

Test Cases for WestminsterShoppingManager Class

1. Unit Testing

1.1. addProduct Method

Test Case	Description	Output	Expected Output
1	Adding an Electronics Product	<pre>Product added successfully! Product Details: ID: 1 Name: 1 Available Items: 1 Price: 1.0 Brand: 0 Warranty Period: 1 months -----</pre>	Electronics Product added to the list
2	Adding a Clothing Product	<pre>Product added successfully! Product Details: ID: 1 Name: 1 Available Items: 1 Price: 1.0 Brand: 0 Warranty Period: 1 months -----</pre>	Clothing Product added to the list
3	Adding a Product with Full List	<pre>Cannot add more products. Maximum limit reached.</pre>	[Specify expected output]

1.2. deleteProduct Method

Test Case	Description	Output	Expected Output
4	Deleting an Existing Electronics Product	Product deleted successfully:	Product deleted successfully:
5	Deleting an Existing Clothing Product	Product deleted successfully:	Product deleted successfully:
6	Deleting a Non-existing Product	Product with ID X not found.	Product with ID X not found.

1.3. printProducts Method

Test Case	Description	Output	Expected Output
7	Printing Empty Product List	No products available.	No products available.
8	Printing Products with Sorting	List of product Displayed with sorting	List of product Displayed with sorting

1.4. saveProducts Method

Test Case	Description	Output	Expected Output
9	Saving Products to a File	Products saved to file successfully.	Products saved to file successfully.

1.5. loadProducts Method

Test Case	Description	Input	Expected Output
11	Loading Products from an Existing File	Products loaded from file successfully.	Products loaded from file successfully.

2. Integration Testing

2.1. displayMenu Method

Test Case	Description	Input	Expected Output
12	User Input for Adding a New Product	<pre>===== Console Menu ===== 1. Add a new product 2. Delete a product 3. Print products 4. Save products to file 5. Load products from file 6. Launch GUI 7. Exit Enter your choice (1-7): 1 Enter product type (Electronics or Clothing):</pre> <p>Enter product type displayed</p>	Continue the data collection of the product
13	User Input for Deleting a Product	<pre>===== Console Menu ===== 1. Add a new product 2. Delete a product 3. Print products 4. Save products to file 5. Load products from file 6. Launch GUI 7. Exit Enter your choice (1-7): 2 Enter the product ID to delete: </pre> <p>Asking for the ID of the deleting product</p>	Enter the product ID to delete
14	User Input for Printing the List of Products	<pre>1. Add a new product 2. Delete a product 3. Print products 4. Save products to file 5. Load products from file 6. Launch GUI 7. Exit Enter your choice (1-7): 3 List of Products (Sorted Alphabetically by Name): Type: ElectronicsID: 1 Name: 1 Available Items: 1 Price: 1.5</pre>	Product List displayed

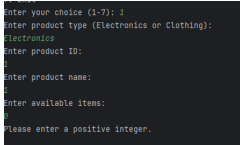
15	User Input for Saving Products to a File	<pre> ===== Console Menu ===== 1. Add a new product 2. Delete a product 3. Print products 4. Save products to file 5. Load products from file 6. Launch GUI 7. Exit Enter your choice (1-7): 4 Products saved to file successfully. </pre> <p>Products saved successfully</p>	Products Saved successfully
16	User Input for Loading Products from a File	<pre> ===== Console Menu ===== 1. Add a new product 2. Delete a product 3. Print products 4. Save products to file 5. Load products from file 6. Launch GUI 7. Exit Enter your choice (1-7): 5 Products loaded from file successfully. </pre> <p>Products will be loaded from the file</p>	Products Loaded from file successfully
17	User Input for Exiting the Program	<pre> 1. Add a new product 2. Delete a product 3. Print products 4. Save products to file 5. Load products from file 6. Launch GUI 7. Exit Enter your choice (1-7): 7 Exiting the program. Goodbye! </pre> <p>Program Exits</p>	Exiting Program. Goodbye!

3. Boundary Testing

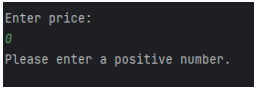
3.1. Product ID

Test Case	Description	Input	Expected Output
18	Adding Duplicate	<pre> Enter warranty period (in months): 1 Product with ID 1 already exists. Cannot add duplicate products. </pre> <p>Product with ID 1 already exists</p>	[Specify expected output]
19	Testing a Non-Unique Product ID	<p>Product Added Sucessfully</p>	Product Added Sucessfully

3.2. Available Items

Test Case	Description	Input	Expected Output
20	Adding a Product with 0 Available Items	 Please enter positive integer in displayed	Asking for a positive interger
21	Adding a Product with the Maximum Available Items	 Please enter positive integer in displayed	Asking for a positive interger

3.3. Price

Test Case	Description	Input	Expected Output
22	Adding a Product with a Price of 0	 Please enter positive integer displayed	Asking for a positive interger

