Roll Numbers	Names
21L-6065	Sania Nisar
21L-6112	Muneha Adan
21L-5785	Aman Zeeshan
21L-6084	Mahrukh Muzzamil
21L-6116	Ayesha Haroon

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Admin Categories Page Test Cases

TEST ID	PURPOSE	INPUT	EXPECTED OUTPUT	ACTUAL OUTPUT	RESULT
TC1	Test 'Add Category' button.	Click 'Add Category' button.	Prompt the user to enter the name of new Category.	Pop up to ask the user to enter new category name.	Pass
TC2	Test 'Delete' button.	Click 'Delete' button for corresponding category name = 'Fruits'.	Delete corresponding category ('Fruits') from list.	Leads to 'Whitelabel Error page'.	Fail
TC3	Test 'Update' button.	Click 'Update' button for corresponding category name = 'Fruits'.	Prompt the user to enter new information for the category name = 'Fruits'.	Prompt the user to enter new name for the category 'Fruits'.	Pass
TC4	Test 'Close' button for Add Category.	Click 'Close' button for Add Category.	Close the pop up message for input.	Closes the pop up message for input.	Pass
TC5	Test 'Save Changes' button for Add Category	Click 'Save Changes' button for Add Category.	Save the new category to the list and display it.	Saves the new category to the list and displays it.	Pass
TC6	Test valid Category name for add category.	Valid category name. Category = 'Milk'	Display milk in list of categories.	Displays milk in list of categories.	Pass
TC7	Test 'Close' button for Update.	Click 'Close' button for Update.	Close the pop up message for changes.	Closes the pop up message for changes.	Pass
TC8	Test 'Update Changes' button for Update.	Click 'Update Changes' button for Update.	Update the existing category name to the new one entered.	Updates the existing category name to the new one entered.	Pass

TC9	Test Valid Category name for update.	Enter new valid category name = 'Fresh Fruits'	Update the existing category('Fruits') name to the new one entered('Fresh Fruits') in the list.	Updates the existing category('Fruits') name to the new one entered('Fresh Fruits') in the list.	Pass
TC10	Test the SN field for Update.	Enter new value in SN field.	Does not allow user to edit the unique SN number.	Does not allow user to edit the SN number.	Pass
TC11	Test invalid category name for Update.	Enter numerical category name for 'Fruits'. Category Name = '1234'.	Displays error message and does not allow purely numerical values.	Updates 'Fruits' category name to '1234'.	Fail
TC12	Test invalid category name for Add Category.	Enter invalid category name consisting purely of special characters = '@@##'	Displays error message and does not allow purely special character values.	Adds new category by the name of '@@##'.	Fail
TC13	Test 'Home Page' link.	Click 'Home Page' link.	Leads to home page.	Leads to 'Whitelabel Error page'.	Fail
TC14	Test 'Logout' link.	Click 'Logout' link.	Leads to login page.	Leads to 'Whitelabel Error page'.	Fail

Registration Page Test Cases

TEST CASE ID	PURPOSE	INPUT	EXPECTED OUTPUT	ACTUAL OUTPUT	RESULT
R-T1	Test invalid Username	Invalid username, valid email, valid password, valid address. Username = '.....'.	Error or warning message informing user of invalid username and failed registration.	Leads to login page and registers user by that username.	Fail
R-T2	Test invalid email	Valid username, invalid email, valid password, valid address. Email = 'ayesha'	Error or warning message informing user of invalid email and failed registration.	Warning Message: "Please include an @ in the email address"	Pass
R-T3	Test invalid password	Valid username, valid email, invalid password, valid address. Password = ' '	Error or warning message informing user of invalid password and failed registration.	Leads to login page and registers user with that password.	Fail
R-T4	Test invalid address	Invalid username, valid email, valid password, invalid address. Address='NO'	Warning message informing user of invalid address.	Leads to login page and registers user with that address.	Fail
R-T5	Test blank username field	No username, valid email, valid password, valid address	Error or warning message asking user to enter username and failed registration..	Warning Message: "Please fill out this field" next to username textfield.	Pass

