**JPetStore**

**Performance Testing - Test plan**

**Version 1.0**

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**Approval & Signoff**

|  |  |  |
| --- | --- | --- |
| **Designation** | **Name** | **Approval with Date** |
| **Product owner** |  |  |
| **Project manager** |  |  |
| **Dev manager** |  |  |
| **QA Manager** |  |  |

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# 1.Introduction

## 1.1 Purpose of this document

The purpose of this document is to provide the process and methodologies that will be involved in the JPetStore.

## 1.2 Testing Objective

This objective of this Performance Testing is to verify & prove if the proposed application is meeting the business performance requirements.

* Capture the performance of JPetStore.
* Evaluate whether the load time of different actions from JPetStore are aligned with the SLA defined.
* Verify bottlenecks observed and tune solution configuration to meet or exceed Non-functional Requirement

## 1.3 Testing Approach

# 2.Scope

## 2.1 In Scope

* 3 Of rounds of test execution needs to be conducted during this release performance testing.
* Test Types
  + Peak load test - 2 of rounds
  + Endurance test - 1 of rounds
* Interim reports will be shared after each test, and a consolidated test summary report will be shared after all performance tests are completed.

**2.2 Out of scope**

* 13 Scenarios not included in scope for testing.
* Performance testing of any other Upstream/Downstream applications or systems not mentioned in scope
* Code profiling, Hardware sizing, Capacity planning, Failover testing, Disaster recovery testing
* Performance Test Environment setup and Application deployment
* Batch jobs/API based tests which are not mentioned in scope.
* Functional testing, Security testing or any other types of tests.

# 3.WorkLoad Distribution

|  |  |  |
| --- | --- | --- |
| **Scenario name** | **Peak Load Test** | |
| **# Of users** | **TPH** |
| api/profiles/searchByName (GET) | 4 | 83 |
| v1/orders (POST) | 21 | 378 |
| LoginController/loginForm | 14 | 332 |

# **4.Performance Testing Methodology**

## 4.1 NFR Gathering & Test plan

* Once the Performance requirements are finalized, a sign off on the NFRs will be sought from business, Solution Architect or Product Owner.
* A test plan document (this document) will be prepared to list the Scope of all modules in JPetStore performance testing, performance testing approach, Workload Model, Test Types and Key Dependencies
* Signoffs need to obtain for both NFR and Test plan

## 4.2 Performance test scripting & script validation

* Scripting will be completed using JMeter tool in dedicated accepted environment available with code base.
* Once scripting is completed performance team will do an internal review by the internal review champs
* 3 New scenarios for which script needs to be created newly.
* # regression/existing scenario for which only validation of script required.

## 4.4 Performance Test execution

* Below is the performance test type planned.
  + - **Cycle 1**: Peak load
      * Round 1: Detailed approach
      * Round 2: Detailed approach
    - **Cycle 2**: Endurance (Based on the requirement)
      * Round 1: Detailed approach
* Any performance issue or bottleneck found will be logged as a defect in the defect tracking tool and will be tracked for closure.
* The above-mentioned tests will be iteratively repeated until the performance defects are closed.
* Analyze the performance test results and report the performance bottlenecks found.
* Re-execute the test once to verify the performance bottlenecks after they are fixed.

## 4.5 Performance Test monitoring

* AppDynamics will be used for monitoring the server and fetching the metrics.

## 4.6 Performance Test Reports

* Once all the planned execution were complete Prepare the executive summary report with Scorecard based on outcome and present the open risks to business.
* Highlight any performance issue or bottlenecks found, and log issue in the defect tracking tool which will be tracked for closure.
* Product Owner/Business to review the open risks and provide Performance Go/No-Go accordingly.

