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## American International University- Bangladesh (AIUB)

## Department of Computer Science & Engineering

## Title: Software Test Plan For

**Automated Ticket Issuing System for Bangladesh Road Transport Corporation (BRTC)**

**Course title: SOFTWARE QUALITY AND TESTING   
Course Instructor: S.M. ABDUR BHUIYAN ROUF**

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**1. Test Plan Identifier**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Version | Document Name | Author | E-mail | Date Modified |
| 1.0 | ATIS\_BRTC\_MTP | Shanto Kumar Saha | shantosaha456@gmail.com | 8/9/2021 |
| 1.0 | ATIS\_BRTC\_MTP | Islam, Saiful | [Saiful29saif@gmail.com](mailto:Saiful29saif@gmail.com) | 8/9/2021 |
| 1.0 | ATIS\_BRTC\_MTP | Badhan,Sadia Afrin | [Sadia.badhan96@gmail.com](mailto:Sadia.badhan96@gmail.com) | 8/9/2021 |
| 1.0 | ATIS\_BRTC\_MTP | Anik Saha | [aksanik24@gmail.com](mailto:aksanik24@gmail.com) | 8/9/2021 |
| 1.0 | ATIS\_BRTC\_MTP | Hossain,MD.Sazzad | [Sazzad01625@gmail.com](mailto:Sazzad01625@gmail.com) | 8/9/2021 |

**2. References**

Given Requirements Documents.

IEEE-829 Test Plan Outline.

**3. Introduction**

This is the master test plan of Bangladesh Road Transport Corporation (BRTC) for Automated Ticket Issuing for Bangladesh. Basically, this automated ticket issuing system sells bus tickets where many numbers of user select their destinations, after that they insert their valid credit cards or debit cards and enter required PIN number for verification. Then the bus ticket is issued and the credit/debit card account is charged with its cost. This provides automated ticket issue as well as multiple ticket issue in one transaction and also account management.

The main objective of this test plan is to ensure that the developed project meets the user requirements and works efficiently as requested.

The document contains an overview of the test plan activities to be performed when an upgrade or enhancement is made, or a module is added to an existing application. Testing ensures that the system still meets the client needs (functional requirements). The intent of System Test is to find defects and correct them before final delivery. There is no approach or method to guarantee a system completely free of defects. However, following a System Test approach will assist in mitigating risks and ensuring a successful project.

**4. Test Items**

The major items and function of the system are given below:

1. Touch screen menu selection.
2. Ticket information in the display.
3. Time schedule for the bus arrival and departure.
4. Debit/credit card verification and transaction.
5. Source and destination selection.
6. In one transaction multiple ticket issue.
7. Limiting the number of ticket issue at the same time.
8. During transaction cancel the transaction any time.
9. Coin/taka recognition and acceptance.

**5. Software Risk Issue**

* The start button and the Touch screen menu selection must be tested properly because if it is not working properly then the whole process will be a failure.
* Ticket availability information is one of the major functionalities that needs to work properly.
* The ticket Confirmation Function should be tested properly.
* Checking of all third-party delivery products.
* Real time access of the user is a big risk issue
* Hardware and software both should be smoothly working.
* Government regulations and rules is also an issue which can’t be overlooked.’

**6. Features To Be Tested**

The features that must be tested are as follows:

* Touch Screen monitors must be working properly
* Display of the ticket information must be working properly
* The user must be able to see the display of the list of incoming buses, their destinations and arrival schedule as well as departure times and fare
* If a source/destination has reached to a maximum number of passengers a day, the user can’t buy any ticket further from that same destination on that day
* If a shift of a specific day should be deactivated after the departure to its destination (to prevent the users from buying tickets)
* The user should be notified after each transaction at the end of every ticket purchase.
* The user should be able to cancel tickets anytime before confirmation of the tickets
* The user needs to have a valid credit card/ a valid debit card for payment purpose
* The user can’t issue tickets after reaching the limit at the same time
* The user should be able to issue multiple tickets in one transaction
* The system must recognize coin and taka both as well as accept them properly

**7. Features Not To Be Tested**

Due to time, budget and low priority some test cases may not be tested.

The feature of this project that will be released but not documented as a functional part of the release of this version of the software is given below:

* + 24/7 service.

**8. Approach**

* Documenting all the test case configuration, test data, and expected results and perform the tests during the testing process.
* Finding automation tool expert for converting manual test case to automated scripts.
* Right automation tool must be chosen according to the budget and supportive technologies as well as good reporting mechanism to show the result after each execution.
* Analyzing various applications to determine which are best suited for automation.
* Good training and strong communication between manual tester, developers and automated team is really necessary.
* Creating test automation framework that should support automating testing long run.
* Before the unit is eligible for component, Successful unit testing is required. After that Identifying which particular tests will be used to test each module. Ensuring that the test data and test cases are sufficient to verify proper operation of the unit as well as Identifying the expected results for each test.
* After unit testing, Integration testing is performed before integrating any new module with the existing modules
* To check and verify that all the functionalities that are integrated, are working correctly, system testing is done.
* The reporting feature is usually provided by the tool but we can create custom reporting mechanisms like auto-emailing the results to management.
* Test documents and reports will be submitted. Any specifications to be reviewed, revised, or updated shall be handled immediately.