R-T6	Test blank email field	Valid username, no email, valid password, valid address	Error or warning message asking user to enter email and failed registration..	Warning Message: "Please fill out this field" next to email textfield.	Pass
R-T7	Test blank password field	Valid username, valid email, no password, valid address	Error or warning message asking user to enter password and failed registration..	Warning Message: "Please fill out this field" next to password textfield.	Pass
R-T8	Test blank address field	Valid username, valid email, valid password, no address	Register user as Address is not mandatory field and lead to login.	Leads to login page and registers user.	Pass
R-T9	Test valid registration	Valid username, valid email, valid password, valid address.	Register user and lead to login.	Leads to login page and registers user.	Pass
R-T10	Test duplicate username	Username = 'lisa' Email = 'lisa@gmail.com Valid email, valid password, valid address.	Indicate that user with that username already exists.	Leads to login page and registers user..	Fail
R-T11	Test duplicate email.	Email = 'lisa@gmail.com Valid username, valid	Indicate that account with that email already exists.	Leads to login page and registers user..	Fail

		password, valid address.			
R-T12	Test 'login here' link.	Click on 'login here' link	Lead to login page.	Leads to login page.	Pass
R-T12	Test if 'Register' button informs user.	Click on Register button.	Indicate with a message if user has been registered.	Leads to login page without indicating with a message that creating a user was successful.	Fail
R-T13	Test registration as admin.	Username = 'admin' Password = '123' Valid email, valid address.	Indicate error that admin already exists.	Leads to login page and registers user.	Fail
R-T14	Test password strength.	Weak password with less than 8 characters.	Indicate error that password is weak and prompt for stronger password.	Leads to login page.	Fail

Landing Page Testing with Use Cases

USE CASE 01

Use case element	Description
Use Case ID	UC01
Use Case Name	Cart Addition Capability
Goal	To facilitate the addition of items into the shopping cart by the user
Scope	System
Level	Primary Task
Primary Actor	Authenticated User
Pre-condition	User is logged in and viewing a product
Successful Post Condition	Product is added to the user's cart
Failed Post Condition	Product is not added to the cart
Trigger	User clicks on 'Add to Cart'
Main Success Scenario	Product added to cart
Actions	
Step 1	Actor Action: User views a product
Step 2	Actor Action: User clicks 'Add to Cart'
Step 3	System Action: System adds the item to cart
Step 4	Actor Action: User clicks on 'CART' to view item
Step 5	System Action: System displays cart with a list of items added.
Alternative	
Step 3:	System Action: System displays error message informing user; item not added to cart.
Step 6:	System Action: System displays error message if cart can not be opened or is empty.

TEST CASES:

ID	Actor Action	Expected Behavior
UC01-T1	User views a product	The product details should be displayed with an 'Add to Cart' button available.
UC01-T2	User clicks the 'Add to Cart' button.	A confirmation message should appear, and the item should be listed in the cart.
UC01-T3	User checks the cart contents.	The cart should display the newly added item with the correct price and quantity.

UC01-T4 (for Alternative)	User clicks the 'Add to Cart' button.	The system should attempt to add the product to the cart and fail, displaying an error message.
UC01-T5 (for Alternative)	User clicks ' CART' while cart is empty.	The system should display error message informing user the cart is empty.

USE CASE 2

Use case element	Description
Use Case ID	UC02
Use Case Name	Logout Capability
Goal	To logout the current user.
Scope	System
Level	Primary Task
Primary Actor	Authenticated User
Pre-condition	User is logged in and viewing a product
Successful Post Condition	User is logged out
Failed Post Condition	User is not logged out.
Trigger	User clicks on 'logout'.
Main Success Scenario	User logs out.
Actions	
Step 1	Actor Action: User clicks ' logout'
Step 2	System Action: System logs user out and leads to login page.
Alternative	
Step 2:	System Action: System displays error message informing user that logout is not possible.

