

**American International University-Bangladesh (AIUB)**  **Department of Computer Science**

**Software Quality and Testing**

**Spring 2019-2020**

**Project on developing a Test Plan for Automated Ticket Issuing System for**

**Dhaka Subway Systems (DSS)**

**Section: D**

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* 1. **Test Plan Identifier**:

Automated Ticket Issuing System Test Plan DSS\_1.0

* 1. **References:**

* + - Kelly, J. C., Sherif, J. S., & Hops, J. (1992). An analysis of defect densities found during software inspections. Journal of Systems and Software, 17(2), 111-117.​
    - R.S. Pressman & Associates, Inc. (2010). Software Engineering: A Practitioner’s Approach.​

* 1. **Introduction:**

This test plan is about the testing approach and overall framework of the Automated Ticket Issuing System for Dhaka Subway Systems (DSS). Unit testing will be done at the beginning. Integration testing will be next. After that, the System Testing will be done. Finally, acceptance testing will finish the job.

The requirements of the system are as follows:

* 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.
* 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 support by the administrator.
* The software will support credit transaction and validation.
* 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 use Oracle database server.

# 4. Test Items

The major functionalities of the system are as follows:

* 24/7 service
* Ticket availability information display
* Train arrival and departure time display
* Touch screen menu selection
* Source and destination selection
* Multiple ticket issue in one transaction
* Limit the number of ticket issue at the same time
* Cancellation of transactions any time during transaction
* Credit/Debit card transaction
* Coin/Taka recognition and acceptance

**5. Software Risk Issues:**

* Unavailability of using touch screen display.
* Real-time information lacking.
* Unrecognition of notes.
* Safety issues of the transaction system.
* Database security.
* Complication of multiple ticket issuing.

# 6. Features to be tested

The feature which will be tested are given below:

* Touch Screen and keyboard interface usability.
* The accuracy of displaying arrival and departure time and fare as well as information of trains.
* Multiple ticket purchasing is properly working or not.
* Number of tickets purchasing limitation.
* Cancellation of ticket purchase before the final confirmation of the purchase.
* Purchased ticket cancellation support by the administrator.
* Support credit card transaction and validation.
* Support navigation during the ticket purchasing process.
* Tickets availability information.
* Support display of information via Web.

# 7. Features not to be tested

The features which will not be tested are as follows:

* **Privilege accessibility:** Who has the privilege is not a concern of users. It is matter that they are getting the service or not.
* **Oracle database server support:** Database will not show to the users. So, whether it supports or not does not matter because there can be alternative server.
* **Menu selection:** Main features that will available for the process should be enough. So, other small features will not bother the users.

# 8. Approach

The approach of the testing process is a follows:

* At first, test cases need to be prepared and arranged according to the specification.
* To get the proper operation of each unit the system requirements and test cases shall be reviewed.
* To execute the test cases, testing tools such as Selenium, Katelin Studio, Test Complete will be used.
* Workshops will be arranged in case of any training needed.
* A documentation of the results for every test cases should be kept for further verification.
* The tests process shall be performed manually and after that automated testing will be conducted.
* Before the system is eligible for integration testing or system testing, unit testing should be done.
* If there is any new defects or bugs arrive, the development team should be informed immediately.
* Regression testing shall be used for verifying the modifications.
* Immediate action needed if any modification or update is required.

# 9. Item Pass/Fail criteria

At the unit testing:

* If the source code of the small units gives expected result, then the item will be passed.
* The developer will fix the constraints and signatures of the design specification if the test case fails.

At the integration testing:

* If the outcomes of the merging units are accurate, then the test case will be passed.
* In case of failure, the developers will fix the problems.

At the system testing:

* If the entire set of test cases passes, then the system testing will pass.
* If system testing is fails, then the entire process will start from the beginning.

At the acceptance testing:

* If the client did not accept the software according to their requirements, then the test will be failed.
* In that circumstances the software will be rejected.

