**Performance Test Plan for**

**JuicePlus**

# Introduction

## Purpose of the document

This document describes a test plan for the project "JuicePlus" and approaches, which the test team will use to verify the quality of the product. The document also lists the different resources that are needed for a successful performance testing of the project.

## Objective

The purpose of the test plan is to formalize the testing process, plans and approaches to testing, interfacing process with the development team and the project team to achieve the high quality of the software product. The plan takes into account the specifics of the functionality of the project "JuicePlus"

# Scope of project

## The components and functions to be tested

|  |  |  |  |
| --- | --- | --- | --- |
| **ID** | **Components/ Applications name** | **Functions** | **Link** |
| 1 | Front End | * Product search and navigation through E-commerce website. * Purchasing actions | https://staging.juiceplus.com |

## The components and functions not to be tested

|  |  |  |  |
| --- | --- | --- | --- |
| **ID** | **Components/ Applications name** | **Functions** | **Comment** |
| 1 | Back End |  | Purpose of performance testing is testing web application under load generated by the certain amount of users on the front end. |
| 2 | Connected 3rd party services | Services intended for metrics collection, performance monitoring and infrastructure maintenance. | These services are connected for additional needs and are not related to the performance test scenario. |

# Quality criteria

The delivered product must work in accordance with the requirements and the functional specification listed in sections «Scope of Work».

The delivered product must not contain any known defects with critical and high priority in the final version.

# The decisive factors of the project success

* The application should not include known defects with critical and high priority at the time of the final version.
* The application correctly handles required amount of load, without any errors or performance issues.

# Limitations, assumptions and risks

* The late submission of information or delays in document approval by the Customer.
* Changes in the requirements for performance testing during the testing process.
* Ambiguous requirements can increase the risk of insufficient coverage of functionality by performance testing or risks when input test data or test scenario does not reflect actual product requirements or usage.
* The narrow time frame increases the risk of bugs appearance during performance script development and testing. If the timing of development and environment preparation phases are not met, it will directly affect the timing of testing.

## The risks of the project

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **ID** | **Risk description** | **Probability (High/Medium /Low)** | **Influence (High/Average / Low)** | **Effects on Cost /Schedule/ Quality** |
|  | The late submission of information, delays in document approval by the Customer | Medium | High | Schedule |
|  | Incorrect or incomplete stated requirements for testing | High | High | Cost, Schedule |
|  | Changes in the requirements during testing | High | High | Cost, Schedule |
|  | Problems with application infrastructure configuration, unavailability of servers. | High | Medium | Schedule |
|  | Errors in the 3d party performance monitoring tools of the software | Low | High | Schedule, Quality |
|  | The narrow time frames. If the timing of development and environment preparation phases are not met, it will directly affect the timing of testing | Medium | High | Cost, Schedule, Quality |
|  | Insufficient amount or incorrect amount of statistics from the application that may lead to incorrect or incomplete performance testing | Medium | High | Quality |

## Plan to reduce the risks

|  |  |
| --- | --- |
| **ID** | **Actions to reduce the risk** |
| 1 | Compliance with the rules of planning and organizing meetings.  Timely information about the unavailability of employees (including due to vacation, illness, etc.).  The schedule of meetings and the provision of necessary information in advance |
| 2 | Splitting testing into several iterations. Frequent testing results discussions |
| 3 | Fixing the basic list of requirements in the contract |
| 4 | Follow the development schedule. Timely notification of potential problems or shifts in the schedule |

# Resources

## The team of external testing

|  |  |  |  |
| --- | --- | --- | --- |
| **Company** | **Name** | **Role** | **Contact Information** |
| JuicePlus | Wayne Chipchase | AQA |  |
| iTechArt | Alexandr Trostyanko | AQA |  |

## Tools and services for testing

|  |  |  |
| --- | --- | --- |
| **#** | **Tool** | **Comment** |
| 1 | JMeter | Performance testing tool for performance scripts development |
| 2 | BlazeMeter | Performance online service for performance scripts execution |
| 3 | AWS EC2 | Cloud hosting service for load infrastructure setup |

# Deliverables

## Testing Documentation and Reports

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **#** | **Title** | **Responsible Person** | **Frequency (delivery time)** | **Delivery method** |
| 1 | Test Plan | Alexandr Trostyanko | One time before testing | e-mail |
| 2 | Scenario for performance testing | Diann Kelley, Alexandr Trostyanko |  | e-mail, confluence |
| 3 | Source code of testing scripts | Wayne Chipchase,  Alexandr Trostyanko | Upon receipt of the final version of scenarious | Bitbucket |
| 4 | Reports on the results of testing | Wayne Chipchase,  Alexandr Trostyanko | After every test / deliveries | e-mail |
| 5 | Bug reports | Wayne Chipchase,  Alexandr Trostyanko | After bug detection | JIRA |
| 6 | Final performance report | Alexandr Trostyanko | After fixing all related issues | e-mail |

