

American International University- Bangladesh (AIUB)

Department of Computer Science

Software Quality and Testing

Fall 2021-2022

Section: C

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Dhaka Subway Systems Automated Ticket Issuing System

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# 1.TEST PLAN IDENTIFIERS:

|  |  |  |  |
| --- | --- | --- | --- |
| **Date** | **Version** | **Description** | **Author** |
| 1 November, 2021 | V 1.01 | Master Test Plan | Faiaz Ben Reza |
| 11 November, 2021 | V 1.01 | Unit Test Plan | Rithin, Anika Tahsin |
| 15 November, 2021 | V 1.01 | Integration Test Plan | Nadim Hossain |
| 19 November, 2021 | V 1.01 | System Test Plan | Mahfuzul Alam |
| 2 January, 2022 | V 1.01 | Regression Test Plan | Nadim Hossain  , Faiaz Ben Reza |

# 2. REFERENCES:

* IEEE 829-1998 Standard for Software Test Documentation
* Project Plan
* Requirement specifications
* High Level design document
* Detail design document
* Development and Test process standards
* Methodology guidelines and examples
* Corporate standards and guidelines

# 3. INTRODUCTION:

The documentation provides an overview of the test plan for the software of Dhaka Subway Systems Automated Ticket Issuing System. The software allows users to purchase tickets with credit cards. The primary goal of this project is to develop an efficient test plan for the mentioned software based on the requirements and major functionalities.

The test plan adhered to the IEEE 829-1998 Standard for Software Test Documentation.

The scope of using white box and black box testing was properly utilized in the test plan. There were no budget constraints, which made it easier to plan for manual and automated testing. The following test phases were included in the test plan:

• Master test plan

• Unit testing

• Integration testing

• System testing

• Regression testing

The test plan was properly maintained in accordance with the client requirements and project plan, including reviews from the Project Sponsor, Project Manager, Development Manager, and Quality Manager.

# 4.TEST ITEMS:

|  |  |  |  |
| --- | --- | --- | --- |
| **Test Items** | **Version** | **Description [If required]** | **Delivery Schedule [If required]** |
| 24/7 service | V 1.01 |  |  |
| Ticket availability information display | V 1.01 |  |  |
| Train arrival and departure time display | V 1.01 |  |  |
| Touch screen menu selection | V 1.01 |  |  |
| Source and destination selection | V 1.01 |  |  |
| Multiple ticket issue in one transaction | V 1.01 |  |  |
| Limit the number of ticket issue at the same time | V 1.01 |  |  |
| Cancellation of transactions any time during transaction | V 1.01 |  |  |
| Credit card transaction | V 1.01 |  |  |
| Coin/Taka recognition and acceptance | V 1.01 |  |  |

# 5. SOFTWARE RISK ISSUES

* 24/7 service
* Change of requirements
* Time & Cost maintenance
* Invalid test item implementation
* Credit card transaction
* Third party delivery
* Real Time Access

## Complexity:

* Difficult Interface
* Functional complexity for users
* Transaction Safety
* Network
* Government Rules & Regulations

# 6. FEATURES TO BE TESTED

|  |  |  |
| --- | --- | --- |
| **Requirement no** | **Description** | **Risk Level (H, M, L): High, Medium, Low** |
| RC\_01 | The software will support interface to touch screen monitors as well as keyboard interface. | L |
| RC\_02 | The software will support display of the list of incoming trains, their destinations and arrival and departure times, fare, expected travel time | L |
| RC\_03 | The software will support multiple ticket purchase simultaneously. | M |
| RC\_04 | The software will support ticket cancellation before final confirmation of the purchase. | M |
| RC\_05 | The software will support purchased ticket cancellation by the administrator. | M |
| RC\_06 | The software will support credit card transaction and validation. | H |
| RC\_07 | The software will support transaction using bill(taka) /coin | H |
| RC\_08 | The software will support next and previous navigation during ticket purchase process. | L |
| RC\_09 | The software will support ticket availability information. | L |
| RC\_10 | The software will support information display via web. | M |
| RC\_12 | The software will support account management of Dhaka Subway Systems | M |
| RC\_13 | The software will use Oracle database server. | H |

