**Test Plan**

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**Approvers List**

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**Reference Documents**

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| --- | --- | --- |
| **Version** | **Date** | **Document Name** |
| 1.0 |  | THE INTERNET HEROKUAPP.COM – CHALLENGING DOM |
|  |  |  |

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**1. INTRODUCTION**

## **1.1 Purpose**

This test plan describes the testing approach and overall framework that will drive the testing of The Internet herokuapp.com – CHALLENGING DOM website. The document introduces:

* Test Strategy: rules the test will be based on, including the givens of the project (e.g.: start / end dates, objectives, assumptions); description of the process to set up a valid test (e.g.: entry / exit criteria, creation of test cases, specific tasks to perform, scheduling, data strategy).
* Execution Strategy: describes how the test will be performed and process to identify and report defects, and to fix and implement fixes.
* Test Management: process to handle the logistics of the test and all the events that come up during execution (e.g.: communications, escalation procedures, risk and mitigation

## **1.2 Project Overview**

The website is to present [43 controls](https://wilsonmar.github.io/flood-the-internet/#Controls) which provide challenges to those learning to code [Selenium scripts](https://wilsonmar.github.io/flood-the-internet/#CodeSelenium) that automate [manual actions](https://wilsonmar.github.io/flood-the-internet/#ManualActions) real users perform on an internet browser (such as Google Chrome). Some of the controls we can use to check are A/B Test Control (also known as split testing),Add/Remove Elements, Basic Auth (Sign in Username and Password: admin),Broken Images, Challenging DOM, Checkboxes, Context Menu, Digest Authentication, Disappearing Elements and Drag and Drop etc. Challenging DOM is the one impacting server resource.

## **1.3 Audience**

* Project team members perform tasks specified in this document and provide input and recommendations on this document.
* Project Manager Plans for the testing activities in the overall project schedule, reviews the document, tracks the performance of the test according to the task herein specified, approves the document and is accountable for the results.
* The stakeholders’ representatives and participants (individuals as identified by the PMO Leads) may take part in the UAT test to ensure the business is aligned with the results of the test.
* Technical Team ensures that the test plan and deliverables are in line with the design, provides the environment for testing and follows the procedures related to the fixes of defects.
* Business analysts will provide their inputs on functional changes.

# **2. TEST STRATEGY**

## **2. 1 Test Objectives**

The objective of the test is to verify that the functionality of The Internet herokuapp.com – CHALLENGING DOM works according to the specifications.

The test will execute and verify the test scripts, identify, fix and retest all high and medium severity defects per the entrance criteria, prioritize lower severity defects for future fixing via CR.

The final product of the test is twofold:

* A production-ready software;
* A set of stable test scripts that can be reused for Functional and UAT test execution.

## **2.2 Test Assumptions**

**Key Assumptions**

* The Internet Herohkapp.com application be available in the system prior to start of Functional Testing.
* In each testing phase, Cycle 3 will be initiated if the defect rate is high in Cycle 2.
* Exploratory Testing would be carried out once the build is ready for testing
* Performance testing is not considered for this estimation.
* The Test Team will be provided with access to Test environment via VPN connectivity
* The Test Team assumes all necessary access required during Test design and execution will be supported by Development/BUSINESS ANALYSTs appropriately.
* Dev team will provide Defect fix plans based on the Defect meetings during each cycle to plan. The same will be informed to Test team prior to start of Defect fix cycles
* BUSINESS ANALYST will review and sign-off all Test cases prepared by Test Team prior to start of Test execution
* The defects will be tracked through HP ALM only. Any defect fixes planned will be shared with Test Team prior to applying the fixes on the Test environment
* Project Manager/BUSINESS ANALYST will review and sign-off all test deliverables
* The project will provide test planning, test design and test execution support
* Test team will manage the testing effort with close coordination with Project PM/BUSINESS ANALYST
* Project team has the knowledge and experience necessary, or has received adequate training in the system, the project and the testing processes.
* There is no environment downtime during test due to outages or defect fixes.
* The system will be treated as a black box; if the information shows correctly online and, in the reports, it will be assumed that the database is working properly.

## **2.3 Test Principles**

* Testing will be focused on meeting the business objectives, cost efficiency, and quality.
* There will be common, consistent procedures for all teams supporting testing activities.
* Testing processes will be well defined, yet flexible, with the ability to change as needed.
* Testing activities will build upon previous stages to avoid redundancy or duplication of effort.
* Testing environment and data will emulate a production environment as much as possible.
* Testing will be a repeatable, quantifiable, and measurable activity.
* Testing will be divided into distinct phases, each with clearly defined objectives and goals.
* There will be entrance and exit criteria.