# Strategy of testing

## Testing phases

Main stages of work of the testing team:

1. The testing team gets information about the application (access to the application, testing data) and check what can be tested in case of performance testing.
2. Collect initial statistics information from the application that can be used for performance test plan preparation and performance scenario development.
3. Prepare performance test scenario and confirm it with the responsible person. Make time estimates needed for testing script development and give the approximate time needed to perform these tests for the desired amount of virtual users.
4. Develop and correct testing scripts.
5. Execute the script using low amount of virtual users and generate sample report.
6. Update performance testing scripts if needed.
7. Find the suitable time to provide the main part of the testing.
8. The testing team prepares load infrastructure before the testing depending on the statistics of usage from step 2.
9. Run testing script using specified amount of virtual users according to actual statistical information from the application using information from Test iterations section.
10. After the testing is done, generate execution report and send it to the responsible persons.

## Acceptance criteria

1. Requirements for performance testing are received and confirmed.
2. Testing team has access to the application, has all required test data (test accounts, input data).
3. The system is fully configured and ready for performance testing.
4. Test data is loaded into the database of the application in the amount enough for performance testing.

Test team can partially or completely suspend work, if the following occurs:

1. There is an error in functionality, which does not allow continuing testing.
2. There is a serious problem that prevents the continuation of testing (non-working or damaged test environment, force majeure, such as turning off the Internet or electricity).
3. The developers have not corrected the problem that blocked the testing.

## Completion criteria

1. All test scenarios of the plan for performance testing were performed, performance testing is conducted.
2. Performance testing reports are prepared and sent to responsible persons.

## Reporting

The tools described in Tools and services for testing section will be used to collect the results. Metrics and statistics will be included in the reports, including:

1. Statistics summary:
   1. Maximum running concurrent users
   2. Total throughput
   3. Average throughput
   4. Average hits per second
   5. HTTP responses summary
2. Transactions summary:
   1. Total passed transactions
   2. Total failed transactions
3. HTTP responses summary:
   1. Total amount of HTTP 2XX responses
   2. Total amount of HTTP 4XX responses
   3. Total amount of HTTP 5XX responses
4. Running concurrent users graph
5. Response times graph

The reports contain metrics and statistics described above, a list of issues (with description and links to statistics section) that occurred during tests execution, general conclusion about the performance of the application.

The reports are prepared by the testing team after each iteration of performance scripts execution and sent to responsible persons.

# Test iterations

## First test run using scripts for Users

|  |  |  |
| --- | --- | --- |
| **​#** | **Operation description** | **Time (minutes)** |
|  | Initialize first 2 concurrent thread | 1 |
|  | Increase the load by 2 concurrent threads per 60 seconds till the number of 10 concurrent threads is reached | 5 |
|  | Keep the load using 10 concurrent threads | 10 |
|  | Increase the load by 10 concurrent threads per 60 seconds till the number of 50 concurrent threads is reached | 5 |
|  | Keep the load using 50 concurrent threads | 10 |
|  | Increase the load by 50 concurrent threads per 60 seconds till the number of 250 concurrent threads is reached | 5 |
|  | Keep the load using 250 concurrent threads | 30 |
|  | Finish test execution, gradually stop concurrent threads |  |

## Second test run using scripts for Customers

|  |  |  |
| --- | --- | --- |
| **​#** | **Operation description** | **Time (minutes)** |
|  | Initialize first 2 concurrent thread | 1 |
|  | Increase the load by 2 concurrent threads per 60 seconds till the number of 10 concurrent threads is reached | 5 |
|  | Keep the load using 10 concurrent threads | 10 |
|  | Increase the load by 10 concurrent threads per 60 seconds till the number of 50 concurrent threads is reached | 5 |
|  | Keep the load using 50 concurrent threads | 10 |
|  | Increase the load by 50 concurrent threads per 60 seconds till the number of 250 concurrent threads is reached | 5 |
|  | Keep the load using 250 concurrent threads | 30 |
|  | Finish test execution, gradually stop concurrent threads |  |

