TEST PLAN

for

Supermarket Automation Software

Prepared by

Kaushal Banthia (19CS10039)

Parth Tusham (19CS30034)

Shashwat Shukla (19CS10056)

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1 Introduction

This document provides a high-level overview of the testing strategy for our Supermarket Automation software. Its objective is to communicate project-wide quality standards and procedures. This document mainly addresses the various features that will be tested. The document then lists down the various scenarios that can arise for each of the mentioned features. The primary motive of this plan is to ensure that at the end of the testing process, the software performs all the tasks as expected. It will also ensure that the software never goes to an inconsistent state or crashes unexpectedly. Throughout the testing process, the test documentation specifications described in the IEEE Standard 829-1923 for Software Test Documentation will be applied.

2 Objective

Testing is the process of analysing a software item to detect the differences between existing and required conditions and to evaluate the features of the software item. Specific test plan components include:

- Purpose for this level of test
- Management and technical approach
- Pass/Fail Criteria
- Hardware/Software requirements

3 Features to be Tested

The following is a list of the areas to be focused on during testing of the application.

- Checking the Login with valid User Id and Password.
- Editing/Adding the valid items in the inventory.
- Viewing the current inventory.
- Generating the valid bill for the transaction.
- Viewing the Transaction Database.
- Checking the Editing of the User list.
- Generating the required graphs to view the sales statistics.

4 Approach (Strategy)

Presently, only the unit testing is being done, i.e., all the functions and modules will be tested individually. The software is executed for various scenarios and then the output produced is cross-checked with the theoretical golden output either manually or automatically.

4.1 Unit Testing

Unit Testing is done at the source or code level for language-specific programming errors such as bad syntax, logic errors, or to test particular functions or code modules. The unit test cases shall be designed to test the validity of the program's correctness. Unit testing includes testing all the classes in our program and the front end of our website.

4.1.1 Testing the Frontend

This is the part where we need to verify that the Frontend of our website is functioning as expected and everything is positioned on the screen properly. Automating this task is extremely difficult, and hence this has to be done manually. In that case, we just manually proceed and enter the Inputs as given in our Test Suite and check if the website is functioning properly or not.

4.1.2 Test the Backend and Database

For testing the components used in the backend part, like the methods and modules in various classes we have written the various Unit Test methods on basic level and on high level. Here, we test the functional logic of each method and track changes made to the data members of the classes and the states of the objects. We make a testing class for each of the backend classes, which have unit testing methods for each of the individual methods in the classes. The output generated is verified against the golden output automatically here. If there is a mismatch then an appropriate message is displayed. The database queries and updates mostly happen inside the methods of the backend classes simultaneously while updating the state of the objects. So, there is no need to write separate methods for testing this part. The tests for verifying that the database is always updated properly can be written in the unit testing functions described in the previous part itself.

5 Test Scenarios for the Frontend GUI Interface

5.1 Login Page

- Login can be chosen from manager and sales clerk using a drop-down menu. If nothing is chosen, then it is defaulted to Manager.
- If correct Id and password are input, then it logs in to the respective manager / sales clerk account,
- If incorrect id or password are input, it shows an error message.
- If we wish to create a new account, then we can click on Register and it will take us to the register page.

Manager Class

5.2 Edit Inventory

- **Quantity:** A non-negative number (could be float in cases of Open Items such as rice)
- **Cost:** A positive number.
- **Price:** A positive number which must be greater than that of Cost of that item.
- **For Editing Existing Items:**
  The Quantity, Price can be changed.
  If any of the below conditions is satisfied the SAVE CHANGES button will show an error:
  - If Quantity entered is a non-positive integer.
  - If the Price entered is less than Cost.

  For any other case the result will be the changes made in the existing inventory.
- **For Adding New Items:**
  A product ID, Product Name, Quantity, Cost, and Price are entered.
  If any of the below conditions is satisfied the SUBMIT button will show an error:
  - If the product ID entered already exists.
  - If the Product Name entered already exists.
  - If the Quantity entered is not a Positive number.
  - If the cost entered is not a Positive number.
  - If the Price entered is less than the cost entered.

  For any other case not satisfying above the output will be the addition of a new item in the database.

5.3 Manager Profile Page

There are five links/button in the navigation bar namely:

- **Report:** If we click this link it directs us to the Reports page, where the manager can see the statistics for the various transactions made.
- **Edit Users:** On clicking this link, the edit users page opens up, where the manager can see all the registered clerks and can remove any of them, if he wishes.
- **Profile:** This is the page that will be shown first when the manager logs in although there is also a link provided in the navigation bar if someone wants to see their profile in which it will display name, email ID and position.
- **Logout:** This link logs you out and shows the message “You are logged out”.
- **Edit Inventory:** This link takes us to a page where the inventory is listed in a tabular form and can be edited by the manager.

5.4 Report page

- It displays the total number of transactions made till date.
- There is a dropdown menu of clerks, using which the number of transactions for that clerk can be seen.
- There are two input boxes where the start and the end dates can be input for viewing the reports. After inputting the dates, the Print Statistics button is pressed which shows us the various graphs for the transactions made in that period.
  - If the start date is after than the end date, then it would be reported as an error.

5.5 User Edit

- It displays all the Clerk present currently and gives the option to know the details of a clerk and remove them.
- If Remove button for a clerk is Pressed and Submit Button is Entered then the Clerk with that Username and Password is removed from the Database.

Clerk Class

5.6 Clerk Profile page

There are four links/button in the navigation bar namely:

- **Transaction:** if we click this link it directs us to the transaction page where the clerk can begin with a new transaction by adding items to the cart and checking out and printing bills.
- **Profile:** This is the page that will be shown first when a clerk logs in although there is also a link provided in the navigation bar if someone wants to see their profile in which it will display name, email ID, position, previous transaction history.
- **Logout:** This link logs you out and shows the message “You are logged out”.
- **View Inventory:** This link takes us to a view-only page where the inventory is listed in a tabular form.

5.7 Clerk Transaction Page

- This is the page where the clerk will perform transactions.
- Given below are the functionalities provided by this page and its uses:
    - **Item drop-down menu:** From this menu, the clerk will first select the item and then mention the quantity of the respective item purchased in the quantity box provided.
    - **Quantity form:** In this box fill the quantity of the items selected from the drop-down menu.
    - **Add to Cart button:** After selecting the item and mentioning the quantity in the box, to add the current item to the checkout cart press this button.
    - **Print bill button:** Press this button to print the bill of the current cart in pdf format.