## **3. LEVELS OF TESTING**

## **3.1 Exploratory Test (ET)**

PURPOSE: The purpose of this test is to make sure critical defects are removed before the next levels of testing can start.

SCOPE: First level navigation.

TESTERS: Testing team.

METHOD: This exploratory testing is carried out in the application without any test scripts and documentation

### **3.2 Functional Test (FT)**

PURPOSE: Functional testing will be performed to check the functions of application. The functional testing is carried out by verifying the UI elements and validates the availability of the UI Elements and verifying the all buttons and links are clickable from the application.

TESTERS: Testing Team.

METHOD: The test will be performed according to Functional scripts, which are stored in HP ALM.

TIMING: after Exploratory test is completed.

Test Acceptance Criteria

1. Approved Functional Specification document, use case documents must be available prior to start of Test design phase.
2. Test cases approved and signed-off prior to start of Test execution
3. Development completed, unit tested with pass status and results shared to Testing team to avoid duplicate defects.
4. Test environment with application installed, configured and ready to use state.

TEST DELIVERABLES

|  |  |  |  |
| --- | --- | --- | --- |
| S. No | Deliverable Name | Responsible | Reviewer |
| 1 | Test Plan | Test Lead | Project Manager/ Business Analyst’s |
| 2 | Functional Test Cases | Test Team | Business Analyst’s Sign off |
| 3 | Logging Defects in HP ALM | Test Team | Test Lead |
| 4 | Daily/weekly status report | Test Team/Test Lead | Project Manager |
| 5 | Test Closure report | Test Lead | Project Manager |

Milestone list

The milestone list is tentative and may change due to below reasons

1. Any issues in the System environment readiness
2. Any change in scope/addition in scope
3. Any other dependency that impacts efforts and timelines

### **3.3 System Test (ST)**

PURPOSE: This test focuses on validating the application against requirements. It allows the testers to complete one end to end testing of the system prior to deployment.

TESTERS: Test Team

METHOD: Since the requirements are clearly defined as per the business needs, the system testing is taking part of the complete E2E Scenario. Test Team write system test cases which will cover the E2E business scenario.

TIMING: After all other levels of testing (Exploratory and Functional) are done.

TEST DELIVERABLES

|  |  |  |  |
| --- | --- | --- | --- |
| S. No | Deliverable Name | Responsible | Reviewer |
| 1 | System Test Cases | Test Team | Business Analyst’s Sign off |

### 

### **3.4 User Acceptance Test (UAT)**

PURPOSE: This test focuses on validating the business logic. It allows the end users to complete one final review of the system prior to deployment.

TESTERS: The UAT is performed by the end users (L1, L2 and L3).

METHOD: Since the business uses are the most indicated to provide input around business needs and how the system adapts to them, it may happen that the users do some validation not contained in the scripts. Test team write the UAT test cases based on the inputs from End user (L1, L2 and L3 users) and Business Analyst’s.

TIMING: After all other levels of testing (Exploratory, Functional and System Test) are done. Only after this test is completed the product can be released to production.

TEST DELIVERABLES

|  |  |  |  |
| --- | --- | --- | --- |
| S. No | Deliverable Name | Responsible | Reviewer |
| 1 | UAT Test Cases | Test Team | Business Analyst’s Sign off |

## **TEST EFFORT ESTIMATE**

This document lists out all the activities that must be performed by the QA team and estimates how many man-hours each activity is going to take.



# **EXECUTION STRATEGY**

## **5.1 Entry and Exit Criteria**

* Entry and exit criteria are flexible benchmarks. If they are not met, the test team will assess the risk, identify mitigation actions and provide a recommendation. All this is input to the project manager for a final “go-no go” decision.
* Entry criteria to start the execution phase of the test: the activities listed in the Test Planning section of the schedule are 100% completed.
* Entry criteria to start each cycle: the activities listed in the Test Execution section of the schedule are 100% completed at each cycle.

Exit Criteria:

|  |  |  |  |
| --- | --- | --- | --- |
| Exit Criteria | Test Team | Technical Team | Notes |
| 100% Test Scripts executed |  |  |  |
| 95% pass rate of Test Scripts |  |  |  |
| No open Critical and High severity defects |  |  |  |
| 95% of Medium severity defects have been closed |  |  |  |
| All remaining defects are either cancelled or documented as Change Requests for a future release |  |  |  |
| All expected and actual results are captured and documented with the test script |  |  |  |
| All test metrics collected based on reports from HP ALM |  |  |  |
| All defects logged in HP ALM |  |  |  |
| Test Closure Memo completed and signed off |  |  |  |

## **5.2 Test Cycles**

* There will be two cycles for functional testing. Each cycle will execute all the scripts.
* The objective of the first cycle is to identify any blocking, critical defects, and most of the high defects. It is expected to use some work-around in order to get to all the scripts.
* The objective of the second cycle is to identify remaining high and medium defects, remove the work-around from the first cycle, correct gaps in the scripts and obtain performance results.
* There will be one cycle for System testing. Each cycle will execute all the scripts.
* UAT test will consist of one cycle.