## 4.7 Risk/Concerns

* As the scripts are currently developed in QA environment, additional time will be needed to migrate the scripts to Performance environment once it is available and update all the test scripts if needed.
* As this is an agile project, frequent code upgrades are anticipated though these may not be major functionality changes, this activity could impact the pre-existing performance test scripts and leading to re-work being needed. Performance test team should be notified in a timely manner, to help plan for script rework or maintenance activities as required.
* Delay in support shared by Dev/QA for tests data creation can lead to risk of schedule slippage.
* Risk of schedule slippage due to stringent timeline for Performance testing.
* Delay in addressing the requirements will affect the Performance testing schedule.

# 5.Entry & Exit Criteria

| **Phases of Testing** | **Entry Criteria** | **Exit Criteria** | **Deliverables** |
| --- | --- | --- | --- |
| Requirement Analysis and Test Planning | * Signed NFR * Application Walkthrough * Performance Environment available | * Delivery of the performance test strategy | Test Plan/Test strategy |
| Script Development | * Performance test strategy is signed off * Functional Validation completed | * Script development completed and reviewed | Final script |
| Test data strategy | * Script Development completed * KT on Test data approach | * Test data is created based on specified approach | Test data required for execution |
| Test Execution | * Recent build available in perf environment * Test scripts are validated * The configuration in the test environment is set as in production * Test data (data volume in the DB and transactional data) is made available in the test environment. | * Planned cycle of test execution completed | Analysis File |
| Performance Test monitoring | * Test execution in progress * Monitoring agent is up and running * Permission granted to view metrics | * Monitoring the important metrics during the execution time | Monitoring analysis |
| Summary Report | * All Planed test execution are completed | * Summary shared with project team for signoff | Test Summary Report |

# 6.Test Schedule & SLA

## 6.1 Test Schedule

| **Phase** | **Start date** | **End date** |
| --- | --- | --- |
| NFR | 08.07.2024 | 10.07.2024 |
| Test plan | 09.07.2024 | 10.07.2024 |
| Scripting | 11.07.2024 | 13.07.2024 |
| Test data creation | 11.07.2024 | 12.07.2024 |
| Execution round 1 | 14.07.2024 | 15.07.2024 |
| Execution round 2 | 16.07.2024 | 17.07.2024 |
| Test Summary Report | 18.07.2024 | 20.07.2024 |

## 6.2 Define SLA’s

|  |  |
| --- | --- |
| **Metrics** | **SLA** |
| Response time | 3 seconds |
| Overall failure rate | <5% |
| CPU Utilization | <75% |
| Memory Utilization | <80% |

# 7.Assumptions and Support required

## 7.1 Assumptions

* Test environment will be available to performance test team during IST business hours 9am-6pm.
* It is assumed that during the testing phase there won’t be frequent deployment or code changes done in the application.
* Any changes in test data due to the DB changes/DB refresh requires additional effort to create new set of test data.

## 7.2 Support required

| **Dependency** | **Action Owner** | **ETA** |
| --- | --- | --- |
| License Procurement | Cognizant will confirm after confirming with |  |
| Availability of stable build | Dev team |  |
| Availability of Performance environment | Dev/Devops team |  |
| The ratio of Production & Performance environment is 1:1 or like ratio | Dev/Devops team |  |
| Load Generator machines to Performance Team | Devops Team |  |
| Monitoring Access | Devops Team |  |
| Read only DB access | Devops Team |  |

# 8.Reference Documents

|  |  |  |
| --- | --- | --- |
| **Document** | **Name** | **Approval with Date** |
| Previous NFR |  |  |
| Application Architecture |  |  |
| Confluence Link |  |  |
|  |  |  |

# 

# 9.Document control

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Version** | **Version Date** | **Description** | **Author name & Date** | **Reviewer name and Date** |
| 1.0 |  |  |  |  |

# 10.Appendix

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| --- | --- |
| Application Architecture | Link |
| NFR Path | Link |
| Load generators | Location of LG with their Load % |
| Defect Management Tool with board name | Agile Jira /Once Jira |
| Prepared By | Soumyaranjan Sahoo  2110372 |
| Photo |  |