Apparel Point of Sale (APOS) System

Test and Evaluation Mater Plan

CMSC 495

University of Maryland University College (UMUC)

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# 1 PURPOSE

The purpose for the project Test and Evaluation Master Plan (TEMP) is to document the strategy used to verify the Apparel Point of Sale (APOS) System for the Tenacious Turtles Clothing Company satisfies all functional, technical, and support requirements. The system will be a cash register management application which will be capable of handling sales and returns with cash payment.

# 2 BACKGROUND

The Tenacious Turtles Clothing Company requires a Point of Sale system to handle its cash register application, sales associate log-in, sales processing, and store inventory viewing, with the ability to view reports on daily sales transactions. The Apparel Point of Sale System is designed to meet the organization’s requirements and testing will be designed to ensure this. Testing will be performed remotely among members of the team, coordinated through Slack and GitHub repositories. No prior testing has yet been performed.

# 3 SCOPE

The scope of this test plan focuses on the test of five requirements: log-in, sales completion, returns completion, inventory check, and transactions report. The tests documented in this plan are intended to reveal software bugs, errors, and compliance with system requirements.

# 4 GLOSSARY

POS: Point of Sale

IEEE: Institute of Electrical and Electronics Engineers

JDK: Java Development Kit

PMP: Project Management Plan

TEMP: Test and Evaluation Master Plan

ERP: Enterprise Resource Planning

# 5 LIMITATIONS AND TRACE ABILITY

## 5.1 Limitations

Due to time and project limitations, only five requirements will be tested, with remaining features tested in a future release. While associate log-in, sales completion, returns completion, inventory check, and transaction reports will be tested, features outside of the scope of the project will not be tested, and will assume to be correctly configured through other systems (such as the company’s Enterprise Resource Planning (ERP) system) or through prepopulated information. The ERP system will be assumed responsible for store inventory, the company’s personnel management system will be assumed responsible for sales associate information, and item information will be prepopulated. Other master information such as store, style, color, etc. also come from company’s ERP system. For this project, all these information will be prepopulated.

## 5.2 Trace Ability (Functional Requirements Trace Ability Matrix)

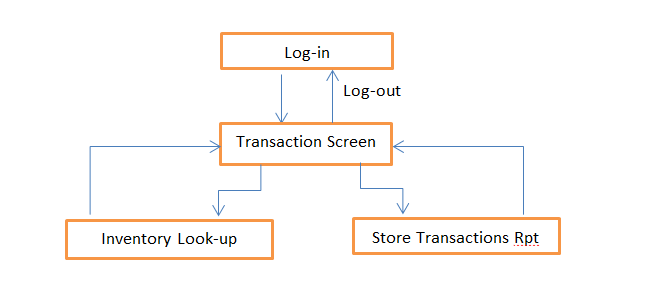
|  |  |
| --- | --- |
| **Requirement** | **Test Case Step** |
| 1. Sales associate log-in will be required before performing any interaction with the system. | 1. Correct log-in information is accepted, and given access to the cash register system.  2. Incorrect log-in information is rejected.  3. Manager log-in is differentiated from sales associate log-in by access to daily sales transactions on next screen. |
| 2. Merchandise sales will be calculated and completed, and inventory will be adjusted. | 1. Adding UPC code correctly identifies inventory items and adjusts sub-total.  3. Completing transaction generates unique receipt number, which is added to the database.  4. Following completed transaction, inventory is adjusted appropriately. |
| 3. Returns of merchandise will be handled with or without receipt, and inventory will be adjusted. | 1. Entering a valid receipt number is verified by the database.  2. Following a completed return, inventory is adjusted appropriately. |
| 4. Store inventory can be viewed by associates. | 1. Store inventory is displayed. |
| 5. Daily sales transactions can be viewed on a report (displayed or printed). | 1. Transactions report is generated based on entered information.  2. Transaction report is printed or displayed. |

# 6 TEST PLANS

## 6.1 Test Levels

### Subsystem Integration Test

The system will have four parts: Log-in, transactions, inventory look-up, and transaction report. Integration of all these parts has to be tested.  
Flow of screens (sequence of screens) and reports



### System Test

The system test will include internet connectivity and ability to run the application on different platforms.

