A TEST PLAN for Automated Ticket Issuing System for Bangladesh Road Transport Corporation (BRTC)

Submitted by:

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Concept:

Our software firm Southtech, Inc. has been awarded a contract to develop software for Bangladesh Road Transport Corporation (BRTC) that provides automated ticket selling. we are the Test Lead of the project. Based on the requirements and functionalities of the system, we have to develop a software test plan.

Test Plan Identifier

Test Plan ID	Test case	Description
TP_BRTC_1'0	24/7 service	**The system must serve the user 24/7**
TP_BRTC_1'1	Ticket availability information display	**The system will show whether tickets are available or not.**
TP_BRTC_1'2	Bus arrival and departure time display	**The system will show a timetable of each arrival and departure of the bus.**
TP_BRTC_1'3	Touch screen menu selection	**The software device must have the option of selecting menu for the user.**

TP_BRTC_1’4	Source and destination selection	**The software will let the user choose and select their source and destination.**
TP_BRTC_1’5	Multiple ticket issue in one transaction	**A person can purchase more than one ticket so the system must issue multiple ticket.**
TP_BRTC_1’6	Limit the number of ticket issue at the same time	**The software will support limiting the number of tickets purchased at the same time.**
TP_BRTC_1’7	Cancellation of transaction	**The system will support transaction cancellation any time during transaction.**
TP_BRTC_1’8	Cancellation of ticket	**The software will support ticket cancellation before final confirmation of the purchase or after purchasing.**

TP_BRTC_1’9	Credit/Debit card transaction	**The software will support credit transaction and validation.**
TP_BRTC_1’10	Coin/Taka recognition and acceptance	**The system will check the money(Coin/Taka) and accept it.**
TP_BRTC_1’11	Report section	**The software will have a feature where user can report their problem.**
TP_BRTC_1’12	Advanced schedule/calendar.	**The software will also show a dummy calendar of the timetable.**
TP_BRTC_1’13	Tutorial	**The software will have a video of how does it work so that user can easily operate it.**
TP_BRTC_1’14	Next and back	**The software will support next and previous navigation**

	navigation	**during ticket purchase process.**
TP_BRTC_1'15	Display information via web	**The software will support information display via web.**
TP_BRTC_1'16	Use Oracle database server	**The software will use Oracle database server.**

Reference:

[1] Given Requirements Documents

[2] IEEE 829-1998 Test Plan Outline

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Introduction:

This is a document of a contract to develop software for Bangladesh Road Transport Corporation (BRTC) . It provides automated ticket selling where we are supposed to be the Test Lead of the project. An automated ticket-issuing system sells bus tickets. Users select their destination and input a credit card and a

personal identification number. The bus ticket is issued and their credit card account charged. When the user presses the start button, a menu display of potential destinations is activated, along with a message to the user to select a destination. Once a destination has been selected, users are requested to input their credit card. Its validity is checked and the user is then requested to input a personal identifier. When the credit transaction has been validated, the ticket is issued.

Software risk issues:

A possibility of suffering from loss in software development process is called a software risk. It affects functional and non-functional characteristics of the software**.** In this project there is also some risk issues.

Such as:

- Tight timelines
- A high number of test builds
- Incomplete validation
- Unresolved, misapplied, unrecognized metrics
- Insufficient regression time
- Inaccurate time estimates
- Inaccurate identification of complexities, functionalities, or operations
- Conflicting test priorities
- Missing the deployment deadline
- Poor quality software
- Inaccurate cost estimates
- Cost overruns.
- Unanticipated circumstances.

Features to be tested

Firstly, we have to prioritize the features according to the requirements. Then we can explain which features should be tested in a cycle. We will test the features according to the test priority so that we can test the major issues first.

Requirements	Test plan ID	Priority	Test(Yes/ No)
The software will support interface to touch screen monitors as well as keyboard interface.	TP_BRTC_1’3	High	**YES**
The software will support display of the list of incoming buses, their destinations and arrival and departure times, fare.	**TP_BRTC_1’1,** **TP_BRTC_1’2**	**High**	**YES**
The software will support multiple ticket purchase simultaneously.	**TP_BRTC_1’5**	**High**	**YES**
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.	**TP_BRTC_1’6**	**High**	**YES**

The software will support ticket cancellation before final confirmation of the purchase.	**TP_BRTC_1’8**	**High**	**YES**
The software will support purchased ticket cancellation support by the administrator.	**TP_BRTC_1’8,** **TP_BRTC_1’7**	**High**	**YES**
The software will support credit transaction and validation.	**TP_BRTC_1’9**	**High**	**YES**
The software will support next and previous navigation during ticket purchase process.	**TP_BRTC_1’14**	**High**	**YES**
The software will support ticket availability information.	**TP_BRTC_1’1**	**High**	**YES**
The software will support information display via web.	**TP_BRTC_1’15**	**High**	**YES**
The software will use Oracle database server.	**TP_BRTC_1’16**	**Low**	**YES**

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Features not to be tested

The features which have less priority or does not mentioned in requirements those are not meant to be tested as they are not clients concern. So, comparing the table of test plan identifier and above features to be tested we can find out which are not be tested.

