SOFTWARE TEST PLAN

for

TransportX

Transportation Company Computerization Software

Version 1.0.4 approved

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Revision History

Name	Date	Reason For Changes	Version
1	15/03/22	The entire SRS has been formulated	1.0.0
2	17/03/22	The Use Cases and diagrams are updated	1.0.1
3	18/03/22	Class Diagram are updated	1.0.2
4	19/03/22	Test Cases planned	1.0.3
5	20/03/22	Minor Bugs Found and Fixed	1.0.4

1 References

The following documents are referenced here to support the test plan of our software, TransportX:

1. Software Requirement Specifications Document (1.0.2)
2. Class Diagram
3. Use Case Diagram
4. IEEE-829 Test Plan Outline

2 Introduction

The purpose of the plan is to maintain a steady stream of productive work from all entities involved in the project and to ensure a fair distribution of said work. This plan covers the entire software Project of TransportX. An In-Depth test has been conducted for all functionaries described previously in the SRS. The plan identifies the items to be tested, the features to be tested, while keeping in mind the risks associated with the project

3 Test Items

The following Items have been under rigorous testing to ensure complete usability.
The following test have all been done in a JAVA integrated development environment using IntelliJ IDEA 2021.3.2 (213.6777.52 build).

- **Registration**: Both the Managers and Employees must be registered in the system before operation, the registration of Manager is fundamental and the system cant work without one, in contrast to this the Manager registers multiple Employees across multiple Branches
- **Login**: Both the Manager and the Employees must Login using their username and password before being able to use functionaries allotted to them.
- **Forgot Password**: Employees and Manager can change their current password by entering their DOB(Date of Birth) and userID.
- **Consignment Status**: The status of the Consignment will be changed from pending to delivered as per the current status of the consignment in truck or warehouse.
- **Assign Truck**: The longest waiting truck is assigned the first available load of consignments to cross the $500m^3$ threshold.
- **Truck Status**: The status of the Truck will be changed from Standby to En-route as per the current status of the consignment in truck.
- **Add Consignment**: A consignments details is entered by the employee as per the specification given by the customer and is sent to the office warehouse where it is stored until it reaches the $500m^3$ minimum benchmark to the destination office where it is to be sent.
- **View Consignments**: The customer and Manager both have the ability to view the status of the consignment by accessing it through its ID which was taken when adding the consignment.
- **Buy Truck**: The manager has the functionalities to buy an additional truck when he sees it fit to do so and allots it to a particular office
- **Generate Bill**: The customer after adding the consignment can generate the bill which prints cost details as the the rate set by the manager, this is done after computing charge.
- **Receive Truck**: An office can receiver a truck coming to the office and updates the corresponding consignment and truck statuses.

- **Request for Truck**: As and when the storage exceeds the minimum benchmark of $500m^3$ the office employee can request for the next available truck, if not available in the branch a neighbouring branch free truck is quickly allotted to it for quick transport of consignments
- **View Statistics**: The Manager has the functionalities the query the consignment and revenue to see any consignments current status and the net revenue of any office, the manager also has the functionalities to view status of trucks and idle times of them across the various branches
- **Change Rate**: The manager has the functionality to change the current rate at which consignments are charged at to transport them from one office to another.
- **Query Database**: the manager can query the database to access all information relating to trucks, offices, employees, and consignments, such as query volume.
- **Logout**: the Manager and Employees can logout to secure their system after use

4 Software Risk Issues

There are many risks that one must keep in mind while developing a software, these arise because there are several parts of TransportX which are not under its own control some of which are

- Inavailblity of a strong constant internet connection in all place traversed by the truck and in all branch offices
- Support for all 3rd party libraries which have been used for the project
- Database Security has and will always be a risk
- Extremely Interrelated Functionaries
- Misunderstanding of Original requirements

These are just some of the current software risk as more projects roll out and the interface becomes updated more bugs may arise which also provide a major software risk.