### 6.1.3 User Acceptance Test

Not applicable.

### 6.1.4 Security Test

Only security test applicable in this project is Log-In test. Store employee can get into the system only with a valid log-in ID and password. This will be tested.

## 6.2 Test Environment and Schedules

### 6.2.1 Software Description

APOS system is simple cash register application which handles sales associate log-in, sales and returns processing, store inventory viewing, with the ability to view reports on daily sales transactions. It is developed in Java - JDK 8.0.

### Milestones

**Development Phase I** -   
Employee Log-in  
Sales Transaction without printing receipt  
Returns Transaction without printing receipt

**Development Phase II -**Sales Transaction with receipt printing  
Returns Transaction with receipt printing

**Development Phase III -**Inventory look-up screen  
Store transactions report

**Completion Phase –**Complete the application

### Organizations and Locations

Not applicable.

### 6.2.4 Schedule Development Phase I - 09/25/16 Development Phase II - 10/02/16 Development Phase III - 10/09/16 Completion Phase - 10/16/16

### 6.2.5 Resource Requirements

#### 6.2.5.1 Equipment PC/Laptop with Windows 10, 2GB RAM, and 250 GB Hard Drive, keyboard and mouse, and High speed internet connection.

#### 6.2.5.2 Software Java 8 – Version 101.

#### 6.2.5.3 Personnel A testing team of BS in Computer Science students from UMUC.

### 6.2.6 Testing Material User Documentation, test plan, and Test data set.

### 6.2.7 Test Training User documentation will be provided.

### 6.2.8 Test Methods and Evaluation

#### 6.2.8.1 Methodology Testing can be done on five core functionalities of the system in four development stages. In every stage, prepopulated data will refreshed for comparing figures.

**Prepopulated information:**

1. Store inventory
2. Style, Color, Size, Gender, Store, and Employee master tables.

#### 6.2.8.2 Conditions

#### The type of input will be a test data set for a simple apparel POS system.

#### Two data sets: Sales and Returns.

**Sales**: Two transactions set will be there.

**Returns**: Two transaction sets will be there. First transaction set is with a sales receipt number. All items in that sales receipt will be returned and the refund will be cash. Second transaction set does not have a sales receipt number, only UPC codes. The refund will be a store credit.

**Inventory:** The store inventory should be adjusted after each transaction. Inventory look-up screen can be used to check inventory status.

#### Test Progression Tests will be performed in progression on five core functionalities in four development phases.

#### Data Recording

Sales transactions: In phase III inventory check, opening inventory units for UPC codes will have to be recorded. Sales and returns units will also need to be recorded to check if adjustments are correct.

#### Constraints

If the internet connection is slow, the application will be slow also. The test team members have to register their IP address with company’s database hosting service. Otherwise, access to the database will be denied.

#### Criteria

Pass Criteria – APOS will be compliant with a test case scenario when the expected output of the test scenario equals the output the system produces. In other words, checking the system functions as designed.

Fail Criteria – APOS will fail a test case scenario when its output does not match the expected output set forth in a test case scenario.

#### 6.2.8.7 Data Reduction

Not applicable

# 7 TEST DESCRIPTION

## 7.1 Test Name

### 7.1.1 Test Description

This plan is for testing Tenacious Turtles Clothing Co.’s new Apparel Point of Sale (APOS) system. The test will be done in four phases of development. The first development phase will have core functionalities such as log-in, sales and returns transactions. The second phase will have sales and returns receipt printing ability. The third phase will have transaction report printing. The final phase is testing before implementation.

### 7.1.2 Control

When testing, all information on screen before any manual inputs and after inputs needs to be recorded in each steps of testing for comparing figures and other values. The best way to do is taking screen shots before and after each testing steps.