Requirements	Test plan ID	Priority		Cause
The software will use Oracle database server.	**TP_BRTC_1'16**	Low	**Not to be tested**	The Personnel can choose any database server to use as long as it will be efficient to deal with.It won't affect the system.
X	**TP_BRTC_1'0**	High		The system should serve the user 24/7 but there was no such requirement from the client so it will be tested

				in further version.
X	**TP_BRTC_1'10**	Low		This kind of automated system usually doesn't receive cash and also not mentioned in requirement so It can be tested in future cycle.
X	**TP_BRTC_1'11**	Low		There is no requirement of reporting any problem by the user so it will be tested later.
X	**TP_BRTC_1'12**	Low		No requirement of having a advanced schedule to display for

				prebooking so it will be tested in next version
X	**TP_BRTC_1'13**	Low		Sometimes the user face difficulties to run software,so the tutorial could help them. But this type of requirement is not mentioned here so it can be tested later version.

Item pass/fail criteria

1. The code will be given green signal for delivery if at least 95%-unit tests passes.

2. After each module is integrated, regression tests must pass 100% of the test cases.

Test Deliverables

1. Test plan
2. Test case
3. Test script
4. Execution Log
5. Summary report

Approach:

The testing for a robust web-based system for a Automated Ticket Issuing System for Bangladesh Road consist of Unit, System/Integration (combined) and Acceptance test levels. For this project we will use both manual and automated testing. The following represents the overall flow of the testing process approach:

1.There will be at least one full time independent test person for system/integration testing.

2. However, with the budget constraints and timeline established number of testers involved in different kinds of testing may vary.

3. Document the test data, test cases, and test configuration used during the testing process. This information shall be submitted via the Unit/System Test Report (STR).

4. Successful unit testing is required before the unit is eligible for component.

5.Unit Testing will be done by the developer and will be approved by the development team leader.

6. Identify the requirements to be tested. All test cases shall be derived using the current Program Specification.

7. Integration testing is performed before integrating any new module with the existing modules.

8. system testing is done to verify that all the functionalities that are integrated, works correctly.

9.Test case list, sample output, data printouts, and defect information) must be provided by the programmer to the team leader before unit testing will be accepted and passed on to the test person.

10. All unit test information will also be provided to the test person.

11. Identify the expected results for each test.

12. Unsuccessful testing requires a Bug Report Form to be generated. It shall be used as a basis for later technical analysis.

13. Test documents and reports shall be submitted. Any specifications to be reviewed, revised, updated shall be handled immediately.

14.System/Integration Testing will be performed by the test manager and development team leader with assistance from the individual developers as required.

15. Document the test case configuration, test data, and expected results

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Remaining test tasks:

Tasks should be listed for each deliverable test. Including all inter-task addictions, ability levels, etc. In the overall project monitoring mechanism (tool) these tasks should also have corresponding objectives and milestones. If this is a multi-phase project or whether the application is to be published in stages, portions of the application will be that are not covered by this strategy.

The features and tasks that will be done in the next version of this software are:

TP_BRTC_1'0	TP_BRTC_1'13
TP_BRTC_1'10	TP_BRTC_1'16
TP_BRTC_1'11	
TP_BRTC_1'12	

Staffing and Training needs:

In this test plan as we mentioned of doing both manual and automated testing, the personnel has divide in categories such as:

- There will be a leading group of 2 or 3 expert testers who will train the team.
- The team will also divided into 2 sub groups:
  - The team who will have manual testing training.
  - The team who will have automated testing training.
- The training will also be 2 types:
  - Training on the product.
  - Training for any test tools to be used.

Environmental needs:

There are some special requirements in this test plan these are the environmental needs for this test such as:

- Special hardware such as simulator
- Software
- Specific versions of other supporting software
- **Testing tools(both purchased and created):**
  - Selenium,
  - TestingWhiz,
  - Ranorex,
  - Watir, etc.
- **Communications:**
  - Web
  - Client/Server
  - Network
  - Topology
  - External
  - Internal
  - Bridges/Routers
  - Security
- Restricted use of the system during testing.
- Special power requirements.

Responsibilities:

	TM	PM	Dev Team	Test Team
Acceptance test Documentation & Execution	X	X		X

System/Integration test Documentation & Exec.	X		X	X
Unit test documentation & execution	X		X	X
System Design Reviews	X	X	X	X
Detail Design Reviews	X	X	X	X
Test procedures and rules		X	X	X

Test Schedule:

Test Schedule ID:	TS_BRTC_1.0
Product ID / Name:	Automated Ticket Selling
Product Version or Build:	Version 1.0
Present Owner :	Owner of the test schedule document- Southtech, Inc.
Created On:	Test schedule document was created on16/08/2020
Review On:	Document was last Reviewed & Updated on 10/09/2020
Review By:	Test lead of Southtech Inc.