## Third test run using scripts for Partners

|  |  |  |
| --- | --- | --- |
| **​#** | **Operation description** | **Time (minutes)** |
|  | Initialize first 2 concurrent thread | 1 |
|  | Increase the load by 2 concurrent threads per 60 seconds till the number of 10 concurrent threads is reached | 5 |
|  | Keep the load using 10 concurrent threads | 10 |
|  | Increase the load by 10 concurrent threads per 60 seconds till the number of 50 concurrent threads is reached | 5 |
|  | Keep the load using 50 concurrent threads | 10 |
|  | Increase the load by 50 concurrent threads per 60 seconds till the number of 250 concurrent threads is reached | 5 |
|  | Keep the load using 250 concurrent threads | 30 |
|  | Finish test execution, gradually stop concurrent threads |  |

## Fours test run using all scripts

|  |  |  |
| --- | --- | --- |
| **​#** | **Operation description** | **Time (minutes)** |
|  | Initialize first 6 concurrent thread | 1 |
|  | Increase the load by 6 concurrent threads per 60 seconds till the number of 60 concurrent threads is reached | 5 |
|  | Keep the load using 60 concurrent threads | 10 |
|  | Increase the load by 12 concurrent threads per 60 seconds till the number of 240 concurrent threads is reached | 5 |
|  | Keep the load using 240 concurrent threads | 10 |
|  | Increase the load by 24 concurrent threads per 60 seconds till the number of 600 concurrent threads is reached | 5 |
|  | Keep the load using 600 concurrent threads | 30 |
|  | Finish test execution, gradually stop concurrent threads |  |

## Performance test scenarios

Performance testing includes six test scenarios that will be conducted for four test iterations. Test scripts are created for different groups of users, as the system behavior is different for each group.

*GU\_01 Guest General Navigation Flow*

|  |  |  |
| --- | --- | --- |
| **#** | **Action name** | **% of total users** |
| 1 | Navigate to JuicePlus website |  |
| 2 | Navigate to LiveBetter -> Overview page |  |
| 3 | Navigate to LiveBetter -> Healthy Starts for Families page |  |
| 4 | Navigate to LiveBetter -> Active Lifestyle page |  |
| 5 | Navigate to LiveBetter -> Feel Good, Look Your Best page |  |
| 6 | Navigate to LiveBetter -> One Simple Change page |  |
| 7 | Navigate to Our Products -> Overview page |  |
| 8 | Navigate to Our Products -> Capsules page |  |
| 9 | Navigate to Our Products -> Capsules page -> Premium Capsules |  |
| 10 | Navigate to Our Products -> Chewables page |  |
| 11 | Navigate to Our Products -> Chewables page -> Premium Soft Chewables |  |
| 12 | Navigate to Our Products -> Omega Blend page |  |
| 13 | Navigate to Our Products -> Complete by Juice Plus+ page |  |
| 14 | Navigate to Our Products -> Uplift by Juice Plus+ page |  |
| 15 | Navigate to Our Products -> What is Juice Plus+? page |  |
| 16 | Navigate to Our Products -> Clinical Research page |  |
| 17 | Navigate to Our Community -> Overview page |  |
| 18 | Navigate to Our Community -> Blog page |  |
| 19 | Navigate to Our Community -> Giving Back page |  |
| 20 | Navigate to Our Community -> Let's Go Beyond page |  |
| 21 | Navigate to Our Community -> Events page |  |
| 22 | Navigate to Join Us page |  |
| 23 | Navigate to footer COMPANY -> About Us page |  |
| 24 | Navigate to footer COMPANY -> Contact Us page |  |
| 25 | Navigate to footer JUICE PLUS+ -> How Capsules are Made page |  |
| 26 | Navigate to footer JUICE PLUS+ -> Informed Choice page |  |
| 27 | Navigate to footer RESOURCES -> Let's Go Beyond page |  |
| 28 | Navigate to footer RESOURCES -> Tower Garden page |  |
| 29 | Search info on the site |  |

*GU\_02 Guest General Shopping Flow*

|  |  |  |
| --- | --- | --- |
| **#** | **Action name** | **% of total users** |
| 1 | Navigate to JuicePlus website |  |
| 2 | Navigate to JuicePlus website |  |
| 3 | Navigate to Our Products -> Capsules page |  |
| 4 | Navigate to Our Products -> Capsules page -> Premium Capsules |  |
| 5 | Click 'Add to Card' |  |
| 6 | Navigate to Our Products -> Chewables page -> Premium Soft Chewables |  |
| 7 | Click 'Add to Card' |  |
| 8 | Navigate to Our Products -> Omega Blend page |  |
| 9 | Click 'Add to Card' |  |
| 10 | Navigate to Our Products -> Complete by Juice Plus+ page -> Snakes |  |
| 11 | Click 'Add to Card' |  |
| 12 | Navigate to Our Products -> Uplift by Juice Plus+ page |  |
| 13 | Click 'Add to Card' |  |
| 14 | Navigate to Your Cart |  |
| 15 | Click 'Proceed to Checkout' |  |
| 16 | Click 'Checkout as a Guest' |  |
| 17 | Enter valid payment info |  |
| 18 | Set 'Were you referred to this site by a Juice Plus+ Partner?' to No |  |

