Assignment 2: Automated Testing with Selenium

1. **Test case Summary**

Test Login/Logout functionality

Result	Test	Description	Expected Result	Actual Result
Passed	TestLogin::test_login_valid	Verify login functionality exists.	Expect the user can login	As Expected
Passed	TestLogin::test_login_invalid_email	Verify login functionality when not entering email.	Expect the error will be reported	As Expected
Passed	TestLogin::test_login_invalid_password	Verify login functionality when not entering password.	Expect the error will be reported	As Expected
Passed	TestLogin::test_login_email_not_exist	Verify login functionality with unregistered email.	Expect the error will be reported	As Expected
Passed	TestLogin::test_login_password_not_exist	Verify login functionality with password incorrect.	Expect the error will be reported	As Expected
Passed	TestLogin::test_logout	Verify logout functionality	Expect the account to be logged out	As Expected

Test Register functionality

Result	Test	Description	Expected Result	Actual Result
Passed	TestRegister::test_register_valid	Verify registration functionality with valid information.	Expect that the user will be successfully registered.	As Expected
Passed	TestRegister::test_register_invalid_password	Verify registration functionality with invalid password.	Expect that the system will notify the user of the error.	As Expected
Passed	TestRegister::test_register_invalid_email	Verify registration functionality with invalid email.	Expect the system to reject the email address and report an error accordingly.	As Expected
Passed	TestRegister::test_register_invalid_name	Verify registration functionality with invalid name.	Expect that the system will ask the user to re-enter a valid name.	As Expected
Passed	TestRegister::test_register_email_exist	Verify registration functionality with an email that already exists in the system.	Expected that the system will notify the user with an error that this email is already in use.	As Expected

Passed	TestRegister::test_register_password_long	Verify registration functionality with too long password.	Expect that the system will reject the password.	As Expected
Passed	TestRegister::test_register_password_short	Verify registration functionality with a password that is too short.	Expect that the system will reject the password.	As Expected
Passed	TestRegister::test_register_name_long	Verify registration functionality with a name that is too long.	Expect that the system will reject the name.	As Expected
Passed	TestRegister::test_register_policy_not_check	Verify registration functionality when users do not agree to the terms and policies.	Expect that the system will not allow registration without consent	As Expected

Test Navigation

Result	Test	Description	Expected Result	Actual Result
Passed	TestNavigation::test_navigation_desktop	Test navigation on the desktop site.	Expect that all links	As Expected
Passed	TestNavigation::test_navigation_laptops	Test navigation on the laptops site.	Expect that all links	As Expected
Passed	TestNavigation::test_navigation_components	Test navigation on the components site.	Expect that all links	As Expected
Passed	TestNavigation::test_navigation_tablets	Test navigation on the tablets site.	Expect that link	As Expected
Passed	TestNavigation::test_navigation_software	Test navigation on the software site.	Expect that link	As Expected
Passed	TestNavigation::test_navigation_phones_and_PDAs	Test navigation on the Phones_and_PDAs site.	Expect that link	As Expected
Passed	TestNavigation::test_navigation_cameras	Test navigation on the cameras site.	Expect that link	As Expected
Passed	TestNavigation::test_navigation_mp3_players	Test navigation on the Mp3 players site.	Expect that all links	As Expected
Passed	TestDataValidation::test_data_validation_show_desktops_mac	Check display data for Mac desktop.	Expect that all information is displayed correctly.	As Expected
Passed	TestDataValidation::test_data_validation_show_desktops_pc	Check display data for PC desktop.	Expect that all information is displayed correctly.	As Expected
Passed	TestDataValidation::test_data_validation_show_all_laptops	Check display data for show all laptops.	Expect that all information is displayed correctly.	As Expected
Passed	TestDataValidation::test_data_validation_show_monitors	Check display data for monitors.	Expect that all information is displayed correctly.	As Expected

Result	Test	Description	Expected Result	Actual Result
Passed	TestDataValidation::test_data_validation_show_all_tablets	Check display data for tablets.	Expect that all information is displayed correctly.	As Expected
Passed	TestDataValidation::test_data_validation_show_all_Phones_and_PDAs	Check display data for show all Phones and PDAs.	Expect that all information is displayed correctly.	As Expected
Passed	TestDataValidation::test_data_validation_show_all_cameras	Check display data for show all Cameras.	Expect that all information is displayed correctly.	As Expected
Passed	TestDataValidation::test_data_validation_show_all_mp3_players	Check display data for show all Mp3 players.	Expect that all information is displayed correctly.	As Expected
Failed	TestDataValidation::test_data_validation_show_all_desktops	Check the data displayed for all desktops.	Expect that all information is displayed correctly.	The system does not display the correct products for the selected category
Failed	TestDataValidation::test_data_validation_show_macbooks	Check display data for MacBook.	Expect that all information is displayed correctly	The system does not display the correct products for the selected category
Failed	TestDataValidation::test_data_validation_show_laptops_windows	Check the display data for Windows laptops.	Expect that all information is displayed correctly.	The system does not display the correct products for the selected category
Failed	TestDataValidation::test_data_validation_show_all_components	Check the displayed data for all components.	Expect that all information is displayed correctly.	The system does not display the correct products for the selected category

Test Add To Cart functionality

Result	Test	Description	Expected Result	Actual Result
Passed	TestAddToCart::test_add_to_cart_one_quantity	Test the function of adding a product to the cart with a quantity of 1.	Expect that the product will be added successfully	As Expected
Passed	TestAddToCart::test_add_to_cart_multiple_products_random_quantity	Test the function of adding multiple products to the cart in random quantities.	Expect that all products will be added successfully.	As Expected
Passed	TestAddToCart::test_update_cart_one_product	Test the quantity update function for a product in the shopping cart.	Expect that the product will be updated correctly.	As Expected