**9. Item Pass/Fail Criteria**

All the test items must be checked and implemented within the budget and time schedule as well as all the test cases must be validated and verified to meet customers’ satisfaction. If all these requirements can be fulfilled in given time then items can pass, otherwise it will be referred as fail criteria for the test plan.

**10. Suspension Criteria and Resumption Requirement**

Many variables dictate the suspension of the developing system. Some are system related and others are environmental problem.

* **Credit/Debit card validation:** If the ID card inserted by the user is not validated the ticket issuing process cannot move further. The user needs to have a valid credit/debit card for the payment procedure.
* **Absence of the test lead** will dictate the completion of the project.
* **Budget and time variant**: If budget and time has exceeded immensely, then there will be no point in continuing with this project.
* **System related:** if the bugs found are too severe and not dealt with properly, the system will crash. If testing is suspended, resumption will only occur when the problems that caused the suspension has been resolved

**11. Test Deliverable**

|  |  |  |  |
| --- | --- | --- | --- |
| **Sl. No** | **Deliverable Name** | **Author** | **Reviewer** |
| 1 | Test Plan | Test Lead | Project Manager |
| 2 | Test Case Documents | Test Team | Test Lead |
| 3 | Daily/Weekly status report | Test Team/Test Lead | Test Lead / Project Manager |
| 4 | Defect Log | Test Team | Test Lead |
| 5 | Test Closure Report | Test Lead | Project Manager(PM) |

**12. Remaining Test Tasks**

* Directly database testing.
* GUI response testing
* Verify prototypes.
* 3rd party & off-The-Shelf components.

**13. Environmental Need**

The hardware and software tools needed for this system to work are as follows:

System Test will be run on the following Software Versions:

* Windows 10 Operating System
* Java EE
* MS Office

Hardware components required:

* Simulators of cash reader
* LED touch screen monitors
* 5 desktops
* 5 Keyboard interfaces
* 1 Network Controller
* 6 Networked PC's
* 1 Oracle Server
* 1 Thermal printer

**14. Staffing and Training Needs**

|  |  |  |
| --- | --- | --- |
| **Role** | **Project Phase** | **No of Staffs Required** |
| Technical Writer | Documentation | 01 |
| Requirement Analyst | Requirements | 02 |
| Quality Analyst | All | 01 |
| Programmer | Implementation | 03 |
| Software Designer | Design | 02 |
| Database Engineer | Design and Implementation | 02 |
| Software Engineer | Design and System Allocation | 02 |
| Project Manager | All | 01 |

**15. Responsibilities**

Project Manager:

* Manage all documentation and test plans.

Requirements Analyst:

* Define, Document, Maintain and Enforce Project Coding Standards.
* Review and approve ALL architecture changes.
* Point of contact for technical issues that arise during solution development.
* Provides day to day status of development issues to project manager for quick resolution.

Programmer

* Work with business requirements
* Assists with developing system test plans
* Get deliverable sign off from customer\client
* Develop training material as needed
* Communicate technical issues to Technical Team leader in an urgent/timely manner to facilitate resolution

Client

* Provide detailed requirements; participate in requirements determination process
* Participate in Business Designing
* Review and Approve Requirements and Business Design
* Participate or make scope for User Acceptance testing
* Test Lead:
* Ensure the first phase is delivered to schedule, budget & quality
* Ensure exit criteria are achieved prior to the system test signoff
* Regularly review testing progress with test controller.
* Raise and manage issues or risks relating to the project or outside the test team control.
* Review and sign off test approach, plans and schedule

Tester:

* Identify test data
* Execute Test Conditions and Mark off results
* Software Control Change Board: Team
* Attend the change control meetings
* Follow change control process
* Evaluate and document change

**16. Schedule**

|  |  |
| --- | --- |
| **Activity** | **Date** |
| Planning Phase | 14-08-2021 |
| Object Design | 16-08-2021 |
| Coding Complete | 20-08-2021 |
| Feature Complete | 23-08-2021 |
| System Integration & System Testing | 26-08-2021 |
| Release | 06-09-2021 |

**17. Planning Risk & Contingencies**

This section describes the potential risks to the overall project plan but from the perspective of the testing process

* Less productivity of team members due to corona virus pandemic
* Inability to test all features
* Team Member Leaving/Getting Sick
* Not Sufficient Budget for Testing
* Late or no delivery of required hardware, software, test data or tools
* Hardware Failure
* Changes to the original requirements or designs
* Communication Gap
* Some planning needs to be done based on the scenario of the problem so it can’t be predetermined.
* Complications may occur while performing sensitive calculations
* Political Interference

**18. Approvals**

|  |  |  |  |
| --- | --- | --- | --- |
| Designation | Name | Sign | Date |
| Team Lead | Shanto Kumar Saha |  | 06-09-2021 |
| Test Manager | Islam, Saiful |  | 06-09-2021 |
| EDI Team Manager | Anik Saha |  | 06-09-2021 |
| Project Manager | Hossain,MD.Sazzad |  | 06-09-2021 |
| Project Sponsor | Badhan,Sadia Afrin |  |  |

**19. Glossary**

* ATIS: Automated Ticket Issuing System
* MTP: Master Test Plan
* PM: Project Manager
* EDI: Electronic Data Interchange.