System Testing Documentation

Course: Software Testing
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System Test 2: Customer Management

Test Type: System Testing

This test validates the complete **Customer Management module**, including UI behavior, business logic, and database interactions for viewing, adding, searching, updating, and deleting customer records.

Testing Level: End-to-End System Level
Tests the full system flow from user interaction in the Customer UI through database operations and back to the UI. Through admin as it is the face of all database operations.

Objective

To verify that the Customer Management feature correctly displays existing customers, allows searching by name, and that the **Add, Update, and Delete** functions work as intended.

Description

This test examines the **Customer Information interface**, where a table displays pre-saved customer records (ID, Name, Phone No). The test validates the functionality of all available buttons: **Search, Add, Delete, and Update**.

Preconditions

- User is logged into the POS system as **admin**.

- The **customers** table exists in the database and contains prepopulated records.

- The Customer UI is accessible from the main navigation menu.

Customer Information

Id	Name	Phone No
1	fawad	12345
3	fawad iqbal	1234568
6	saman	77-88-9
9	sam	9999988
10	fawad	03149972883
27	saman	77-88-9
38	fawad Iqbal	03149972883
40	wertyq	1234567890
41	fawad iqbal	1234568133
43	fawad Iqbal	03149972883
44	fawad iqbal	1234568133
45	fawad Iqbal	03149972883
46	fawad Iqbal	03149972883
47	fawad Iqbal	03149972883
48	fawad iqbal	1234568133
49	fawad Iqbal	03149972883
50	fawad Iqbal	03149972883
51	fawad Iqbal	03149972883
52	fawad Iqbal	03149972883
53	fawad Iqbal	03149972883
54	fawad Iqbal	03149972883
55	wertyq	1234567890
57	ahmad1	1234567899
58	fawad iqbal	03149972883

Test Data

Existing customers include:

- fawad (12345)

- fawad iqbal (1234568)

- saman (77-88-9)

- sam (999998)

Test Steps

1. Navigate to the Customer UI.

2. Observe the displayed list of customers.

3. Enter a customer name in the **Search by Name** field.

4. Click the **Search** button.

5. Click the **Add** button.

6. Click the **Delete** button on an existing customer.

7. Select a customer and click **Update**.

Expected Result

- Customer list displays correctly without errors.

- Search filters the list based on entered text.

- Add opens a form for new customer details.

- Delete removes the selected customer after confirmation.

- Update allows editing of selected customer details.

Actual Result

- ☑ Customer list displayed correctly with pre-saved data.

- ✗ Search caused the list to become empty immediately when typing, even with valid names.

- ✗ Add button displayed an error immediately: **"invalid character size."**

- ☑ Delete button worked as intended and removed selected customers.

- ✗ Update functionality could not be tested due to the Add feature failing.

Test Result

PARTIAL PASS — Some functions work, but critical features are broken.

System Components Involved

Customer UI, POS Controller, Data Access Layer (DALManager), MySQL Database (customers table)

Observations

Customer display and deletion work correctly. However, the **search functionality is completely broken**, clearing the list instead of filtering results. The **Add function fails immediately**, preventing new customer creation and blocking the Update feature.

System Test 3: Supplier Management

Test Type: System Testing

This test validates the complete **Supplier Management module**, ensuring supplier data can be saved, searched, updated, and cleared through the UI and database layers.

Testing Level: End-to-End System Level

Validates full integration from Supplier UI input to database storage and retrieval.

Objective

To verify that the Supplier Management feature correctly handles supplier information, with functional **Save, Search, Update, Delete, and Clear** operations.

Description

This test checks the **Supplier Information interface**, which includes fields for Search ID, Name, and Phone No, along with **Save, Delete, Search, Update, and Clear** buttons. An empty table is intended to display supplier records.

Preconditions

- User is logged into the POS system as **admin**.

- Supplier UI is accessible from the main navigation.

- The **suppliers/vendors** table exists in the database.

Test Data

Test inputs attempted:

- Name: Various text entries

- Phone No: Various numeric entries

Test Steps

1. Navigate to the Supplier UI.

2. Enter supplier details (Name and Phone No).

3. Click the **Save** button.

4. Enter text in the **Search** field.

5. Click the **Search** button.

6. Click the **Clear** button.

7. Select a supplier (if available) and click **Update**.

8. Click the **Delete** button.

Expected Result

- Save stores supplier data and displays it in the table.

- Search filters suppliers based on entered criteria.

- Clear resets input fields.

- Update modifies existing supplier records.

- Delete removes selected suppliers.

Actual Result

- ✘ Save displayed "successfully saved to the table," but no data appeared in the list.

