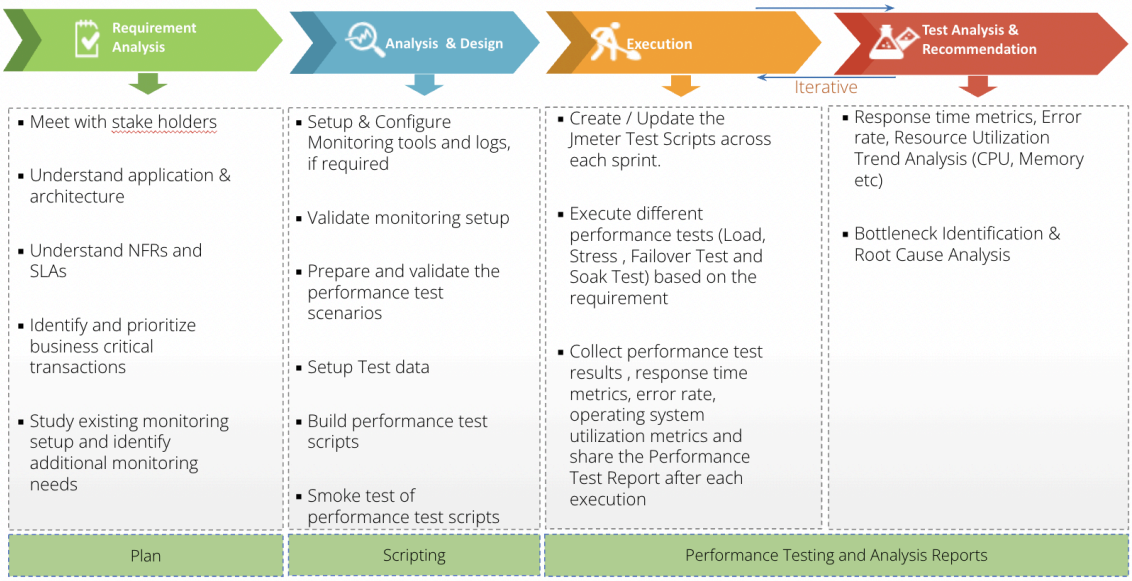
Performance Testing Strategy

1. Performance Test Objective

- To verify that the new or amended application under test meets the non functional requirement
- To advise on product quality, in terms of performance, prior to deployment to production
- To ensure the product causes no adverse impact to existing applications.

2. Performance Test Plan / Overview



3. Performance Testing Types

a. Load Test
   i. **Objective**: To evaluate system behavior under expected user load.
   ii. **Scenario**: Simulate normal day-to-day usage (e.g., 500 users over 1 hour).
   iii. **Goal**: Verify response times, throughput, and system stability under expected usage.

b. Endurance/Soak Test
    i. **Objective**: To evaluate system behavior over an extended period under a steady load.
    ii. **Scenario**: Eg: Run 300 users continuously for 6 hours.
    iii. **Goal**: Detect memory leaks, resource exhaustion, and performance degradation over time and application reliability.

c. Stress Test
    i. **Objective**: To identify the system breaking point and behavior under extreme load.
    ii. **Scenario**: Gradually increase load beyond expected limits (e.g. up to 1500 users).
    iii. **Goal**: Determine the maximum capacity and monitor how the system fails.

4. User journeys

Business Flows	Priority	Systems Impacted	Overall Status	Comments
Get Booking - All IDs	High			
Get Booking - By Name	High			
Get Booking - By Date	High			
Create Booking	High			
Update Booking	High			
Partial Update Booking	High			

5. Test Workload

Business Flows	User Load	Ramp Up	Think Time	Duration
Get Booking - All IDs	High	1 user every 5 seconds	3 seconds	1 Hour
Get Booking - By Name	High	1 user every 5 seconds	3 seconds	1 Hour
Get Booking - By Date	High	1 user every 5 seconds	3 seconds	1 Hour
Create Booking	High	1 user every 5 seconds	3 seconds	1 Hour
Update Booking	High	1 user every 5 seconds	3 seconds	1 Hour
Partial Update Booking	High	1 user every 5 seconds	3 seconds	1 Hour

6. Performance SLA

Business Flows	Expected Throughput (requests/minute)	Expected Response Time (95th Percentile) in milli seconds	Error Rate - Threshold	Comments
Get Booking - All IDs	10	500	0.01%	
Get Booking - By Name	10	200	0.01%	
Get Booking - By Date	10	200	0.01%	
Get Booking	10	200	0.01%	
Create Booking	10	500	0.01%	
Update Booking	5	500	0.01%	

Partial Update Booking	1	500	0.01%	

7. Monitoring and Metrics Collection

a. Key Metrics
   i. Response Time (Avg, 90th, Max)
   ii. Throughput (requests/sec)
   iii. Error Rate (%)
   iv. Server resource metrics (CPU, memory, disk I/O via server monitoring tools)

8. Tools & Environment

a. Apache JMeter
b. InfluxDB + Grafana framework (as JMeter monitoring is limited)
c. APM tools (eg: new relic / Dynatrace / Appdynamics etc)
d. Log analysis (eg: Kibana)

9. Test Environment

a. The test environment must mimic production as closely as possible.
b. Isolated test environment is recommended.
c. Prod data refresh at least once per quarter.