TEST CASES:

ID	Actor Action	Expected Behavior
UC02-T1	User clicks the 'logout' link to logout of account.	User should be logged out of account.
UC02-T2 (for Alternative)	User clicks the 'logout' link to logout of account.	Error message informing user that logout is not possible should be displayed.

USE CASE 3

Use case element	Description
Use Case ID	UC03
Use Case Name	View User Profile
Goal	To display the user's profile for them
Scope	System
Level	Primary Task
Primary Actor	Authenticated User
Pre-condition	User is logged in and viewing a product
Successful Post Condition	User profile is displayed.
Failed Post Condition	User profile is not displayed.
Trigger	User clicks on 'Profile'
Main Success Scenario	Profile is displayed.
Actions	
Step 1	Actor Action: User clicks ' Profile'
Step 2	System Action: System displays the user details for that particular user.

TEST CASES:

ID	Actor Action	Expected Behavior
UC03-T1	User clicks the 'Profile'	The user details for the user are displayed.

USE CASE 4

Use Case Component	Description
Use Case ID	UC-04
Goal in Context	Navigating to product details from the homepage.
Scope	E-commerce Website Homepage
Level	High
Primary Actor	Registered Admin
Preconditions	User is on the homepage with products listed
Post-condition at success	Admin manages products, customers, and categories.
Post-condition at unsuccessful execution of use case	No change in the current page
Trigger	User clicks on a product image or name.
Primary Flow/Success Scenario	1. Locate a product on the homepage. 2. Click on the product image or name. 3. System navigates to the product details page. 4. Verify that the product image, price, description, and 'Add to Cart' button are displayed.

|	5. Admin clicks "Manage Customers" button.
Extensions/Alternate Scenario	None
Priority	High
Frequency	Daily
Completeness Level	50%

TEST CASES:

ID	Actor Action	Expected Behavior
UC04-T1	Registered User clicks on a product image or name on the homepage.	The system should navigate to the product details page

Login Page Test Cases

TEST CASE ID	PURPOSE	INPUT DATA	EXPECTED OUTPUT	ACTUAL OUTPUT	RESULT
1	Valid Login	Valid username and password	User successfully logs in and is redirected to the user dashboard	User successfully logs in and is redirected to the user dashboard	PASS
2	Invalid Username	Invalid username and valid password	Display an error message like "Invalid username. Please check your credentials."	Displays whitelabel error page.	FAIL
3	Invalid Password	Valid username and invalid password	Display an error message like "Invalid password. Please try again."	Displays whitelabel error page.	FAIL
4	Empty Username and Password	Leave both username and password fields empty.	Display error messages indicating that both fields are required.	Display error messages indicating that both fields are required.	PASS
5	Empty Password	Valid username with an empty password	Display an error message indicating that the password field is required.	Display an error message indicating that the password field is required.	PASS
6	Empty Username	Empty username with a valid password	Display an error message indicating that the username field is required.	Display an error message indicating that the username field is required.	PASS
7	Account Lockout	Enter an incorrect password multiple times (exceeding the	The account should be temporarily locked, and the user	Feature does not exist on webpage.	FAIL

		allowed attempts).	should be informed about the lockout duration.		
8	Forgot Password Link	Click on the "Forgot Password" link and follow the password recovery process.	The user should receive a password reset email with a link to reset the password.	Feature does not exist on webpage.	FAIL
9	Remember Me Functionality	Log in with the "Remember Me" option selected, close the browser, and reopen it.	The user should still be logged in without having to re-enter credentials.	Feature does not exist on webpage.	FAIL
10	Account Deactivation	Log in to a deactivated account	The system should not allow access and should display a message indicating that the account is deactivated.	Feature does not exist on webpage.	FAIL