## **5.3 Validation and Defect Management**

* It is expected that the testers execute all the scripts in each of the cycles described above. However, it is recognized that the testers could also do additional testing if they identify a possible gap in the scripts. This is especially relevant in the second cycle, when the Business analyst’s join the TCOE in the execution of the test, since the BUSINESS ANALYSTs have a deeper knowledge of the business processes. If a gap is identified, the scripts and traceability matrix will be updated and then a defect logged against the scripts.
* The defects will be tracked through HP ALM only. The technical team will gather information daily from HP ALM and request additional details from the Defect Coordinator. The technical team will work on fixes.
* It is the responsibility of the tester to open the defects, link them to the corresponding script, assign an initial severity and status, retest and close the defect; it is the responsibility of the Defect Manager to review the severity of the defects and facilitate with the technical team the fix and its implementation, communicate with testers when the test can continue or should be halt, request the tester to retest, and modify status as the defect progresses through the cycle; it is the responsibility of the technical team to review HP ALM on a daily basis, ask for details if necessary, fix the defect, communicate to the Defect Manager the fix is done, implement the solution per the Defect Manager request.

Defects found during the Testing will be categorized according to the bug-reporting tool “HP ALM” and the categories are:

|  |  |
| --- | --- |
| Severity | Impact |
| 1 (Critical) | * This bug is critical enough to crash the system, cause file corruption, or cause potential data loss * It causes an abnormal return to the operating system (crash or a system failure message appears). * It causes the application to hang and requires re-booting the system. |
| 2 (High) | * It causes a lack of vital program functionality with workaround. |
| 3 (Medium) | * This Bug will degrade the quality of the System. However, there is an intelligent workaround for achieving the desired functionality - for example through another screen. * This bug prevents other areas of the product from being tested. However other areas can be independently tested. |
| 4 (Low) | * There is an insufficient or unclear error message, which has minimum impact on product use. |
| 5(Cosmetic) | * There is an insufficient or unclear error message that has no impact on product use. |

## **5.4 Test Metrics**

Test metrics to measure the progress and level of success of the test will be developed and shared with the project manager for approval. The below are some of the metrics with the project manager for approval. The below are some of the metrics:

|  |  |  |
| --- | --- | --- |
| Report | Description | Frequency |
| Test Case Preparation & Test Execution Status | To report on % complete, %WIP, % Pass, % Fail  Defects severity wise Status – Open, closed, any other Status | Weekly/Daily |
| Daily execution status | To report on Pass, Fail, Total defects, highlight Showstopper/ Critical defects. | Daily |
| Project Weekly Status Report | Project driven Reporting | Weekly – Update the project Status in the Project Share Point. |

## **5.5 Defect tracking & Reporting**

Below flowchart depicts Defect Tracking Process:

New

**Tester**

Assign- Open

Rejected

Developer

Fixed

Re Opened

Tester

Deferred

Test

Test Lead

Verified

Tester

Closed

# **TEST MANAGEMENT PROCESS**

## **6.1 Test Management Tool**

HP Application Lifecycle Management is the tool used for Test Management. All testing artifacts such as Test cases, test results are updated in the HP Application Lifecycle Management (ALM) tool.

* Project specific folder structure will be created in HP ALM to manage the status of this The Internet- Challenging DOM project.
* Each resource in the Testing team will be provided with Read/Write access to add/modify Test cases in HP ALM.
* During the Test Design phase, all test cases are written directly into HP ALM. Any change to the test case will be directly updated in the HP ALM.
* Each Tester will directly access their respective assigned test cases and update the status of each executed step in HP ALM directly.
* Any defect encountered will be raised in HP ALM linking to the Test case/test step.
* During Defect fix testing, defects are re-assigned back to the tester to verify the defect fix. The tester verifies the defect fix and updates the status directly in HP ALM.
* Various reports can be generated from HP ALM to provide status of Test execution. For example, Status report of Test cases executed, Passed, Failed, No. of open defects, Severity wise defects etc.