## TEST OBJECTS:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Test**  **Case#** | **Action** | **Requirement#** | **Expected Results** | **Actual**  **Results** | **Status** | **Comments** |
| TC\_01 | Touch screen monitors and also keyboard interface. | RC\_01 | This software will support interface to touch screen monitors and keyboard interface. |  |  |  |
| TC\_02 | Touch display to check the list. | RC\_02 | This software will support displaying the list of incoming trains, their destinations and arrival, departure times, fees and also the expected gravel times. |  |  |  |
| TC\_03 | Buy several tickets at once. | RC\_03 | This software will support purchasing multiple ticket. |  |  |  |
| TC\_04 | Defining the number of purchasing tickets up till 15 tickets concurrently. | RC\_04 | The software will support define the number of tickets purchased simultaneously and this will be done by the administrator access only. |  |  |  |
| TC\_05 | Cancel ticket if need before the final confirmation of purchasing. | RC\_05 | This software will support to cancel ticket before confirmation of purchasing. |  |  |  |
| TC\_06 | Cancel purchased ticket by the help of administration. | RC\_06 | This software will support cancelation of purchased tickets by the administration. |  |  |  |
| TC\_07 | Transact using credit card. A message will be sent after completing transaction. | RC\_07 | This software will support transaction and validation using credit card. |  |  |  |
| TC\_08 | Transact using taka/coin also. | RC\_08 | This software will support transaction by accepting taka or coin. |  |  |  |
| TC\_09 | Go back to previous page and make some change if need. | RC\_09 | This software will support next and previous navigation during purchasing. |  |  |  |
| TC\_10 | Display number of available seats and tickets of each compartment. | RC\_10 | This software will support to inform the availability of tickets and seats. |  |  |  |
| TC\_11 | Display information and details via website. | RC\_11 | This software will support information display via website. |  |  |  |
| TC\_12 | Manage account of Dhaka Subway Systems, do registration, create account. | RC\_12 | The software will support account management of Dhaka Subway Systems. |  |  |  |
| TC\_13 | Use Oracle database server, get update after completing transaction using this server. | RC\_13 | The software will use Oracle database server. Dhaka North City Corporation (DNCC) will be responsible for the license fees of Oracle database server. |  |  |  |

## DEFECTS IN SOFTWARE:

Defects in any stage of the software will be identified by Jira software, where defects tracking panel is created. Jira will track bugs time by time and will report to project manager. This bug review will be conducted by project managers on a regular schedule. Error solution will be provided.

# 7.FEATURES NOT TO BE TESTED:

* Digital payment (Bkash or Nagad) acceptance.
* Voice Command
* Cash Exchange

# 8.APPROACH:

The general flow of the testing process approach is as follows:

* Determine which requirements will be tested. The current Program Specification must be used to create all test cases.
* Determine which test(s) will be utilized to evaluate each module.
* Examine the test data and test cases to confirm that the unit has been adequately tested and that the test data and test cases are sufficient to verify the unit's appropriate operation.
* Determine the predicted outcomes of each test.
* Keep track of the test case's configuration, data, and expected outcomes.
* Perform out all the tests.
* Keep a record of the test data, test cases, and test settings that were used during the testing. The Unit/System Test Report will be used to transmit this information (STR).
* Before the unit is eligible for component integration/system testing, it must pass unit testing.

# 9.ITEM PASS/FAIL CRITERIA:

This section lays out the general pass/fail criteria for the tests in this plan. The test design standard includes pass/fail criteria to supplement them.