5 Features to be Tested

5.1 Manager

- Registration
- Login
- Forgot Password
- Enter DOB and UserID
- Query Consignment
- Query Revenue
- Buy Truck
- Change Rate
- View Idle Wait Time
- Register Employee
- View Truck Usage
- Updates Database

5.2 Employee

- Login
- Forgot Password
- Enter DOB and UserID
- Query Consignment Status
- Assign Truck
- Add Consignment
- Receive Truck
- Updates Database

5.3 Customer

- Place Order
- Get Consignment Details
- Compute Charge
- Issue Bill
- Print

6 Features not to be Tested

- We shall not be testing any 3rd-Party Library Used in the project
- Hardware is not to be tested
- The GUI will not be put under heavy testing

7 Approach

7.1 Testing Levels

Our testing has been done comprehensively in multiple levels to make sure that all functionalities are working individually and are Incorporated together in a way to enhance the overall working of the software

7.1.1 Unit Testing

All the individual classes that we have Incorporated are heavily tested to make sure that they all work independent of each other without any bugs, thus to do this we have isolated that part of the code and tested it thoroughly

7.1.2 Application Testing

After Unit Testing we incorporated all the classes together and test the overall software by sequentially adding units and testing them to make sure no bugs are generated at any point while making the final software.

7.2 Test Tools

We will use Junit to complete the testing of our software to make it user friendly and ready for deployment

7.3 Test Completeness

The testing will be considered complete only if

- 100% of test coverage
- All tests are executed
- Database is up and running
- All open bugs are fixed

8 Item Pass/Fail Criteria

8.1 Unit Test Level

- All Given Test cases are to be completed
- No minor errors should be detected
- All parts of the code should be covered

8.2 Application Test Level

- Unit test should be completed
- Slowly implementing parts of code and checking
- No detected bugs in integrated parts
- After complete integration it should work with minor error

Although it is not able to completely remove all defects as there are a number of undetectable defects in every big software, but as testers we can ensure that no failure of program occurs in point of view of the user to ensure maximum usability and product success, although

9 Suspension Criteria and Resumption Requirements

Testing is a very resource intensive, therefore if the testing reaches a point where it can not continue due to excess bugs it makes sense to end it and save resources as a continuation of doing it is just wasting resources
The following constitute immediate stopage of testing and to go back to developing phase

- Faulty Database or improper updating of said database
- Improper Linking of Classes
- Faulty GUI
- Inefficient codes
- Unable to access internet

10 Test Deliverable

Along with the Test Plan we shall also deliver the following

- Test Plan Document
- Test Cases
- Test Design Specification

11 Remaining Test Tasks

As this is a not a multi-phase process this testing will cover all functionalities given to different user levels and will cover the testing of all units of this software.

12 Environmental Needs

As we are trying to reduce bugs and increase usability for ease of access and clear understanding of the GUI of clients for this it is important that we undergo the test of TransportX in the same conditions that our clients would be using, thus to simulate this we use the following environment

- We will generate our own test data to simulate real life scenarios as closely as possible
- each unit will be tested on completely and the units will be merged with each other only after 100% bug removal
- The following test have all been done in a JAVA integrated development environment using IntelliJ IDEA 2021.3.2 (213.6777.52 build).
- The system will only be tested in local network which slightly deviates from the real scenario.

13 Responsibilities

Team Role Description:

The following are the roles the team mates in the formulation of this software project:

- Abhay Kumar Keshari
  - Database Handling and Linking
  - Overall Project Structuring
  - Feature Testing Plan
  - Version control and Regression Testing
- Tanmay Mohanty
  - Graphical User Interface / Frontend
  - Use Case Diagram
  - Unit Test documentation and execution
  - Documentations of project details
  - System Integration

- Aniket Kumar
  - Training Resource
  - Class Diagram
  - Test Procedure and Rules
  - Documentation and Project Quality Assurance

14 Schedule

14.0.1 Tentative Timeline

Appropriate time has been allotted to each activity while formulating this project. We are planning to finalise all of our functions as mentioned above and test them appropriately. The project would be completed well before the final presentation, as a part of our project evaluation.

15 Planning Risks and Contingencies

The overall risks for a software of this magnitude need to be considered, thus they are the following:

- Lack of time when testing is about to begin
- Possible late delivery of TransportX software
- Changes in Original Requirements and SRS

16 Approvals

Prof. Sourangshu Bhattacharya - Course Professor	
Mr. Shiva Kumar Veldi - Teaching Assistant	