## **6.2 Test Design Process**

* The tester will understand each requirement and prepare corresponding test case to ensure all requirements are covered.
* Each Test case will be mapped to Requirements as part of Traceability matrix.
* During the preparation phase, tester will use the prototype, use case and functional specification to write step by step test cases.
* Testers will maintain a clarification Tracker sheet and same will be shared periodically with the Requirements team and accordingly the test case will be updated. The clarifications may sometimes lead to Change Requests or not in scope or detailing implicit requirements.
* Sign-off for the test cases would be communicates through mail by Business Analyst’s.
* Any subsequent changes to the test case if any will be directly updated in HP ALM.

## **6.3 Test Execution Process**

* Once all Test cases are approved and the test environment is ready for testing, tester will start a exploratory test of the application to ensure the application is stable for testing.
* Each Tester is assigned Test cases directly in HP ALM.
* Testers to ensure necessary access to the testing environment, HP ALM for updating test status and raise defects. If any issues, will be escalated to the Test Lead and in turn to the Project Manager as escalation.
* If any showstopper during exploratory testing will be escalated to the respective development SPOCs for fixes.
* Each tester performs step by step execution and updates the executions status. The tester enters Pass or Fail Status for each of the step directly in HP ALM.
* Tester will prepare a Run chart with day-wise execution details
* If any failures, defect will be raised as per severity guidelines in HP ALM tool detailing steps to simulate along with screenshots if appropriate.
* Daily Test execution status as well as Defect status will be reported to all stakeholders.
* Testing team will participate in defect triage meetings in order to ensure all test cases are executed with either pass/fail category.
* If there are any defects that are not part of steps but could be outside the test steps, such defects need to be captured in HP ALM and map it against the test case level or at the specific step that issue was encountered after confirming with Test Lead.
* This process is repeated until all test cases are executed fully with Pass/Fail status.
* During the subsequent cycle, any defects fixed applied will be tested and results will be updated in HP ALM during the cycle.

## **6.4 Test Risks and Mitigation Factors**

| Risk | Prob. | Impact | Mitigation Plan |
| --- | --- | --- | --- |
| SCHEDULE  Testing schedule is tight. If the start of the testing is delayed due to design tasks, the test cannot be extended beyond the UAT scheduled start date. | High | High | * The testing team can control the preparation tasks (in advance) and the early communication with involved parties. * Some buffer has been added to the schedule for contingencies, although not as much as best practices advise. |
| RESOURCES  Not enough resources, resources on boarding too late (process takes around 15 days. | Medium | High | Holidays and vacation have been estimated and built into the schedule; deviations from the estimation could derive in delays in the testing. |
| DEFECTS  Defects are found at a late stage of the cycle or at a late cycle; defects discovered late are most likely be due to unclear specifications and are time consuming to resolve. | Medium | High | Defect management plan is in place to ensure prompt communication and fixing of issues. |
| TEST ENVIRONMENT  Non-availability of Independent Test environment and accessibility | Medium | High | Due to non-availability of the environment, the schedule gets impacted and will lead to delayed start of Test execution. |

## **6.5 Roles & Responsibilities**

The following list defines in general terms the expectations related to the roles directly involved in the management, planning or execution of the test for the project.

| S. No | Roles | Name | Contact Info |
| --- | --- | --- | --- |
| 1. | Project Manager |  |  |
| 2. | Test Lead |  |  |
| 3. | Business Analyst |  |  |
| 4. | Testing Team |  |  |
| 5. | Technical Lead |  |  |

### **PROJECT MANAGEMENT**

* Project Manager: reviews the content of the Test Plan, Test Strategy and Test Estimates signs off on it.

### **7.1 Test Planning (Test Lead)**

* Ensure entrance criteria are used as input before starting the execution.
* Develop test plan and the guidelines to create test conditions, test cases, expected results and execution scripts.
* Provide guidelines on how to manage defects.
* Attend status meetings in person or via the conference call line.
* Communicate to the test team any changes that need to be made to the test deliverables or application and when they will be completed.
* Provide on premise or telecommute support.
* Provide functional (Business Analysts) and technical team to test team personnel (if needed).

### **7.2 Test Team**

* Develop test conditions, test cases, expected results, and execution scripts.
* Perform execution and validation.
* Identify, document and prioritize defects according to the guidance provided by the Test lead.
* Re-test after software modifications have been made according to the schedule.
* Prepare testing metrics and provide regular status.

### **7.3 Test Lead**

* Acknowledge the completion of a section within a cycle.
* Give the OK to start next level of testing.
* Facilitate defect communications between testing team and technical / development team.

# **APPROVALS**

The Names and Titles of all persons who must approve this plan.

|  |  |
| --- | --- |
| Signature: |  |
| Name: |  |
| Role: |  |
| Date: |  |