* Component Pass/Fail criteria
* Integration Pass/Fail criteria
* System Pass/Fail criteria

# 10.TEST DELIVERABLES:

## PHASE 1 TESTING DELIVERABLES:

|  |  |
| --- | --- |
| **Items Name** | **Date** |
| Completion of Software Coding | December 2021 |
| Completion of Unit, Integration and System Testing | February 2022 |
| Integration Test Results Document | February 2022 |
| Completion of Field Acceptance Testing | March 2022 |

## PHASE 2 TESTING DELIVERABLES:

|  |  |
| --- | --- |
| **Items Name** | **Date** |
| Completion of Software Coding | April 2022 |
| Completion of Unit, Integration and System Testing | May 2022 |
| Integration Test Results Document | May 2022 |
| Completion of Field Acceptance Testing | June 2022 |

# 11.REMAINING TEST TASKS:

* Website and GPS device of software interaction.
* GUI response and directly database testing.
* Create Acceptance Test Plan
* Create System/Integration Test Plan
* Define Unit Test rules and Procedures
* Verify prototypes of Screens
* Verify prototypes of Reports

# 12.ENVIRONMENTAL NEEDS:

For the initial round of testing, one distinct, controlled system will be required, set up as one standard, complete office setting. His network will not be accessible to anyone outside of this project to maintain the integrity of the test environment. The printers are also reserved for the test network only.

## Hardware Components Required:

1 Network Controller

6 Network PC’S

1 DAP Workstation

1 Oracle Server

1 Batch Waste Printer

1 HP LaserJet 4v Printer

15 Touch screen monitor

## PC Specifications:

3 x P166, 1.5 GB HD, and 32 Mb RAM [Current Standard Specification.

# 13.STAFFING AND TRAINING NEEDS

This section explains how to go about staffing and training the project's test roles. This project's staffing is set for the duration. Most of the workers will take on some sort of testing function, which will be discussed in additional detail in the next section.

# 14.RESPONSIBILITIES:

* Project Leader
* Ensure that Phase 1 is completed on time, on budget, and with high quality.
* Before signing off on the System Test, double-check that the Exit Criteria have been met.
* Review testing progress with the Test Controller on a regular basis.
* External Groups Liaison New Methodologies
* Raise and handle issues/risks that are related to the project or that are not under the control of the Test Team.
* Examine and sign off Approach, plans, and timetable will all be put to the test.
* SQA Project Leader
* Ensure Phase 1 is delivered to schedule, budget & quality
* Regularly review Testing progress
* Manage issues/risks relating to System Test Team
* Provide resources necessary for completing system test.
* Test Planner
* Ensure Phase 1 is completed on time, on budget, and with high quality.
* Create high-level and detailed test conditions.
* Achieve the desired outcomes.
* Hold regular status reporting meetings to update on progress.
* Oversee the approval and review of Test Conditions.
* Manage individual test cycles and troubleshoot tester issues.
* Ensure that any outages or difficulties with test systems are quickly reported and followed upon.
* Before starting the System Test, double-check that the Entrance conditions have been met.
* Before signing off on the System Test, double-check that the Exit conditions have been met.
* Testers
* Recognize the Test Data
* Carry out the test conditions and record the findings.
* IMS Regions should be supported.
* Troubleshoot Spooling Issues
* Resolve any issues that may have arisen as a result of the remote backup.

15.SCHEDULE:

The overall project schedule is included in this section. It goes over the stages and major milestones in the quality assurance process. It goes over the testing goals and criteria that we want to attain for each step of testing that will be implemented, such as Usability Testing, Code Complete Acceptance, Beta Testing, Integration Testing, Regression Testing, and System Testing.