With State Diagram
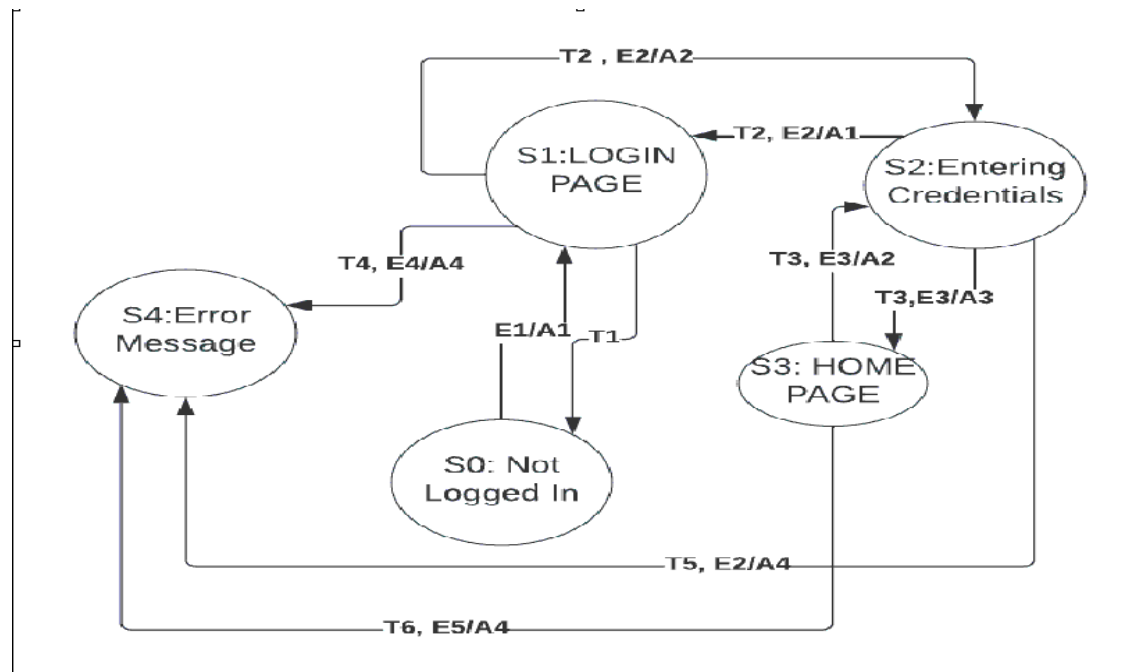
States:

State ID	Description
S0	User is not logged in.
S1	User is on the login page.
S2	User has entered valid login credentials.
S3	User login is successful, redirected to the home page.
S4	User login is unsuccessful, error message is displayed.

Transitions:

Transition ID	Description	Source State	Destination State
T1	User navigates to the login page.	S0	S1
T2	User enters valid login credentials and submits the form.	S1	S2
T3	System verifies credentials and logs in the user successfully.	S2	S3
T4	System identifies invalid credentials, error message displayed.	S2	S4

| T5 | User decides to try logging in again after an unsuccessful attempt. | S4 | S1 |
| T6 | User logs out. | S3 | S0 |

Actions:

Action ID	Description
A1	Display login page.
A2	Verify login credentials.
A3	Redirect to home page.
A4	Display error message.
A5	Display home page.
A6	Logout.

Events:

Event ID	Description
E1	User accesses the login page.
E2	User submits login credentials.
E3	Successful login.
E4	Unsuccessful login.
E5	User clicks logout.

