CS691 – Computer Science, Spring 2022

Pace University



SYSTEM TEST PLAN

Flaunt Website

Author: Chandini Reddy

Project Manager: Kaneshk K Sonee

Date: 20th April,2022.

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# INTRODUCTION

The primary purpose of the System Test Plan document is to establish a common understanding among the "Flaunt Website" project stakeholders about the scope, objectives, and approach to performing the system testing. In addition, the document covers such topics as environmental needs, testing entry/exit criteria, test schedule, roles and responsibilities, and risks and contingencies.

# 1. TESTING SCOPE

The functional scope of system testing includes the following functional areas

* Website functionality
* Database Testing
* Hardware & software compatibility

The Flaunt website inculcates multiple functionalities such as user account management, inventory, purchase management. Also, database withholds not  
only the customer centric data but also the key data of the warehouse inventory.  
Later on, hardware compatibility is based on different configurations of a machine such as the version of the OS, kernel, processor etc.

The technical scope includes the following architectural components:

* Web server
* Application server
* Database server
* Middleware messaging

# 2. TESTING OBJECTIVES

The primary goal of system testing is to ensure that system features are implemented in accordance with their functional and non-functional requirements. In order to be effective in detecting software problems defects, system test cases should include negative, i.e., challenging testing conditions. This section describes the features to be tested and the features that will be out of testing scope.

The list of project documents that will be used as a basis for designing test cases includes:

* Business requirements document (BRD)
* "Flaunt Website" functional requirements
* Supplementary requirements specification
* Requirements composition table (RCT)
* Database design and data dictionary specifications

## 2.1 Core Features to be Tested

Website functionality

* User account management
* Product management
* Payment Gateway
* Logistics management

Database Testing

* Password Hashing
* Data validations
* Transactional Scope
* Database Defragmentation

Hardware & software compatibility

* Operating System
* Ram versions (DDR4,4X,5X)
* Multithread Processors
* Browser compatibility

In addition to the above core features, testing will cover crosscutting concerns applicable to the context of individual core features, see the Requirements Composition Table for reference.

## 2.2 Non-Functional Features to be Tested

The System Test includes the following objectives to test non-functional requirements:

* **Volume testing** is used to validate that the system is able to process allocations for order-books with the number of records larger than the typical size in production;
* **Portability testing** is used to validate that both browsers, MS Internet Explorer and Google Chrome, can be equally used by customers for better viewing experience when using the Flaunt website.
* **Extreme layout testing** validates that changing Windows display settings, e.g. Hi and Low resolutions and small and large fonts, does not affect the system’s usability;

## 2.3 Features not to be Tested

* Modify User account details
* View Account Information
* Deleting a user account
* Utilizing Customer Support (FAQS & Email only)
* Use Navigation Bar
* View Featured Products
* View Partnered Brands
* Sign In to a User Account
* Use Search Bar
* Add products to shopping cart(wishlist)
* View Footer section
* View/Edit Shopping cart
* Use product Checkout
* Applying coupons
* Submit Order
* Defining Payment mode
* Payment Validation
* Delivery Tracking for the customer
* Tracking products for returned orders
* Getting a Coupon/ Discount based on purchase
* View Banner Ads on homepage

# 3. TEST PROCESS DEFINITION

## 3.1 Test Process Phases

The test process for system testing can be defined as the following five phases:

* Test Planning
* Test Design
* Test Preparation
* Test Execution
* Test Reporting

The purpose of the **Test Planning** phase is to define the scope and objectives of testing, roles and responsibilities, and to define the testing approach.

The purpose of the **Test Design** phase is to determine the test design logic, to design test case specifications, and to determine requirements for test data.

In the **Test Preparation** phase, the objective is to setup a test environment, provision test data, and install the software under test in the QA environment.

The purpose of the **Test Execution** phase is to execute all test cases and to find and report software defects. The ultimate goal here is to evaluate the system stability by validating all features identified to be tested in the System Test Plan document.

The purpose of the **Test Reporting** phase is to provide stakeholders with visibility into the progress and completion of test execution. Testers will report defect metrics, produce test execution status reports, and evaluate the test exit criteria in the Test Completion Report. The approval of this report will be a basis for system testing sign off.