- ✘ Search could not be verified because no suppliers were ever displayed.

- ☑ Clear button worked correctly, resetting input fields.

- ✘ Update showed a failure message when fields were empty but no success message when valid data was used.

- ✘ Delete could not be tested since no supplier data appeared.

Test Result

FAIL — Core functionality is not working.

Observations

The Supplier module is largely non-functional. Despite success messages, data is not displayed, making Search, Update, and Delete impossible to verify. The Clear function is the only feature that works correctly.

System Test 4: Employee Management

Test Type: System Testing

This test validates the **Employee Management module**, ensuring employee records can be managed through the UI with correct database integration.

Objective

To verify that employee data can be saved, searched, updated, and deleted with correct system messages.

Actual Result (Key Issues)

- ✕ Save button displayed an incorrect success message: **"saved to supplier table"** instead of **"employee table."**

- ✖ Search, Update, and Delete showed the same issues as the Supplier module (no data displayed).
- ☑ Clear button worked correctly.

Test Result

FAIL — Incorrect messages and broken functionality.

Observations

Employee Management suffers from the same core issues as Supplier Management, with the additional error of referencing the wrong database table in success messages.

System Test 5: Product Management

Test Result: FAIL — Entire module non-functional

All buttons were unresponsive, dropdowns were empty, and no product data was displayed. This completely blocks sales operations.

Point of Sale

admin
Logout
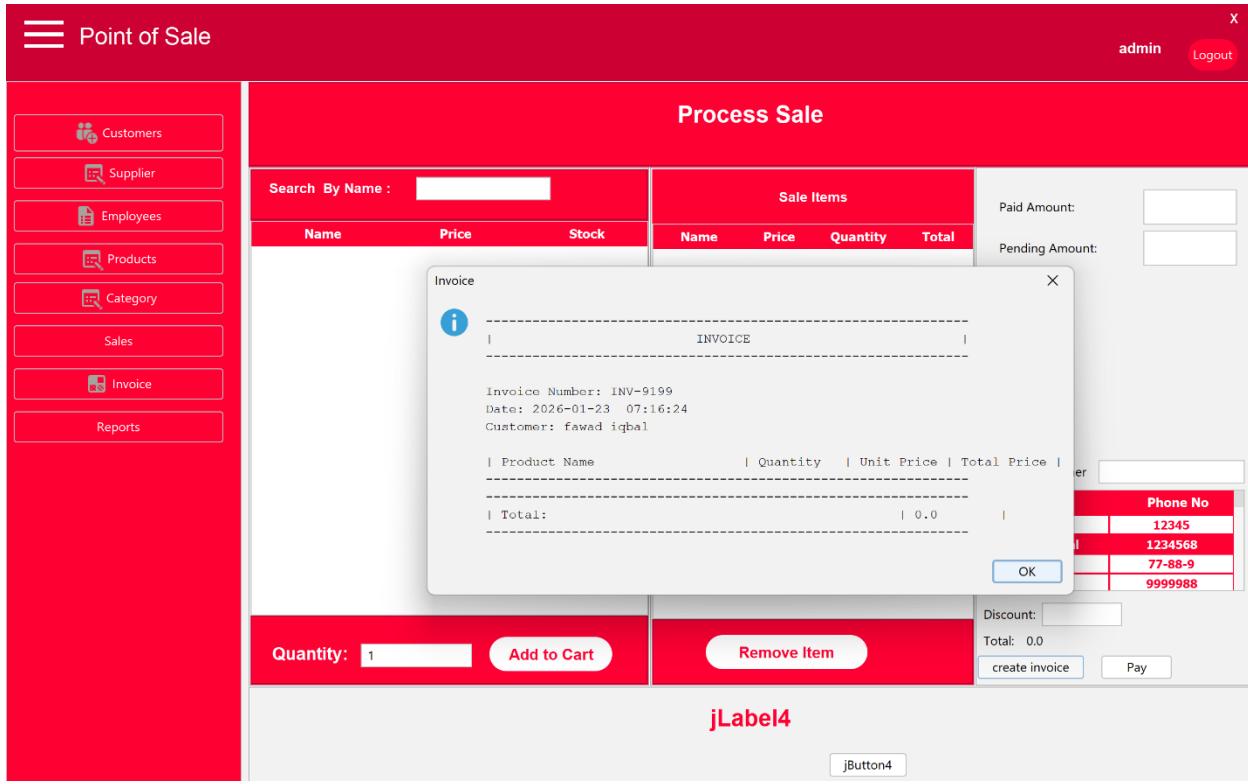
Product Information

Name	abdulaziz	Barcode	122	Stock	23344	Supplier	
Price	$3	Quantity Type	weighted	Category			