STATE DIAGRAM TEST CASES

TID	Current State	Input(Event)	Output(for Action)	Next State
SD1-T1	S0	E1	A1	S1
SD1-T2	S1	E2	A2	S2
SD1-T3	S2	E3	A3	S3
SD1-T4	S2	E2	A4	S4
SD1-T5	S3	E5	A4	S4
SD1-T6	S1	E4	A4	S4
SD1-T7	S2	E2	A1	S1
SD1-T8	S3	E3	A2	S2

Admin Product Page Test Cases

TEST CASE ID	PURPOSE	INPUT DATA	EXPECTED OUTPUT	ACTUAL OUTPUT	RESULT
AP-T1	Add New Product	Product details (name, description, price, etc.).	Newly added product appears in the product list.	Newly added product appears in the product list.	PASS
AP-T2	Edit Existing Product	Modified product details.	Changes are saved, and the product details are updated in the product listing.	Shows an error page	FAIL
AP-T3	Delete Product	Product to be deleted.	Deleted product is removed from the product list.	Deleted product is removed from the product list.	PASS
AP-T4	Product Search	Search product by name/description/price	The system displays accurate results based on the search demand.	Does not exist	FAIL
AP-T5	Inventory Management	Updated stock levels for a product.	Stock levels are updated, and alerts are triggered for low stock.	Does not exist.	FAIL
AP-T6	Product Images Management	Add, edit, or remove product images.	Images are displayed correctly, and changes are reflected on the product page.	Images are displayed correctly, and changes are reflected on the product page.	PASS
AP-T7	View Sales Reports	Navigate to the sales reports section.	Sales data is accurate and presented in a comprehensible format.	Does not exist.	FAIL
AP-T8	Discounts and Promotions	Discount details for a product.	Discounts are applied correctly	Does not exist.	FAIL

			during checkout, and promotional details are displayed.		

Admin Dashboard Test Cases With State Diagram

States:

State ID	Description
S1	User is on Admin Panel
S2	User is on Categories
S3	User is on Products Panel
S4	User is on Customers Panel
S5	Menu is displayed
S6	User is on Homepage
S7	User is logged out.

Transitions:

Transition ID	Source State	Destination State	Event Triggering Transition
T1	S1	S2	E1: User clicks manage categories
T2	S1	S3	E2: User clicks manage Products
T3	S1	S4	E3: User clicks manage customers
T4	S1	S5	E4: User clicks menu

T5	S5	S6	E5: User clicks Homepage
T6	S5	S7	E6: User clicks logout

Events:

Event ID	Description
E1	User clicks manage categories
E2	User clicks manage Products
E3	User clicks manage customers
E4	User clicks menu
E5	User clicks Homepage
E6	User clicks logout

State Diagram Test Cases:

TID	Current State	Event	Action	Next State
SD2-T1	S1	E1	-	S2
SD2-T2	S1	E2	-	S3
SD2-T3	S1	E3	-	S4
SD2-T4	S1	E4	-	S5
SD2-T5	S5	E5	-	S6
SD2-T6	S5	E6	-	S7

Transition Sequences:

Transition Sequence ID	Transition Sequence
T1	<S1,E1,NULL,S2>
T2	<S1,E2,NULL,S3>
T3	<S1,E3,NULL,S4>
T4	<S1,E4,NULL,S5><S5,E5,NULL,S6>
T5	<S1,E4,NULL,S5><S5,E6,NULL,S7>

With USE CASE:

Use Case 5

Use Case Component	Description
Use Case ID	UCE-05
Goal in Context	Manage the e-commerce website dashboard by navigating through product, customer, and category management
Scope	E-commerce Website Dashboard

Level	High
Primary Actor	Registered Admin
Preconditions	Admin is logged in. Dashboard is accessible
Post-condition at success	Successful: Admin manages products, customers, and categories. Unsuccessful: No changes to dashboard
Post-condition at unsuccessful execution	Error Occurred
Trigger	Admin clicks on the dashboard buttons
Primary Flow/Success Scenario	1. Admin clicks "Manage Products" button 2. System redirects to the product management page 3. Admin views and manages products 4. Admin returns to dashboard 5. Admin clicks "Manage Customers" button 6. System redirects to customer management page 7. Admin views and manages customers 8. Admin returns to dashboard 9. Admin clicks "Manage Categories" button 10. System redirects to category management page 11. Admin views and manages categories 12. Admin returns to dashboard
Extensions/Alternate Scenario	Admin enters invalid credentials during login System prompts for valid credentials Admin corrects credentials and continues
Priority	High
Frequency	Frequent
Completeness Level	90%

