K6 Test Plan

1. Introduction

This document outlines the k6 performance testing tool's API performance test strategy for a few chosen DummyJSON endpoints. This test plan's objective is to assess the behavior, stability, and responsiveness of the API under various load scenarios.

2. Test Objectives

This performance test plan's goals are to:
Analyze load-related API response times.Verify the system's stability while using concurrent access.
Record key performance indicators (KPIs).Determine any possible performance snags.

3. System Under Test

The DummyJSON mock backend API is the system being tested. It offers RESTful endpoints that mimic the backend functions of e-commerce.

4. Scope

In scoop

- Performance testing of selected API endpoints
- Smoke and load testing using k6
- Collection of response time, throughput, and error rate metrics

Out of scoop

- Security testing
- Database performance testing
- Production environment testing

5. Target Endpoints

The following API endpoints are included in this performance test plan:
- GET /products
- GET /products/{id}
- DELETE /products/1

6. Test Scenarios

- Smoke testing to verify basic endpoint availability
- Load testing to simulate concurrent users accessing APIs

7. Load Profiles

Smoke Profile:
- Virtual Users: 3
- Duration: 20 seconds

Load Profile:
- Virtual Users: 25
- Duration: 40 seconds

8. Test Environment

- Tool: k6
- Execution: Local machine
- OS: Linux
- Network: Local internet connection

9. KPIs and Thresholds

KPIs:
- Average response time
- 95th percentile response time (p95)
- Throughput (requests/second)
- Error rate

Thresholds:
- p95 response time < 2000 ms
- Error rate < 5%

10. Entry and Exit Criteria

Entry Criteria

- API endpoints are accessible
- k6 environment is configured

Exit Criteria

- All planned test scenarios executed
- KPIs captured and analyzed

11. Risks and Mitigation

Risk: Mock backend may not reflect real production behavior
Mitigation: Interpret results as indicative rather than absolute