## 3.2 Testing Tasks and Deliverables

Each phase in the test process is further defined in terms of tasks and deliverables as shown in the table below.

|  |  |  |
| --- | --- | --- |
| **Process Phase** | **Tasks** | **Deliverables** |
| Test Planning | * Define the scope, objectives, and approach to system testing | System Test Plan document |
| Test Design | * Detail the approach to system testing * Specify required test data * Design test-case specifications * Setup a test management system | * Test Design Specification * Test-Case Specifications * Test Management System HPQC |
| Test Preparation | * Setup the test environment * Migrate the system into the test environment * Provision test data * Setup a defect tracking system | * The system under test is up and running in the test environment * Test data available in the QA environment * Defect Tracking System is ready for the test cycle |
| Test Execution | * Test the system and find and report defects | * Defect reports reported in the defect tracking system * The system has been completely tested * Test Summary Report produced and approved |
| Test Reporting | * Produce defect metrics * Report test execution progress * Produce a test completion report | * Test Summary Report * Defect metrics * Test execution status reports |

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# 4. APPROACH TO SYSTEM TESTING

## 4.1 Approach to Functional Testing

The System Test will be performed based on the black-box techniques. This means, first, that the external functional specifications or business rules will be used as a primary source to design test conditions. Secondly, testing will be executed from the user perspective, i.e., considering the system as a black box and entering input data and evaluating results via the user interface.

The system features identified above can be classified by the following types of business logic – GUI, Field Edits, Field Dependencies, and General Business Rules. Each type can have its own test logic that can be reused across the system. Test conditions can be designed using conventional techniques, such as boundary analysis, equivalence partitioning, decision tables, etc. The detailed test logic for each pattern of business rules will be described in the test design specification.

## 4.2 Approach to Non-Functional Testing

All non-functional test objectives specified above can be tested using the black-box approach, i.e., from the user perspective. The volume test should be performed for a complete production scenario. The portability and extreme layout tests should cover all functions (menu options) of the system and validate that each function works under the specified test conditions.

# 5. ENTRY/EXIT CRITERIA

This section defines both Entry and Exit Criteria for test execution and is intended to establish a common understanding about the conditions when the test execution can start and when it can stop.

*Entry Criteria*

The test Entry Criteria include the following items:

* The application build is produced and deployed to the test environment
* The system test plan is produced and approved
* The test environment is ready for testing
* Test Designs and test case specifications are completed

*Exit Criteria*

The test Exit Criteria include the following items:

* All test cases have been executed
* No major software defects will be open.
* Open defects of medium/low severity have known workarounds / solutions
* Test Summary report is produced and published

# 6. SYSTEM TEST ENVIRONMENT

The system test will be performed on a local machine which would have the minimum specification of 16GB RAM, i3 7th Gen processor, Windows 10 and above, with Chrome and Microsoft Edge browser using MS SQL.

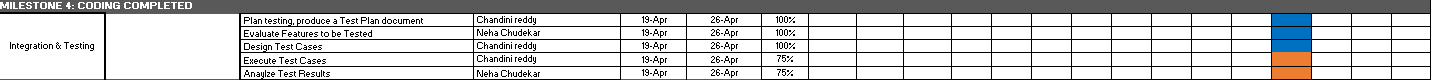
# 7. ROLES AND RESPONSIBILITIES

The project roles involved in system testing include the following:

|  |  |
| --- | --- |
| **Project Roles** | **Role Responsibilities** |
| Project Manager | Responsible for the overall project timelines, contribution, and approval of the System Test Plan.  Tracking the testing schedule and results. |
| Product Owner | Contributing to the test plan and test case specifications. Reviewing test results. |
| Lead Developer | Responsible for developing a working software build, building migration to the QA environment, communicating release notes, investigating, and fixing software defects. |
| Business Analyst | Contributing to the test plan and test case specifications. Reviewing test results. |
| QA Lead | Responsible for developing test cases, overseeing test execution, conducting defect review calls, providing test execution metrics and reports. |
| DBA | Assisting the Lead Developer in establishing and maintaining the test environment. |
| Tester | Responsible for developing and executing test cases, reporting defects and re-testing defect fixes. |

# 8. TEST CYCLES AND SCHEDULE

System testing will be executed in three cycles:

1. Cycle 1 – **Create User Account**
   1. This cycle concentrates on testing the User Registration/Login Module.
2. Cycle 2 – **User authentication**focuses on testing the authentication of the user login details with the help of username and password.  
     
     
   Test Schedule  
     
   

See the timelines of the testing cycles in the project plan.

# 9. RISKS AND CONTINGENCIES

This section highlights a few potential risks and contingencies that may happen during the system testing.

* Due to a lack of testing resources, it may take longer to finish test case specifications such as **no internet connection**.
* Many inconsistencies and defects such as **incompatible browser i.e Internet Explorer** can cause the test run to be delayed.
* The test execution schedule can be impacted by the test environment's instability of the local host such as **RAM unable to defragment**.