Test Cases:

ID	Actor Action	Expected Behaviour
UC05-T1	Admin clicks "Manage Products" button	System redirects user to the product management page
UC05-T2	Admin views and manages the list of products	System updates the list of inventory accordingly
UC05-T3	Admin clicks "Manage Customers" button	System redirects user to the customer management page
UC05-T4	Admin views and manages the list of customers	System accommodates the changes
UC05-T5	Admin clicks "Manage Categories" button	System redirects user to the category management page
UC05-T6	Admin views and manages the list of categories	System accommodates the changes

Admin Customer Page Test Cases

TEST CASE ID	PURPOSE	INPUT DATA	EXPECTED OUTPUT	ACTUAL OUTPUT	RESULT
ADC-T1	Add New Customer	Customer details (name, email, address).	Newly added Customer appears in the customer list	Add Customer button missing	FAIL
ADC-T2	Edit Existing Customer	Modified Customer details.	Changes are saved, and the Customer details are updated in the customer list	Edit option Unavailable	FAIL
ADC-T3	Delete Customer	Customer to be deleted.	Deleted Customer is removed from the Customer list	Delete button is not working	FAIL
ADC-T4	Customer Search	Search Customer by name	The system displays accurate results based on the search demand	No search option available	FAIL
ADC-T5	Open Homepage	Press the Homepage option	Homepage opens	Homepage does not open	FAIL
ADC-T6	Logout	Press logout button	Logs the user out	No output, does not log out	FAIL

STATE TRANSITION DIAGRAM TESTING FOR COMPLETE PROJECT
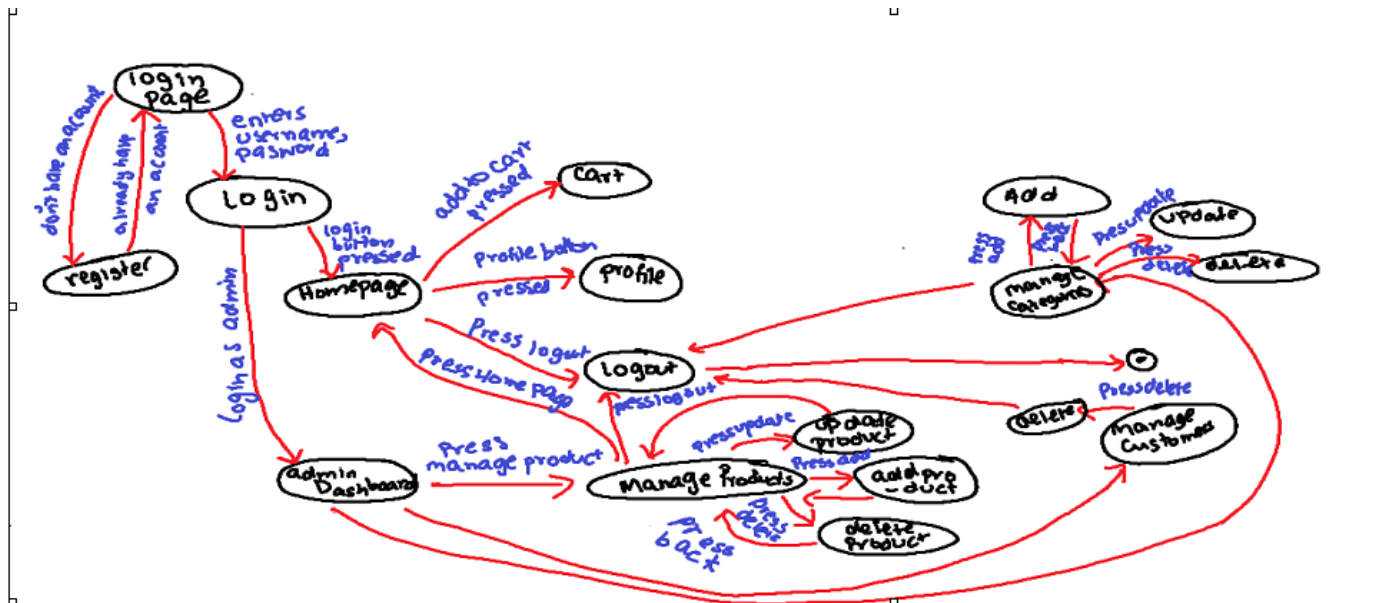
States:

