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## American International University- Bangladesh (AIUB)

## Department of Computer Science

## Software Quality and Testing

## Spring 2021-2022

**Section: E**

**Course Instructor: S.M. Abdur Bhuiyan Rouf**

**Project: Developing a Test Plan for Dhaka Subway Systems Automated Ticket Issuing System.**

**Group Members:**

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**(1) Test Plan Identifier:**

The name of the test plan is “Dhaka Subway Systems Automated Ticket Issuing System (MTP\_DSSATIS\_1.1)”

**(2) References:**

Given requirement in the document:

* The software will support interface to touch screen monitors as well as keyboard interface.
* The software will support display of the list of incoming trains, their destinations and arrival and departure times, fare, expected travel time
* The software will support multiple ticket purchase simultaneously.
* The software will support limiting the number of tickets purchased at the same time. This privilege control will be done by the administrator access only.
* The software will support ticket cancellation before final confirmation of the purchase.
* The software will support purchased ticket cancellation by the administrator.
* The software will support credit card transaction and validation.
* The software will support transaction using bill(taka) /coin
* The software will support next and previous navigation during ticket purchase process.
* The software will support ticket availability information.
* The software will support information display via web.
* The software will support account management of Dhaka Subway Systems
* The software will use Oracle database server. Dhaka North City Corporation (DNCC) will be responsible for the license fees of Oracle database server.

**(3) Introduction:**

This documentation provides an overview of the testing plans for the Dhaka Subway System's automated ticket issuing system software. The software allows users to purchase tickets with a credit card. In this system we will care the interaction between user and the systems where we need to think about impact of different user activities to the systems to purchase tickets. The main target of this project is to create an efficient testing plan for the specified software based on the requirements and major functionalities. So we will follow some testing technique like black box testing, white box testing and gray box testing.

Using white box and black box testing, the test plan was properly utilized. So there were no budget constraints, which made it easier to plan for manual and automated testing.

The test plan was maintained in accordance with the client requirements and project plan, Project Manager, including reviews from the Project Sponsor, Development and Quality Manager. Here are the some following test phases were included in the test plan:

i) Unit testing, ii) Integrated testing, iii) System testing, iv) Performance testing, v) Acceptance testing.

**(4) Test Items:**

• 24/7 service

•Train arrival and departure time display

•Ticket availability information display

• Touch screen menu selection

• Source and destination selection

• Limit the number of ticket issue at the same time

• Multiple ticket issue in one transaction

• Cancellation of transactions any time during transaction

• Credit card transaction

•Coin/Taka recognition and acceptance

**(5) Features to be tested**

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

**(6) Features not to be tested**

* Digital payment verification (Bikash or Nagad or Rocket) not to be tested.
* Voice Command.
* Cash Exchange.
* Don’t need to test collecting records of the user to test as it will all be maintained at the server and will not be the responsibility of the system.
* Maintenance the server.
* Network facilities.
* Maintenance of the hardware.

**(7) Approach**

We learned two type of testing approach and these are manual testing and automated testing. Manual testing is a testing method that is performed by hand in order to detect faults without the use of tools or automation scripting. Software test automation uses specialized tools to control test execution and compares actual results to expected results. For this project we will use both type of testing approach. A bug report form must be generated in the case that the system fails to meet the testing requirements. This documentation will include a description of the test case. The results of the tests will be submitted in the form of documents and reports.

**(8) ITEM PASS/FAIL CRITERIA**

We must establish pass/fail criteria for this project in order to determine if it succeeded or failed. We can claim the project passed if the majority of the tests are connected to the requirements and 90% or more of them were completed correctly. Similarly, if only a tiny percentage of tests fail and have little link to the requirements, and 85 percent of the tests pass, the project is considered complete. However, if the requirements and failed test have a good relationship, and 85 percent or less is acceptable, we should declare the test failed. The needed capabilities must work reliably and effectively. All deathtraps must be avoided and thoroughly checked in order for the software to pass the testing.

**(9) TEST DELIVERABLES**

* Test Cases
* Test Plan
* Test Strategy
* Test Data Sets
* Test Evaluation Report
* Test Results
* Test Environment
* Test Defect log
* Execution log
* Error log
* Requirements Traceability Matrix (RTM)
* Summary of Report

**(10) ENVIRONMENTAL NEEDS**

For the initial round of testing, one distinct controlled system will be required to set up as one standard complete office setting. To ensure the integrity of the test environment, this network will not be available to anyone outside of this project. The printers are likewise only available to the test network.

|  |  |
| --- | --- |
| **Required Hardware and Software** | **Minimum Component Requirements** |
| Network PC | 6 |
| DAP Workstation | 1 |
| HP Laserjet Printer | 1 |
| Touch Screen Monitor | 10 |
| Batch Waste Printer | 1 |
| Oracle Server | 1 |
| Network Interface Card | 300mbps |

PC Specifications: 3 x P166, 1.5 GB HDD and 4 GB RAM

* Software for Automated Testing.
* JIRA to keep track of working progress.