# 10. Test Deliverables

Projects create deliverables, which are simply the results of the project or the processes in the project. That means a deliverable can be something as big as the objective of the project itself or the reporting that is part of the larger project.

* Test Strategy
* Test Plan Document
* Test Cases
* Test Summary Report
* Test Evaluation Report

**11. Remaining test task:**

* Create Acceptance testing plan
* Create System/Integration Test Plan
* Define Unit Test rules and Procedures
* GUI response and Relational Database testing

1. **Environmental needs:**

* Network configuration needs to run the system.
* Hardware and software are needed to execute the system.
* Need Database Server to execute the system.
* Need Automated Tools support to test the system.

1. **Staffing and Training Needs:**

To build software a certain number of staffs is essential. The staffs will be categorized according to their expertise. Such as, developer, project manager, quality assurance, requirement engineer and so on.

It is not necessary that every staff will understand every tools which will use to build the software. That is why there should be training sessions which will help them to understand the tools such as, Selenium, Katelin Studio and so on.

1. **Responsibilities:**

**Test Lead:**

* + Building up and leading the Testing Team to the success of project.
  + Defining the scope of testing within the context of each delivery.
  + Deploying and managing resources for testing.
  + Applying the appropriate test measurements and metrics in the product and the Testing Team.
  + Planning, deploying and managing the testing effort for any given engagement.

**Project Manager:**

* Plan and implement projects.
* Help define project scope, goals and deliverables.
* Define tasks and required resources.
* Collect and manage project team.
* Manage budget.
* Allocate project resources.
* Create schedule and project timeline.
* Track deliverables.

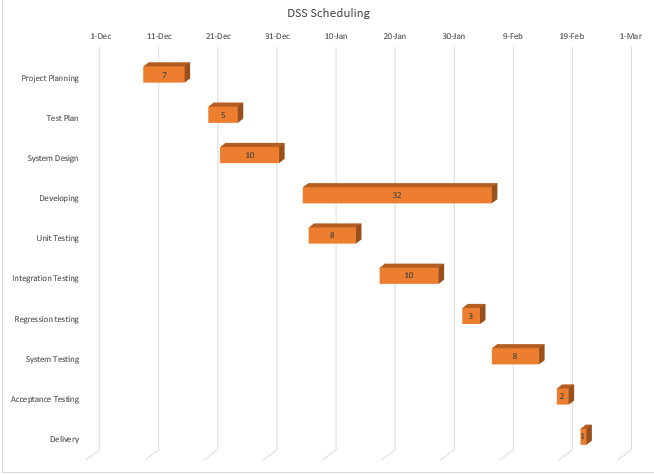
**Quality Assurance Tester:**

* Determining, negotiating and agreeing on in-house quality procedures, standards and specifications.
* Assessing customer requirements and ensuring that these are met.
* Setting customer service standards.
* Determining training needs.
* Writing management and technical reports.

**Developers:**

* Writing and implementing efficient code.
* Determining operational practicality.
* Deploying software tools, processes and metrics.
* Maintaining and upgrading existing systems.
* Identifying areas for modification in existing programs and subsequently developing these modifications

1. **Schedule:**



**16. Planning Risks and Contingency:**

There can be two types of risk.

* **Risk during planning:** The most common failure while planning is budget underestimation. Sometimes, more feature adds to the previous requirement list. As a result, previous budget fails to complete the project. Another is deadline miss. For adding more feature, it takes more time to complete the project. That is why software cannot be delivered in time. As well as, it causes budget failure.
* **Risk during using the software:** Though it has a feature of using personal information, especially while transaction. It can affect the user by breaching the privacy of the user. Such as, leaking their private information, hacking account for money, follow their destination for bad reason and so on.

As a backup for planning risk, time and budget should be estimated to the maximum level. In terms of users’ risk, there can be biometric safety system which will confirm the user after inserting their transaction password.

**17. Approvals**

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