The critical dates for the overall development and testing of the Automation ticketing application are shown below. Refer to the Automation Ticketing Application Project Schedule for more information about the schedule. Refer to the test plan document for more information on common Engineering QA deliverables.

|  |  |  |  |
| --- | --- | --- | --- |
| **Milestones** | **End Date** | **Notes** | **QA Deliverables/Roles** |
| Planning Phase | 01/11/2021 | The high-level planning should be completed by this Milestone. Project Plan, Program Function Specifications are only a few of the deliverables. | High-level test planning activities, which include preliminary development of Master QA Plan (this document, QA schedule. |
| Code Complete - Infrastructure | 24/11/2021 | This milestone is when all infrastructure development and functions should be complete. The testing team should have performed unit & integration testing before checking the code into any build. | For each feature or component, the Test Engineers should have completed or be nearing completion of their preliminary Infrastructure Test Plan, test cases, and other QA documents related to test execution, such as test scenarios, expected results, data sets, test procedures, scripts, and applicable testing tools. |
| Code Complete -Function | 30/12/2021 | This milestone includes unit testing and code review of each function component prior to checking the code into the test phase. The deliverables include system testing specification, Unit testing specifications, Integration plan. | The Test Engineers should have provided Code Complete Assessment Test to Development Engineer one week prior to Code Complete Review date. The Test Engineers should also have completed or in the final stages of their preliminary White Box Test Plan, test cases and other QA Software Test Plan: Automated Ticket Issuing System Version: 0.0.0.1 Page 14 of 16 © AIUB IT Solutions Inc. 2012 documents related to test execution for each feature or component such as test scenarios, expected results, data sets, test procedures, scripts, and applicable testing tools |
| Feature Complete | 15/03/2022 | This phase allows for feature cleanup to verify remaining bug fixes and regression testing around the bug fixes. This milestone indicates that the feature is ready for Beta regression. | All bugs verified and QA documentation is finalized. The test Engineers should assess that Automation ticketing application features are ready for Beta regression and have started their preliminary Test Summary Reports. |
| Regression Test | 02/04/2022 | This milestone represents that all Automation ticketing application code and GUI interface to the Automation ticketing application is ready for Regression Testing. | Complete regression test execution of complete system and update Test Summary Reports for regression. |
| Ship/Live | 07/12/2022 | Product is out. | Any unfinished Testing documents should be complete. |

# 16.PLANNING RISKS AND CONTINGENCIES

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Risk** | **Probability** | **Risk Type** | **Owner** | **Contingencies / Mitigation Approach** |
| Unable to acquire the necessary number of skilled personnel as the components become ready to test. | 30% | Personnel Schedule | Test Manager | Component resources will be shared throughout existing resources. It is necessary to make the necessary adjustments to the schedule. |
| Unable to acquire some of the necessary hardware and software required for integration and system testing | 25% | Equipment | Program Manager Test Manager Development Manager | Utilize existing acquired hardware. Split test execution into morning and evening shifts such that testing can occur for multiple teams in the same day using the limited hardware. This requires support of the development during both shifts. |
| Third party services utilized in the system become unavailable during testing | 5% | Third party | Alliance Manager | Setup a communication channel to 3rd party to report and handle issues when they occur. Use the communication channel above to stay aware of planned outages and maintenance to help schedule test execution. |
| Components are not delivered on time | 25% | Schedule | Development Manager | Integration testing with those components must be delayed until the component is delivered. Overall integration test approach may be modified to do an appropriate amount of bottom-up as well as Topdown or sandwich integration. Schedule must be adjusted accordingly. |
| Turnover | 5% | Personnel | Test Manager | Testers will work in pairs on components. If a single member of the team decides to leave, a secondary testing with the knowledge of the component will still be able to train a new tester or finish the work. Schedule must be adjusted accordingly. |

# 17.APPROVALS

|  |  |
| --- | --- |
| Project Sponsor | S.M. Abdur Bhuiyan Rouf |
| Project Manager | Faiaz Ben Reza |
| Quality Assurance Manager | Anika Tahsin Rithin |
| Development Management | Mahfuzul Alam |
| Tester | Nadim Hossain |