### 7.1.3 Inputs

Sales: Sales item (UPC Code), payment type, and units  
Returns: Return item (UPC Code) or sales receipt number.

### 7.1.4 Outputs

### Sales:

* 1. Style, color, size, gender, and price displayed on screen after entering UPC code.
  2. Item sale amount displayed after entering item units.
  3. Sub total
  4. Tax
  5. Total units
  6. Sale amount
  7. Sales receipt number displayed on screen
  8. Sales receipt printed

1. **Returns** :
   1. If sales receipt number entered, sales item lines from original sale displayed on screen with negative amount. Payment type is automatically set to cash.
   2. If UPC code is entered, style, color, size, gender, price will be displayed. Negative amount will be displayed after entering units. Payment type is automatically set to “Store Credit”
   3. Returns receipt printed.
2. **Store transaction report**
   1. Date range is entered, all transactions competed during the specified timeframe will be displayed in the transactions report
   2. If in addition to the date range, additional search criteria are inputted on the menu then only transactions meeting all of the criteria are displayed in the transactions report

### 7.1.5 Procedures

### The test plan is broken up into phases, Phase 1, 2, and 3.

#### Phase I

#### Test 001: Login Successful:

Input: Store Number: 10001

Log-in ID: dane

Password: dane

Expected output: Transaction screen appears

**Test 002: Login failed**

Input: Store Number: 33333

Log-in ID: invalid

Password: credentials

Expected output: Dialog box stating “Error 1.1 Invalid Store Number”

**Test 003: Login failed**

Input: Store Number: 10001

Username: invalid

Password: credentials

Expected output: Dialog box stating “Error 1.2 Invalid Log-in ID or Password”

**Test 003: Transaction Screen - Sales**

**Test data set will be provided**.

Open the transaction screen. Initial verification steps:

1. Verify store name and address are showing
2. Verify employee name and designation are showing

Display sales without printing receipt:

Input: Enter first UPC code from the test data set

Expected output: Corresponding style, color, size, gender, and price appear

Input: Enter units

Expected output: Amount calculated for the item line. Totals are calculated.

Input: Payment type (Defaulted to Cash)

Expected output: No output.

1. Enter second item line from the data set using the same method in step 2 .
2. Completing transaction.

Input: “Complete Transaction” button.

Output: No output (Sales receipt is not ready at this time).

**Test 004: Transaction Screen – Returns**

Returns with sales receipt number

Input: Select Transaction Type: Returns.

Enter sales receipt number for returns.

Output: Items from original sales receipt are displayed on screen. Payment type is automatically set to Cash. Negative amounts in lines and total.

Complete transaction

Input: “Complete Transaction” button.

Output: No output (Returns receipt is not available at this time).

**Phase II**

**Test 006: Printed receipt**

Input: Repeat input from Tests 003-004 (Sales and Returns)

Input: Click “Transaction Complete”

Expected output: Sales or Returns receipt

**Phase III**

**Test 007: Inventory look-up**

1. Go to Transaction Screen and then click on “Inventory look-up button”

Input: Enter UPC code number for product in the test data set

Expected output: Verify if the result shown matches the test data set for the UPC code

**Test 008: Modified inventory**

1. On transaction screen, enter UPC code lines from sales test data set. Verify the inventory total for the item

Input: Complete a transaction for one item sold of the UPC code selected from the test data sheet

Expected output: Open the inventory screen again, verify the inventory of the item was reduced by the units sold.

1. On transaction screen, enter UPC code lines from returns test data set. Verify the inventory total for item.

Input: Complete a transaction for one items returned of the UPC code selected from the test data sheet

Expected output: Open the inventory screen again; verify the inventory of the item was increased by the units returned.

**Test 009: Store Transaction Report**

1. Click on “Store Transaction Report Button”
2. Enter search criteria on report criteria screen.
3. Click on “Generate Report”

Expected Output: Printed store transaction report.

**Completion Phase**

In this phase an overall application test will be done before implementation.