counted
weighted

Search by name

Id	Name	Bar Code	Price	Stock

Customers
Supplier
Employees
Products
Category
Sales
Invoice
Reports

Add
Update
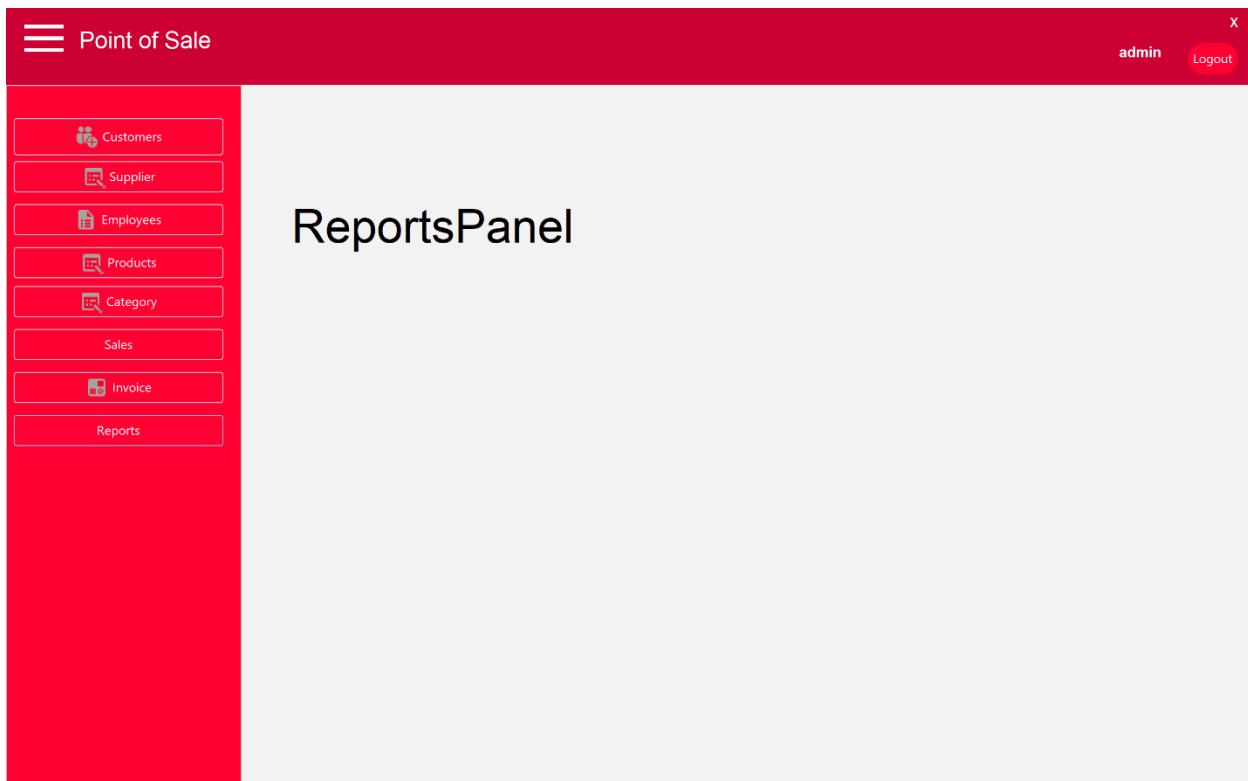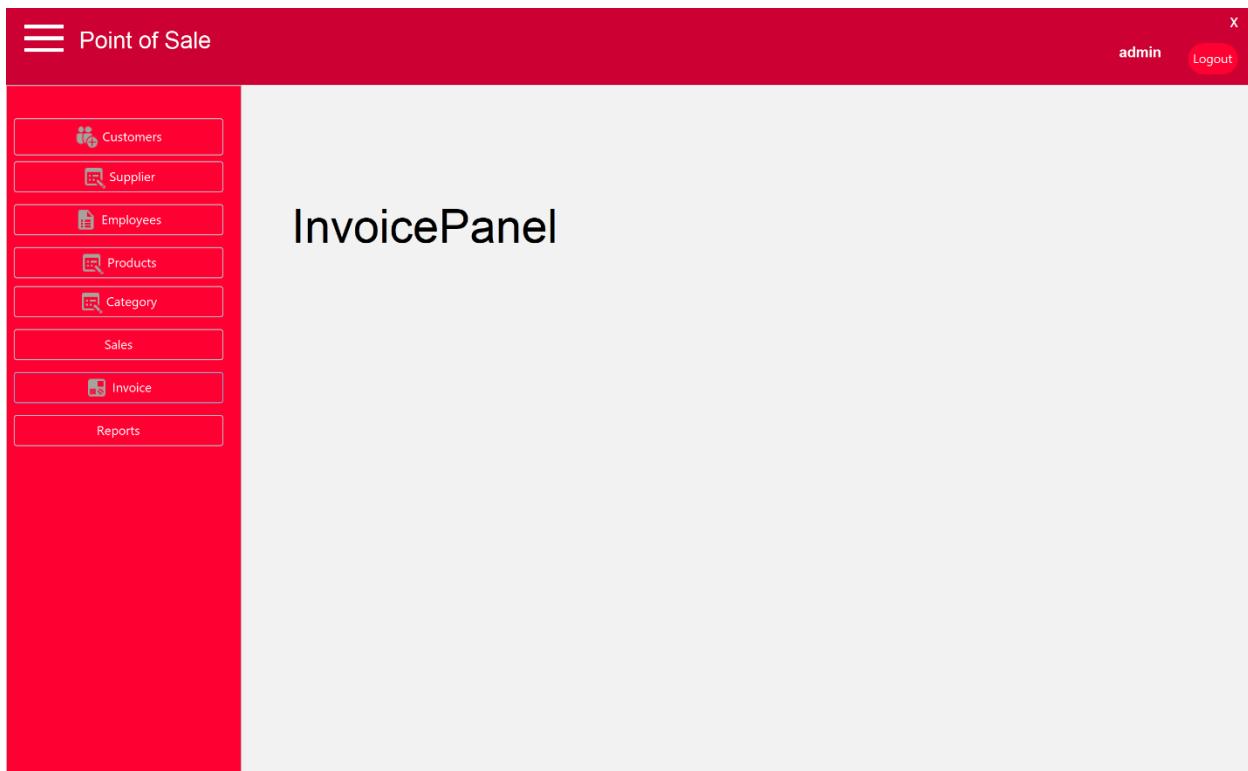
System Test 6: Sales Transaction Processing