State ID	Description
S1	User is on login page
S2	User is on Homepage
S3	Register
S4	User is on Cart
S5	User is on profile
S6	Log out
S7	Admin is on Dashboard
S8	User is on manage product
S9	User is on add product
S10	User is on update product
S11	User is on Delete product
S12	User is on Manage categories
S13	User is on update category
S14	User is on delete category
S15	User is on add category
S16	User is on Manage customers
S17	User is on add customers
S18	User is on Delete customer
S19	User is on update customer

Transitions:

Transition ID	Source State	Destination State	Description
T1	S1	S2	Transition from S1 to S2
T2	S1	S3	Transition from S1 to S3
T3	S3	S1	Transition from S3 to S1
T4	S2	S4	Transition from S2 to S4
T5	S2	S7	Transition from S2 to S7
T6	S7	S8	Transition from S7 to S8
T7	S8	S9	Transition from S8 to S9
T8	S8	S10	Transition from S8 to S10
T9	S8	S11	Transition from S8 to S11
T10	S7	S12	Transition from S7 to S12
T12	S12	S13	Transition from S12 to S13
T13	S12	S14	Transition from S12 to S14
T14	S12	S15	Transition from S12 to S15
T15	S7	S16	Transition from S7 to S16
T18	S16	S17	Transition from S16 to S17
T19	S16	S18	Transition from S16 to S18
T20	S16	S6	Transition from S16 to S6

Events:

Event ID	Description
E1	User logs in
E2	User doesn't have an account
E3	User clicks profile
E4	User clicks log out
E5	User clicks Homepage
E6	User clicks logout

E7	User clicks cart
E8	Logs in as an admin
E9	User clicks manage product
E10	User clicks update product
E11	User clicks delete product
E12	User clicks add product
E13	User clicks manage categories
E14	User clicks add categories
E15	User clicks update categories
E16	User clicks delete categories
E17	User clicks manage customers
E18	User clicks add customers
E19	User clicks delete customers
E20	User clicks update customers

State Diagram Test Cases:

TID	Current State	Event	Action	Next State
SD4-T1	S1	E1	-	S2
SD4-T2	S1	E2	-	S3
SD4-T3	S2	E3	-	S5
SD4-T4	S2	E4	-	S5
SD4-T5	S2	E5	-	S6
SD4-T6	S2	E7	-	S4
SD4-T7	S2	E8	-	S7
SD4-T8	S7	E9	-	S8
SD4-T9	S8	E10	-	S9
SD4-T10	S9	E11	-	S10
SD4-T11	S9	E12	-	S11
SD4-T12	S7	E13	-	S12
SD4-T13	S12	E14	-	S13
SD4-T14	S12	E15	-	S14
SD4-T15	S12	E16	-	S15
SD4-T16	S7	E17	-	S16
SD4-T17	S16	E18	-	S17
SD4-T18	S16	E19	-	S18
SD4-T19	S16	E20	-	S19

