# **Testing Template**

**User + Performance Test**

| Date | 24 March 2025 |
| --- | --- |
| Team ID | **SWTID1744137899** |
| Project Name | Bookstore Quasar Books |
| Maximum Marks |  |

### 1. Load Testing Scenarios

| **Test Case ID** | **Scenario** | **Virtual Users** | **Duration** | **Expected Throughput (req/sec)** | **Error Rate Threshold** |
| --- | --- | --- | --- | --- | --- |
| LT-01 | Homepage Load | 100 | 15 min | ≥ 50 | < 1% |
| LT-02 | Search Books | 50 | 10 min | ≥ 30 | < 0.5% |
| LT-03 | Add to Cart | 75 | 10 min | ≥ 20 | < 1% |
| LT-04 | Checkout Process | 30 | 5 min | ≥ 10 | < 0.2% |

### 2. Stress Testing Metrics

| **Test Case ID** | **Scenario** | **Breakpoint Metric** | **CPU Usage Threshold** | **Memory Usage Threshold** | **Recovery Time** |
| --- | --- | --- | --- | --- | --- |
| ST-01 | Database Overload | 500 concurrent users | ≤ 80% | ≤ 75% | < 2 min |
| ST-02 | API Server Crash | 1,000 req/sec | ≤ 90% | ≤ 85% | < 5 min |

### 3. Endurance Testing (Soak Test)

| **Test Case ID** | **Scenario** | **Duration** | **Memory Leak Threshold** | **Throughput Degradation** |
| --- | --- | --- | --- | --- |
| ET-01 | Continuous Book Searches | 8 hours | ≤ 5% increase | ≤ 10% drop |
| ET-02 | Cart Operations | 12 hours | ≤ 3% increase | ≤ 5% drop |

### 4. API Performance Benchmarks

| **API Endpoint** | **90th Percentile Latency (ms)** | **Max Latency (ms)** | **Success Rate** |
| --- | --- | --- | --- |
| GET /books | 200 | 500 | ≥ 99.5% |
| POST /cart | 300 | 800 | ≥ 99% |
| POST /checkout | 500 | 1,200 | ≥ 98% |
| GET /orders | 400 | 1,000 | ≥ 99% |

### 5. Infrastructure Monitoring

| **Metric** | **Normal Range** | **Alert Threshold** | **Tool** |
| --- | --- | --- | --- |
| CPU Usage | 20-60% | > 80% | AWS CloudWatch |
| Memory Usage | 40-70% | > 85% | New Relic |
| Database Connections | 50-150 | > 200 | MongoDB Atlas |
| Network Latency | 50-150ms | > 300ms | Pingdom |

### 6. Key Performance Indicators (KPIs)

| **KPI** | **Target Value** | **Measurement Interval** |
| --- | --- | --- |
| Page Load Time (Home) | < 2 sec | Per deployment |
| API Error Rate | < 0.5% | Hourly |
| Concurrent Users | Up to 1,000 | Peak hours |
| Checkout Completion Rate | ≥ 95% | Daily |

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