**Test Plan: Airline Application**

**1. Introduction**

The objective is to validate all functionalities and integrations of the airline application, including flight search, booking, cancellations, user account management, and payment handling. The system should be robust, secure, and provide a seamless user experience.

**2. Objectives and Tasks**

**Objectives:**

* Verify that ensure that all core features such as flight search, booking, cancellation, ticketing, and payment processing are working as expected.
* Verify that the application provides an intuitive, easy-to-use interface for both end users (passengers) and admins (staff).
* Validate the system’s ability to handle high user loads, especially during peak travel seasons.
* Confirm that new features and bug fixes do not break existing functionality.

**Tasks:**

* Requirement analysis
* Test case design
* Test environment setup
* Test execution
* Defect logging and retesting
* Reporting and test closure

**3. Scope of Testing**

**In-Scope:**

* User registration and login
* Flight search and booking
* Payment processing
* Ticket generation and email notifications
* Flight cancellation and refund

**Out of Scope:**

* Backend infrastructure setup
* Third-party API internal logic

**4.Approach:**

Agile Model

**5. Test Items**

* Airline booking web and mobile apps
* APIs (Flight search, booking, payments, etc.)

**6.Test scenarios**

specific functionality or features to be tested

**1. Flight Search**

* **Search Flights by Source and Destination**
  + **Test Case:** Verify that the user can search flights by entering a valid source and destination city.
  + **Expected Result:** Flights are displayed based on the entered source and destination.
* **Search Flights by Date**
  + **Test Case:** Verify that the user can search flights based on departure and return dates.
  + **Expected Result:** Flights available for the specified date range are displayed.
* **Search Flights for One-Way Travel**
  + **Test Case:** Verify that the user can search for one-way flights with a single departure date.
  + **Expected Result:** Only one-way flights are displayed.

**2. Flight Booking**

* **Select Flight and Proceed to Booking**
  + **Test Case:** Verify that the user can select a flight from the available search results and proceed to the booking page.
  + **Expected Result:** The selected flight details are displayed on the booking page.
* **Fill in Passenger Details**
  + **Test Case:** Verify that the user can fill in passenger details (name, contact, passport information, etc.) correctly.
  + **Expected Result:** The system should accept valid passenger details and display an error for invalid details (e.g., missing fields).

**3. Payment**

* **Successful Payment via Credit Card**
  + **Test Case:** Verify that the user can make a successful payment using a valid credit card.
  + **Expected Result:** The payment is processed, and the user receives a confirmation email/SMS.
* **Successful payment via debit card**
  + **Test Case:** Verify that the system handles declined payment transactions (e.g., invalid card number, insufficient funds).
  + **Expected Result:** Error message like "Payment Declined" should be displayed, and the user should be prompted to try again.
* **Payment via EWallet**
  + **Test Case:** Verify that the user can pay using PayPal or other supported digital wallets.
  + **Expected Result:** The user is redirected to the PayPal login or wallet interface, completes the transaction, and returns to the confirmation page.
* **Invalid Credit Card Information**
  + **Test Case:** Verify that the system shows an error message when the user enters invalid credit card details.
  + **Expected Result:** An error message indicating invalid card details should be displayed.

**4. Booking Confirmation and E-Ticket**

* **Booking Confirmation**
  + **Test Case:** Verify that the user receives a booking confirmation page with details of the flight, passenger, and payment.
  + **Expected Result:** A booking confirmation page is shown with correct details (flight number, date, passenger name, seat number, total price).
* **Email Confirmation**
  + **Test Case:** Verify that the user receives an email with the booking confirmation and ticket details.
  + **Expected Result:** The email should contain booking reference, flight details, and e-ticket.

**7. Types of Testing**

**Functional Testing: To validate the enhancements**

**UI/UX Testing: To verify layout and responsiveness of the system**

**Smoke testing: to validate the booking, search, cancelation**

**Regression Testing: existing features after updates**

**Security Testing:** **Validate user data protection and session security**

**Performance and Load Testing: To ensure how to application working under a certain load**

**User Acceptance Testing (UAT): real users test the product**

**8. Test Environment**

* **Staging server**  :Demo,QA
* **Production-like server: LT**
* **Browsers:** Chrome, Firefox, Safari, Edge
* **Devices:** Web application, Android
* **Tools:** Selenium, Postman, JMeter, OWASP ZAP, TestRail, Azure

**9. Test Deliverables**

* Test Plan document
* Test Cases
* Test Data
* Test Automation Scripts
* Test Summary Report
* Defect Report
* Traceability Matrix
* UAT sign-off document

**10. Schedule**

| **Phase** | **Start Date** | **End Date** |
| --- | --- | --- |
| Requirement Review | 2025-05-10 | 2025-05-14 |
| Test Design | 2025-05-15 | 2025-05-20 |
| Environment Setup | 2025-05-18 | 2025-05-22 |
| Test Execution | 2025-05-23 | 2025-06-10 |
| Regression & UAT | 2025-06-11 | 2025-06-15 |
| Reporting | 2025-06-16 | 2025-06-18 |

**11. Entry and Exit Criteria**

**Entry Criteria:**

* All requirements are finalized and signed off.
* Test environment is set up and stable.
* Test cases are reviewed and approved.

**Exit Criteria:**

* All critical and high-severity defects are resolved.
* Test coverage of 95% achieved.
* UAT approval obtained.
* Existing Production bugs approved By product owner

**12. Risks and Mitigations**

| **Risk** |  | **Mitigation** |
| --- | --- | --- |
| Unavailability of test environment |  | Have backup servers and contingency plans |
| Incomplete requirements |  | Close collaboration with business analysts |
|  |  |  |

**11. Approvals**

| **Name** | **Role** | **Signature** |
| --- | --- | --- |
| QA Manager | Test Lead |  |
| Product Owner | Stakeholder |  |
| Project Manager | Delivery Head |  |