).
- Test tour search, booking, and cancellation flow.
- Perform security testing (SQL injection, authentication bypass, data encryption).
- API Testing: Authentication API, booking API, security endpoints.
- Automation: Login/logout, tour booking, security scans.

Haneen:

- Validate hotel search (filters, location, price, rating).
- Check hotel details (availability, images, pricing).
- Test booking process (guest details, payment, confirmation).
- Admin: Verify user management, pricing updates.
- Conduct Performance Testing on hotel search & booking.
- API Testing: Hotel availability, booking API, admin role management.
- Automation: Hotel booking workflow, pricing updates.

Mohammed:

-Test car search, availability, booking process, rental policies.
- Validate admin reports, data tracking, and analytics.
- Conduct Security Testing (data protection, role-based access).
- API Testing: Car rental API, reporting API, security endpoints.
- Automation: Car booking flow, admin report validation, security scans.

Response time for API requests:

API response time is the time taken by the server to process a request and return a response to the client (browser or application). It is measured in milliseconds (ms).

Tools Used for Measurement:

Postman: For sending requests and measuring response time.

Performance Benchmarks

API TYPE	TARGET RESPONSE TIME
Authentication	< 400 ms
Data Retrieval	< 300 ms
Complex Operations (Checkout)	< 2 seconds

Results and Recommendations:

Login API : average response time =310 ms.

Register API : average response time =307 ms.

Reset Password API : average response time =354 ms.

Reload (I'am not a robot) API : average response time =279 ms.

Hotel Search API : average response time =320 ms.

Tours Search API : average response time =415 ms.

Cars Search API : average response time =371 ms.

Booking API : average response time =438 ms.

Create Payment Resource API: average response time =213ms

Payment API : average response time = 1 sec.

API Response Time (Average):

Total = 310 + 307 + 354 + 279 + 320 + 415 + 371 + 438 + 213 + 1000 = 4007 ms

Average = 4007 ms ÷ 10 = 400.7 ms.

Test coverage percentage: **Test coverage percentage is a metric that measures how much of your code is executed during testing. It helps assess the effectiveness of your tests and identify untested parts of the code.**

How is Test Coverage Calculated

$$\text{Test Coverage (\%)} = \left(\frac{\text{Number of lines (or statements) executed by tests}}{\text{Total lines (or statements) in the code}} \right) \times 100$$

for example :

estimated test coverage **for** car search, availability, booking process, rental policies

Test Case	Estimated Coverage	Remarks
Car Search	85%	Covers different locations, dates, and car types but may lack edge cases like invalid locations.
Car Availability Check	80%	Covers basic availability but may miss tests for high-demand periods or rare car types.
Booking Process	90%	Covers most scenarios but may miss edge cases like expired credit cards or incorrect user details.
Rental Policies Validation	75%	Covers major rules but may not test all edge cases like special license types or country-based restrictions.

Overall Estimated Test Coverage for this test case : 83%