Call Graph Based Integration Testing
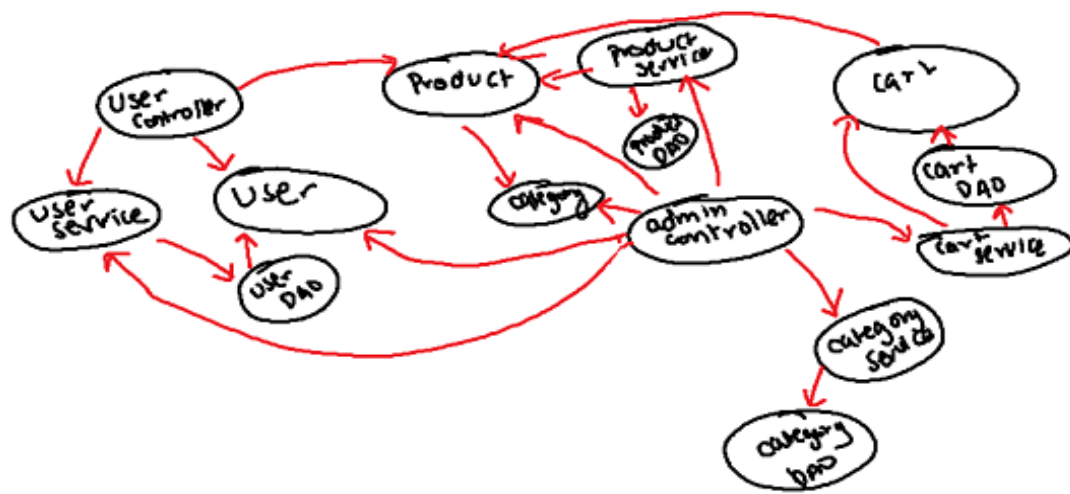
Neighbourhood Integration

N (Total Number)	14
Neighbourhoods	14
Leaves	3
T.sessions	11

Test Cases:

TID	Purpose	Description	Expected Result	Actual Result
N-T01	To check the connection of Admin Controller and User Service, User, Category, Category Service, Product, Product Service	Admin Controller retrieves and updates all the saved data of respective modules as required.	Admin Controller successfully retrieves and saves all data.	Admin Controller successfully retrieves and saves all data.
N-T02	To check the connection of User Controller and User Service,	User Controller verifies user login details and retrieves all products.	Login is checked successfully and all products are also retrieved.	Login is checked successfully and all products are also retrieved

	User, Product Service, Product			
N-T03	To check the connection of Product Service, Product DAO, User Controller, Admin Controller, Product	The Product Service obtains product information from both the user controller and admin controller. It verifies the sender's identity and, if the sender is an admin, forwards the information to the DAO for updating. If the sender is a user, the information is saved.	Updating is successfully performed and saved	Updating is successfully performed and saved
N-T04	To check the connection of Product DAO and Product, Product Service	Product DAO receives info from Product service about products and updates or saves it.	Information is successfully saved.	Product is successfully saved.
N-T05	To check the connection of Category Service, Category, Admin Controller	Category Service receives the new Category from Admin Controller and saves it.	Category is successfully updated or saved.	Category is not added to the list
N-T06	To check the connection of Product and User Controller, Admin Controller, Product Service, Product DAO, Category, Product.	Admin creates or delete product and adds category	Product is successfully created with given category and is shown to user	Product is saved and shown to user.
N-T07	To check the connection of Cart and Cart Dao, Cart Service, User, Product	User adds or deletes products in the cart.	The products are added successfully in the cart.	Products are not added to the cart.
N-T08	To check the connection of	User gets registered by	User is created by verification.	User is created.

	User DAO and User, User Service	entering the information		
N-T09	To check the connection of User Service and User DAO, Admin Controller, User Controller	Admin Controller retrieves all users and makes changes in their saved data and then transmits the updated data to the User Service for saving into the database.	Admin is able to see all saved users and is able to make changes.	Admin is able to see all saved users but is not able to make changes.
N-T10	To check the connection of Cart DAO and Cart, Cart Service	Changes made in cart are sent to Cart DAO to save it in the database.	Changes are successfully stored in the Database.	Changes are not stored in the database.
N-T11	To check the connection of Cart Service and Cart, Cart DAO	For the purpose of saving information, the Cart Service transmits the cart details to the Cart DAO.	Information is successfully stored.	Information is not stored.