Test Result: FAIL

- Product list empty due to broken Product module.

- Invoice generation partially works (header only, total = 0).

- Payment and cart operations fail.

- Search inputs break UI lists.

System Test 7: Invoice and Reports Modules

Customers
Supplier
Employees
Products
Category
Sales
Invoice
Reports

InvoicePanel

Customers
Supplier
Employees
Products
Category
Sales
Invoice
Reports

ReportsPanel

Test Result: FAIL

Invoice and Reports pages display only the navigation sidebar with no functional content, indicating missing or unimplemented modules.

Summary of System Test Results

Module	Test Result	Key Issues
Login	PASS	Works correctly
Customer Management	PARTIAL PASS	Search broken, Add fails
Supplier Management	FAIL	Data not displayed
Employee Management	FAIL	Wrong messages, no data
Product Management	FAIL	Entire module broken
Sales Processing	FAIL	No products, buttons fail
Invoice Module	FAIL	Empty/unimplemented
Reports Module	FAIL	Empty/unimplemented

Overall System Assessment

The POS system has a functioning login module and limited customer functionality, but **most core business modules are broken or incomplete**. The most critical failure lies in the **Product Management module**, which causes cascading failures in Sales and Invoicing. Immediate fixes are required in **database integration, UI event handling, and data rendering logic** before the system can be considered operational.

Proposed Solutions

- Fix the search functionality in all modules so it filters data instead of clearing the table. Search should only run when the button is clicked and should handle empty input correctly.

- Review input validation rules, especially for the Add/Save functions. Field size limits in the UI should match the database column sizes to avoid validation errors like "invalid character size."

- After saving data (Customer, Supplier, Employee), the system should reload and display the updated table. Insert operations should always be followed by a fresh fetch from the database.

- Correct incorrect system messages, such as the Employee module showing "saved to supplier table." Messages should clearly match the correct module and database table.

- Fix button responsiveness by checking event handlers and controller connections. Buttons should trigger actions and not remain inactive after errors.

- Ensure dropdowns in the Product module (Supplier and Category) are populated from the database when the UI loads and that related tables contain data.

- Prioritize fixing the Product Management module, since its failure prevents Sales, Invoicing, and Reports from working properly.

- Once products are available, re-test the Sales workflow, including Add to Cart, invoice creation, and payment processing, and block invoice creation when no products are selected.

- Connect or implement the Invoice and Reports modules so they display data instead of empty screens, even if only basic tables are shown.

- Add basic error logging or messages so failures are visible during testing and easier to debug.

Test complete