*CST\_01 Customer General Navigation Flow*

|  |  |  |
| --- | --- | --- |
| **#** | **Action name** | **% of total users** |
|  | Navigate to the JuicePlus website |  |
|  | Login as Customer |  |
|  | Navigate to Account Information page |  |
|  | Navigate to 'Order Overview' page |  |
|  | Open 'Order Details' page for any order |  |
|  | Logout |  |

*CST\_02 Customer General Shopping Flow*

|  |  |  |
| --- | --- | --- |
| **#** | **Action name** | **% of total users** |
|  | Navigate to the JuicePlus website |  |
|  | Login as Customer |  |
|  | Navigate to 'Order Overview' page |  |
|  | Click 'New Order' button |  |
|  | Click 'View Range' button for Juice Plus+ Capsules |  |
|  | Click 'Shop Now' button on the Fruit, Vegetable & Berry Blend Capsules widget |  |
|  | Select 'Berry' option |  |
|  | Click 'Add to Card' |  |
|  | Back to 'Order Overview' page |  |
|  | Click 'View Product' button for Omega Blend |  |
|  | Click 'Add to Card' |  |
|  | Back to 'Order Overview' page |  |
|  | Click 'View Range' button for Fruit & Vegetable Blend Soft Chewables |  |
|  | Click 'Add to Card' |  |
|  | Navigate to 'Your Cart' page |  |
|  | Click 'Proceed to Checkout' |  |
|  | Enter valid delivery info |  |
|  | Click 'Proceed to Checkout' |  |
|  | Select payment method VISA or AMERICAN EXPRESS or MASTERCARD (Option selected randomly) |  |
|  | Enter valid payment info |  |
|  | Click 'Confirm Order' button |  |
|  | Navigate to 'Order Overview' page |  |

*PP\_01 Partner General Navigation Flow*

|  |  |  |
| --- | --- | --- |
| **#** | **Action name** | **% of total users** |
|  | Navigate to the JuicePlus website |  |
|  | Login as Partner |  |
|  | Navigate to Dashboard |  |
|  | Click on 'Commission' widget |  |
|  | Navigate to Commission Volume page |  |
|  | Select 'Process Date' value from dropdown |  |
|  | Switch to 'Pending' option |  |
|  | Select 'PV' value from dropdown and 'Paid' option |  |
|  | Navigate to Order Details page for any order from the list |  |
|  | Back to Commission Volume page |  |
|  | Download CSV file |  |
|  | Back to Dashboard |  |
|  | Click on 'Performance Bonus' widget |  |
|  | Navigate to PB Volume page |  |
|  | Select 'Process Date' value from dropdown |  |
|  | Switch to 'Pending' option |  |
|  | Select 'PBV' value from dropdown and 'Paid' option |  |
|  | Open Contributors tab |  |
|  | Select 'Level' value from dropdown and 'Paid' option |  |
|  | Select any record from the list |  |
|  | Back to Dashboard |  |
|  | Click on 'Promote out Bonus' widget |  |
|  | Navigate to POB Volume page |  |
|  | Click on 'Load More' button |  |
|  | Back to Dashboard |  |
|  | Switch to 'All' option in Customers widget |  |
|  | Navigate to Team page |  |
|  | Set filter by NMD position |  |
|  | Select any record from the list |  |
|  | Open Details tab |  |
|  | Navigate to Customers page |  |
|  | Switch to 'All Customers' option |  |
|  | Download CSV file |  |
|  | Select any record from the list |  |
|  | Navigate to Shop |  |
|  | Navigate to Partner Page |  |
|  | Navigate to Sponsor |  |

*PP\_02 Partner General Shopping Flow*

|  |  |  |
| --- | --- | --- |
| **#** | **Action name** | **% of total users** |
|  | Navigate to the JuicePlus website |  |
|  | Login as Partner |  |
|  | Navigate to Shop |  |
|  | Click 'Order now' button |  |
|  | Find a customer |  |
|  | Enter required values and click Next button |  |
|  | Add Capsules |  |
|  | Click 'Review Order' button |  |
|  | Switch to 'Pay per shipment' option |  |
|  | Click 'Share Card' button |  |

Actual values of % of total users can be discussed and updated before the performance script execution