# Test Plan for Restful Booker API Testing

## 1. Introduction

The purpose of this test plan is to outline the approach for testing the Restful Booker API (<https://restful-booker.herokuapp.com/apidoc/index.html>). The API provides functionalities for booking management, including creating, retrieving, updating, and deleting bookings.

## 2. Test Objectives

* Verify the correctness and reliability of API endpoints.
* Ensure proper handling of valid and invalid requests.
* Validate authentication and authorization mechanisms.
* Check response formats (JSON) and status codes.
* Test edge cases and error handling.

## 3. Scope

### In Scope:

* Booking API (Create, Read, Update, Delete)
* Authentication API (Token generation)
* Ping API (Health check)
* Partial Updates (PATCH method)
* Response validation (status codes, schemas, error messages)

### Out of Scope:

* UI Testing (Frontend not covered)
* Performance/Load Testing (Unless specified)
* Security Testing beyond basic auth (e.g., penetration testing)

## 4. Test Environment

* Base URL: https://restful-booker.herokuapp.com
* Tools:
  + Postman / REST Assured / pytest (for automation)
  + Swagger/OpenAPI Docs (for reference)
* Test Data:
  + Predefined booking payloads (valid & invalid)
  + Authentication credentials (username: admin, password: password123)

## 5. Test Cases

### 5.1 Health Check (Ping)

| **Test Case ID** | **Description** | **Expected Result** |
| --- | --- | --- |
| TC-001 | Send GET request to /ping | Status 201 Created, response: "Created" |

### 5.2 Authentication

| **Test Case ID** | **Description** | **Expected Result** |
| --- | --- | --- |
| TC-002 | Generate auth token with valid credentials | Status 200 OK, returns token |
| TC-003 | Generate auth token with invalid credentials | Status 403 Forbidden |

### 5.3 Create Booking

| **Test Case ID** | **Description** | **Expected Result** |
| --- | --- | --- |
| TC-004 | Create booking with valid payload | Status 200 OK, returns booking ID |
| TC-005 | Create booking with missing required fields | Status 400 Bad Request |
| TC-006 | Create booking with invalid dates | Status 400 Bad Request |

### 5.4 Get Booking

| **Test Case ID** | **Description** | **Expected Result** |
| --- | --- | --- |
| TC-007 | Get booking by valid ID | Status 200 OK, returns booking details |
| TC-008 | Get booking with invalid/non-existent ID | Status 404 Not Found |

### 5.5 Update Booking

| **Test Case ID** | **Description** | **Expected Result** |
| --- | --- | --- |
| TC-009 | Update booking with valid ID & payload (PUT) | Status 200 OK, updated booking |
| TC-010 | Update booking without auth token | Status 403 Forbidden |
| TC-011 | Partial update (PATCH) booking | Status 200 OK, partial fields updated |

### 5.6 Delete Booking

| **Test Case ID** | **Description** | **Expected Result** |
| --- | --- | --- |
| TC-012 | Delete booking with valid ID & auth | Status 201 Created |
| TC-013 | Delete booking without auth | Status 403 Forbidden |

## 6. Test Execution

* Manual Testing: Using Postman for ad-hoc validation.
* Automated Testing: Scripts (Python/REST Assured) for regression.
* Test Cycle:
  1. Smoke Testing (Critical paths)
  2. Functional Testing (All endpoints)
  3. Negative Testing (Error cases)

## 7. Exit Criteria

* All critical test cases (P0) pass.
* No blocker defects (P1) open.
* Test coverage ≥ 90% for core functionalities.

## 8. Risks & Mitigations

| **Risk** | **Mitigation** |
| --- | --- |
| API downtime | Use mock responses for testing |
| Flaky tests | Retry mechanism in automation |
| Missing test cases | Review OpenAPI spec for updates |

## 9. Reporting

* Defects: Logged with steps, request/response, severity.
* Test Summary Report: Includes pass/fail rates, defects, and recommendations.

### Approval

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* Reviewed by: [QA Lead/Manager]
* Date: 2/7/2025

This test plan ensures comprehensive coverage of the Restful Booker