**(11) STAFFING AND TRAINING NEEDS:**

During the first stages of project planning, the project manager can assume the role of test engineer. Following the completion of the fundamental form, two full-time testers are required for the approval and confirmation tests. One of them should be a tester at the start, as the project manager’s assistant. The project lead and manager must then collaborate with the organization’s workforce to train on the internal operation of a project stream and learn more. In the meanwhile, if customers require urgent assistance or a solution, they can engage an expert for a set length of time.

**(12) Responsibilities:**

**Project lead:**

**i)** Raise and manage issues or risks related to the project or beyond the control of the test team.

**ii)** Regularly review test progress with the test moderator.

**iii)** Checking risk and inform and take care of quality.

**iv)** Risk testing and reporting.

**v)** Getting regular feedback.

**Quality assurance lead of the project:**

**i)** Ensure that the project is delivered according to schedule, budget and quality.

**ii)** Regularly reviewing of the testing progress.

**iii)** Testing progress and give feedback.

**iv)**  Manage problems or risks related to the system test team.

**v)**  Provide the necessary resources to complete the system test.

**vi)** Checking regular activity of tester

**Test planner:**

**i)** Ensure that the project is completed on time, on budget and with high quality.

**ii)** Create high-level and detailed test conditions.

**iii)** Choose condition for testing and reporting test progress in meetings.

**iv)** Supervise the approval and review of test conditions

**v)** Conduct individual test cycles and solve tester problems.

**vi)** Set up steps to test.

**vii)** Achieve desired results.

**viii)** Report problems and choose exit requirements.

**Testers:**

**i)** Execution of function.

**ii)** Identify test data.

**iii)** Perform the test conditions and record the results.

**iv)** Resolve any issues that may arise as a result of remote backup.

**v)** Solve the spooling problem.

**vi)** Evaluation of results.

**vii)** Giving feedback.

**(13) 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.

|  |  |  |
| --- | --- | --- |
| **Milestones** | **End Date** | **Notes** |
| Planning Phase | 01/5/2022 | The high-level planning should be completed by this Milestone. Project Plan, Program Function Specifications are only a few of the deliverables. |
| Code Complete - Infrastructure | 25/5/2022 | 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. |
| Code Complete -Function | 30/6/2022 | 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. |
| Feature Complete | 25/07/2022 | 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. |
| Regression Test | 8/12/2022 | This milestone represents that all Automation ticketing application code and GUI interface to the Automation ticketing application is ready for Regression Testing. |
| Ship/Live | 10/12/2022 | Product is out. |

**(14) Planning Risks and Contingencies:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Risk** | **Probability** | **Risk Type** | **Owner** | **Contingencies / Mitigation Approach** |
| Unable to acquire the necessary number of skilled personnel as the components and become ready to test. | 40% | Personnel Schedule | Test Manager | Component  resources will be shared across existing resources and necessary adjustments need to be made to the schedule. |
| Third party services used on the system become unavailable during testing | 4% | 3rd party | Alliance Manager | Set up a communication channel with 3rd party to report and handle problems.  To use the communication channel above to be aware of planned deviations and maintenance schedules to assist in performing tests. |
| Unable to acquire some of the necessary hardware and software required for integration and system testing | 29% | Equipment | Program Manager Test Manager Development Manager | Use existing acquired hardware. Divide test performance into morning and evening shifts so that multiple hardware tests can be performed on the same day using limited hardware. Development support is needed during both shifts. |
| The material is not delivered on time | 20% | Schedule | Development Manager | Integration testing with those components must be delayed until component delivery. The overall integration testing method can be modified to include appropriate bottom-up as well as top down or sandwich integration. Must be adjusted according to schedule. |
| Turnover | 10% | Personnel | Test Manager | Testers will work in pairs on the components. So if a single member of the team decides to leave, a secondary examination with knowledge of the material will still be able to train a new examiner or finish the job. |

**(15) Approvals**

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| --- | --- | --- | --- |
| Name | Designation | Date | Sign |
| S.M Abdur Bhuiyan Rouf | Project Sponsor | 05.03.2022 | *Abdur Bhuiyan Rouf* |
| Md. Naimul Hossain | Project Manager | 15.03.2022 | *Naimul* |
| Dipta Saha | Quality Assurance Manager | 27.03.2022 | *Dipta* |
| Chaity Gosh | Lead Programmer | 07.04.2022 | *Chaity* |
| Md Ishmam Mir | Lead Tester | 10.04.2022 | *Ishmam* |
| Maizul Ishlam | Development Management | 31.03.2022 | *Maizul* |