Test Cases for ShoppingGUI

1. User Interface Testing

1.1. ComboBox Interaction

Test Case	Description	Expected Output																
1	Select "All" in productTypeComboBox	Products of all types displayed in the table																
	<div><div>Product Type: All</div><table><tr><th>Product ID ^</th><th>Product Name</th><th>Available Items</th><th>Price</th></tr><tr><td>A001</td><td>Phone</td><td>3</td><td>1200.0</td></tr><tr><td>A002</td><td>Laptop</td><td>1</td><td>3000.0</td></tr><tr><td>B001</td><td>Shirt</td><td>55</td><td>20.0</td></tr></table><div>View Shopping Cart</div><div>Add to Cart</div><div>ID: B001 Name: Shirt Available Items: 55 Price: 20.0 Size: L Color: Black</div></div>		Product ID ^	Product Name	Available Items	Price	A001	Phone	3	1200.0	A002	Laptop	1	3000.0	B001	Shirt	55	20.0
Product ID ^	Product Name	Available Items	Price															
A001	Phone	3	1200.0															
A002	Laptop	1	3000.0															
B001	Shirt	55	20.0															

2	Select "Electronics" in productTypeComboBox	Only Electronics products displayed in the table												
<div><div>Product Type: Electronics</div><table><tr><th>Product ID</th><th>Product Name</th><th>Available Items</th><th>Price</th></tr><tr><td>A001</td><td>Phone</td><td>3</td><td>1200.0</td></tr><tr><td>A002</td><td>Laptop</td><td>1</td><td>3000.0</td></tr></table><div>View Shopping Cart</div><div>Add to Cart</div><div>ID: B001 Name: Shirt Available Items: 55 Price: 20.0 Size: L Color: Black</div></div>			Product ID	Product Name	Available Items	Price	A001	Phone	3	1200.0	A002	Laptop	1	3000.0
Product ID	Product Name	Available Items	Price											
A001	Phone	3	1200.0											
A002	Laptop	1	3000.0											
3	Select "Clothes" in productTypeComboBox	Only Clothing products displayed in the table												
<div><div>Product Type: Clothes</div><table><tr><th>Product ID</th><th>Product Name</th><th>Available Items</th><th>Price</th></tr><tr><td>B001</td><td>Shirt</td><td>55</td><td>20.0</td></tr></table><div>View Shopping Cart</div><div>Add to Cart</div><div>ID: A001 Name: Phone Available Items: 3 Price: 1200.0 Brand: Nokia Warranty Period: 12 months</div></div>			Product ID	Product Name	Available Items	Price	B001	Shirt	55	20.0				
Product ID	Product Name	Available Items	Price											
B001	Shirt	55	20.0											

1.2. Table Interaction

Test Case	Description	Expected Output												
4	Select a product in the table	Product details displayed in productDetailsTextArea												
	<table><thead><tr><th>Product ID</th><th>Product Name</th><th>Available Items</th><th>Price</th></tr></thead><tbody><tr><td>A001</td><td>Phone</td><td>3</td><td>1200.0</td></tr><tr><td>A002</td><td>Laptop</td><td>1</td><td>3000.0</td></tr></tbody></table> <div></div> <div>View Shopping Cart</div> <div>Add to Cart</div> <p>ID: A001 Name: Phone Available Items: 3 Price: 1200.0 Brand: Nokia Warranty Period: 12 months</p>		Product ID	Product Name	Available Items	Price	A001	Phone	3	1200.0	A002	Laptop	1	3000.0
Product ID	Product Name	Available Items	Price											
A001	Phone	3	1200.0											
A002	Laptop	1	3000.0											
5	Click on "Add to Cart" button	Selected product added to the shopping cart, and table and discounts updated												
	<table><tbody><tr><td>Phone</td><td>3</td><td>12</td></tr><tr><td>Laptop</td><td>1</td><td>30</td></tr></tbody></table> <div><div>Message</div><div><div></div><div>Product added to the shopping cart.</div><div>OK</div></div></div> <div>View Shopping Cart</div>		Phone	3	12	Laptop	1	30						
Phone	3	12												
Laptop	1	30												

6	Click on "View Shopping Cart" button	Shopping cart frame opened with correct content															
	<table><tr><th>ID</th><th>Name</th><th>Available Items</th></tr><tr><td>A001</td><td>Phone</td><td>3</td></tr><tr><td colspan="3"></td></tr><tr><td colspan="3">Final Total Price: \$1080.00</td></tr><tr><td colspan="3">First Purchase Discount (10%): -\$0.10 Three Items in Same Category Discount (20%): -\$0.00</td></tr></table>		ID	Name	Available Items	A001	Phone	3				Final Total Price: \$1080.00			First Purchase Discount (10%): -\$0.10 Three Items in Same Category Discount (20%): -\$0.00		
ID	Name	Available Items															
A001	Phone	3															
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First Purchase Discount (10%): -\$0.10 Three Items in Same Category Discount (20%): -\$0.00																	