**✈️ Airline Application Test Plan**

**1. Test Plan Overview**

**Objective**: Ensure all functional and non-functional requirements of the airline application are tested and verified.  
**Scope**: Web and mobile platforms (passenger side + admin/staff portal)  
**Tested Components**:

* User Registration/Login
* Flight Search
* Booking & Payment
* Check-in
* Seat Selection
* Ticket Cancellation/Reschedule
* Loyalty/Rewards System
* Notifications
* Admin Panel
* Backend APIs

**2. Components and Test Coverage**

**✅ 1. User Registration and Login**

* **Tests**:
  + Valid/invalid email or phone login
  + Password policy enforcement
  + Forgot password, email/SMS verification
  + Multi-factor authentication
  + Session management

**✅ 2. Flight Search Module**

* **Tests**:
  + Search by city, date, class
  + Filters (non-stop, price, airline)
  + Sorting (price, time)
  + Valid/invalid input scenarios
  + Performance under high query volume

**✅ 3. Flight Booking**

* **Tests**:
  + Booking for single & multiple passengers
  + Input validation (passport, DOB, etc.)
  + Booking summary verification
  + Booking confirmation email/SMS
  + Handling session timeouts mid-booking

**✅ 4. Payment Gateway**

* **Tests**:
  + Credit/debit card, UPI, wallets, net banking
  + Payment success/failure/refund flows
  + 3D Secure/OTP handling
  + Fraud detection scenarios
  + Currency conversion for international flights

**✅ 5. Online Check-in**

* **Tests**:
  + Time-based eligibility
  + Boarding pass generation (PDF/email)
  + Baggage selection
  + Seat upgrade during check-in
  + QR/barcode verification

**✅ 6. Seat Selection**

* **Tests**:
  + Seat map rendering
  + Reserved/available seat logic
  + Special seats (exit row, aisle/window)
  + Pricing based on seat type

**✅ 7. Ticket Cancellation/Reschedule**

* **Tests**:
  + Policy-based cancellation (free, penalty)
  + Date change functionality
  + Refund initiation and tracking
  + Notification on change/cancel

**✅ 8. Loyalty/Rewards System**

* **Tests**:
  + Points accumulation per flight
  + Redeeming points for bookings
  + Tier-based access (Silver/Gold/Platinum)
  + Expiry of points

**✅ 9. Notifications (Email/SMS/Push)**

* **Tests**:
  + Booking confirmation
  + Gate changes, flight delays
  + Reminder for check-in
  + Opt-in/opt-out preferences

**✅ 10. Admin Panel**

* **Tests**:
  + Flight management (add/update/delete)
  + Pricing engine control
  + User management
  + Reports dashboard
  + Access control roles (staff, agent, admin)

**✅ 11. Backend APIs**

* **Tests**:
  + REST API contract validation
  + Authentication/authorization checks
  + Data consistency across services
  + Performance under load
  + Rate limiting, error handling

**3. Types of Testing**

| **Type** | **Purpose** |
| --- | --- |
| Functional Testing | Validate business workflows and requirements |
| UI/UX Testing | Ensure smooth navigation, accessibility, responsiveness |
| Regression Testing | Verify no breakage after updates |
| Integration Testing | Ensure modules communicate correctly |
| Load Testing | Test behavior under traffic |
| Security Testing | Validate data protection, encryption, XSS/SQLi etc. |
| UAT (User Acceptance Testing) | Confirm real-user expectations are met |

**4. Tools & Environments**

* **Automation**: Selenium, Appium, Cypress
* **API Testing**: Postman, REST Assured
* **Load Testing**: JMeter, Locust
* **Security**: OWASP ZAP, Burp Suite
* **CI/CD Integration**: Jenkins, GitHub Actions

**5. Deliverables**

* Test Strategy Document
* Test Cases (manual + automated)
* Bug Reports
* Test Execution Report
* Final Sign-off Report