Review Comments:	No comments have been incorporated		
Current Version:	Current version of the test schedule document- TS_0.1		
Change Details:	No change in current version		
Current Status:	In Process		
Signing Off Authority:	**Name**	**Position**	**Signature , Date**
	Maruf Ahmed, Nishat Tasnim Haque, Fariha Mahjabin, Sushmoy Debnath, Md. Zubayer Hossain Leon	Test lead, QA Manager, Dev. Manager, Product Manager, Release Team Manager	

Test Step	**Start Date**	**End Date**	**Responsibility**
Complete Spiral	**16/08/20**	**20/11/20**	
(A) Information gathering	**16/08/20**	**21/08/20**	**to support the planning of the work to become more fully inclusive**
a1) Prepare for Interview	**16/08/20**	**16/08/20**	
a2) Conduct Interview	**17/08/20**	**18/08/20**	
a3) Summarize Findings	**19/08/20**	**21/08/20**	
(B) Test Planning	**22/08/20**	**04/09/20**	**The plan typicall y contains a detailed understanding of the eventual workflow.**

b1) Build Test Plan	**22/08/20**	**28/08/20**	
b2) Define the Metric Objectives	**29/08/20**	**31/08/20**	
b3) Review / Approve Plan	**01/09/20**	**04/09/20**	
(C) Test Case Design	**05/09/20**	**21/09/20**	**Test the functionalities and features of the software with the help of effective test cases**
c1) Design Function Tests	**05/09/20**	**09/09/20**	
c2) Design GUI Tests	**10/09/20**	**14/09/20**	
c3) Define the System / Acceptance Tests	**15/09/20**	**19/09/20**	
c4)Review / Approve Design	**20/09/20**	**21/09/20**	
(D) Test Development	**22/09/20**	**26/09/20**	**Build test specifications. Create potential test items and scoring rubrics**
d1) Develop Test Scripts	**22/09/20**	**24/09/20**	
d2) Review / Approve Test Development	**25/09/20**	**26/09/20**	
(E) Test Execution/Evaluation	**27/09/20**	**18/10/20**	**Describes the results of the Testing in terms of Test coverage and exit criteria**
e1) Setup and Testing	**27/10/20**	**10/10/20**	
e2) Evaluation	**11/10/20**	**15/10/20**	
e3) Reassess Team, Procedures, and Test Environment	**15/10/20**	**17/10/20**	
E4) Publish Interim Report	**18/10/20**	**18/10/20**	

(F) Conduct System Testing	**19/10/20**	**30/10/20**	**A complete and integrated software is tested**
f1) Complete System Test Plan	**19/10/20**	**20/10/20**	
f2) Complete System Test Cases	**21/10/20**	**23/10/20**	
f3) Review / Approve System Tests	**24/10/20**	**25/10/20**	
f4) Execute the System Tests	**26/10/20**	**30/10/20**	
(G) Conduct Acceptance Testing	**31/10/20**	**11/11/20**	**performed to determine whether or not the software system has met the requirement specifications**
g1) Complete Acceptance Test Plan	**31/10/20**	**2/11/20**	
g2) Complete Acceptance Test Cases	**3/11/20**	**4/11/20**	
g3) Review / Approve Acceptance Test Plan	**5/11/20**	**6/11/20**	
g4) Execute the Acceptance Tests	**7/11/10**	**11/11/20**	
(H) Summarize/Report Spiral Test Results	**12/11/20**		**The final activity in the continuous improvement process. includes a set of tasks associated with each step or a checklist**

h1) Perform Data Reduction	**12/11/20**	**14/11/20**	
h2) Prepare Final Test Report	**15/11/20**	**17/11/20**	
h3) Review / Approve the Final Test Report	**18/11/20**	**20/11/20**	

Planning Risks and Contingencies:

There are some overall risks to the project with an emphasis on the testing process:

- Lack of personnel resources when testing is to begin.
- Lack of availability of required hardware, software, data or tools.
- Late delivery of the software, hardware or tools.
- Delays in training on the application and/or tools.
- Changes to the original requirements or designs.
- Specify what will be done for various events, for example:
- Requirements definition will be complete by January 1, 20XX, and if the requirements change after that date the following actions will be taken.
- The test schedule and development schedule will move out an appropriate number of days. This rarely occurs, as most projects tend to have fixed delivery dates.
- The number of test performed will be reduced.
- The number of acceptable defects will be increased.
- These two items could lower the overall quality of the delivered product.
- Resources will be added to the test team. · The test team will work overtime.
- This could affect team morale. · The scope of the plan may be changed.

- There may be some optimization of resources. This should be avoided if possible for obvious reasons.
- We could just QUIT. A rather extreme option to say the least.

Management is usually reluctant to accept scenarios such as the one above even though they have seen it happen in the past. The important thing to remember is that if we do nothing at all, the usual result is that testing is cut back or omitted completely, neither of which should be an acceptable option.

Approvals :

Developer Company	**Client**
Southtech Inc.	Bangladesh Road Transport Corporation (BRTC)
Signature:	**Signature:**