Passed	TestAddToCart::test_update_cart_multiple_products	Test the quantity update function for multiple products in the cart.	Expect all products to be updated correctly.	As Expected
Passed	TestAddToCart::test_update_cart_multiple_products_zero_quantity	Test the functionality to update quantities for multiple products with a value of 0.	The expectation is that the product will be removed from the cart.	As Expected
Passed	TestAddToCart::test_update_cart_multiple_products_negative_quantity	Test the functionality to update quantities for multiple products with negative values.	Expect that the product will not be added to the cart.	As Expected
Passed	TestAddToCart::test_remove_product_from_shopping_cart	Test the function of removing a product from the cart.	Expect that the product will be removed successfully.	As Expected
Passed	TestAddToCart::test_remove_product_on_view_fast_cart	Test the function of deleting products in the cart when quickly viewing the cart.	Expect that the product will be removed correctly.	As Expected
Failed	TestAddToCart::test_add_to_cart_zero_quantity	Test the function of adding products to the cart with a quantity of 0.	Expect that the system will report an error.	The system notifies that the product has been successfully added to the cart
Failed	TestAddToCart::test_add_to_cart_negative_quantity	Test the function of adding products to the cart with negative quantities.	Expect that the system will report an error.	The system notifies that the product has been successfully added to the cart
Failed	TestAddToCart::test_add_to_cart_invalid_quantity	Test the function of adding products to the cart with invalid quantities.	Expect that the system will report an error.	The system notifies that the product has been successfully added to the cart
Failed	TestAddToCart::test_add_to_cart_empty_quantity	Test the functionality to add products to cart when no quantity is specified.	Expect that the system will report an error.	The system notifies that the product has been successfully added to the cart

Test Checkout functionality

Result	Test	Description	Expected Result	Actual Result
Passed	TestCheckout::test_checkout_guest	Test checkout functionality for guest users.	Expect the payment to complete successfully without logging in.	As Expected
Passed	TestCheckout::test_checkout_register	Test checkout functionality for users initiating a subscription.	It is expected that the payment process will be successfully completed and the account registered.	As Expected
Passed	TestCheckout::test_checkout_register_password_invalid	Test checkout functionality when a user starts registration but enters an invalid password.	Expect that the system will report an error and not allow account creation and payment.	As Expected
Passed	TestCheckout::test_checkout_guest_invalid	Test checkout functionality for guest users with invalid information.	Expect that the system will report an error and not allow payment.	As Expected
Passed	TestCheckout::test_checkout_register_invalid	Test checkout functionality for users who register but with invalid information.	Expect that the system will report an error and not allow payment.	As Expected
Passed	TestCheckout::test_checkout_register_password_to_long	Test checkout functionality for users who start a registration but enter a password that is too long.	Expect that the system will report an error and not allow payment.	As Expected
Passed	TestCheckout::test_checkout_register_password_to_short	Test checkout functionality for users who start a registration but enter a password that is too short.	Expect that the system will report an error and not allow payment.	As Expected
Passed	TestCheckout::test_checkout_with_login	Test checkout functionality when the user is logged in.	Expected that the payment process will complete successfully with account information logged in.	As Expected
Passed	TestCheckout::test_checkout_register_email_exist	Test checkout functionality when a user registers but enters an email that already exists in the system.	Expect that the system will report an error and not allow payment.	As Expected

Test Search functionality

Result	Test	Description	Expected Result	Actual Result
Passed	TestSearch::test_search_valid	Test the search function with valid keywords.	It is expected that the system will return exact results corresponding to the entered keywords.	As Expected
Passed	TestSearch::test_search_empty	Test the search function without entering keywords.	Expect that the system will display no products.	As Expected
Passed	TestSearch::test_search_invalid	Test the search function with invalid keywords.	Expect that the system will return no results or error messages.	As Expected
Passed	TestSearch::test_search_special_characters	Test the search function with keywords containing special characters.	The expectation is that the system will process it correctly and return appropriate results.	As Expected
Passed	TestSearch::test_search_with_category	Test the search function with keywords in a specific category.	Expect that the system will return results that match the selected category and keywords.	As Expected
Passed	TestSearch::test_search_with_category_invalid_product	Test the search function with categories but with invalid products.	Expect that the system will return no results.	As Expected
Passed	TestSearch::test_search_with_category_invalid_search	Test the search function with invalid categories and keywords.	Expect that the system will say no products were found.	As Expected
Passed	TestSearch::test_search_max_length	Test the search function with maximum length keywords.	The expectation is that the system will process it correctly and return the corresponding results.	As Expected
Passed	TestSearch::test_search_in_product_descriptions	Test out the search function in the product description.	Expect that the system will return results that match the search keywords in the description.	As Expected
Passed	TestSearch::test_search_in_product_descriptions_invalid_with_search_criteria	Test the search function in the product description with invalid search criteria.	Expect that the system will return no results.	As Expected

Passed	TestSearch::test_search_in_su bcategory	Test the search function in subcategories.	Expect that the system will return results that match the search keywords in the subcategory.	As Expected
Failed	TestSearch::test_search_speci al_characters_percent	Test the search function with keywords containing special characters such as percent signs (%).	The expectation is that the system will process it correctly and return appropriate results.	The system returns all products and displays them

Test Responsive Design

Result	Test	Description	Expected Result	Actual Result
Passed	TestResponsive::test_responsi ve	Test the website works well on a variety of devices	Expect the web to work well on mobile devices and computers	As Expected

2. Pass/Fail Statistics

Test on Webdriver Microsoft Edge:

Test Information:

- Total number of test cases: 69 Test Case
- Number of test cases Passed: 60 Pass
- Number of test cases Failed: 9 Fail

Test on Webdriver Geckodriver (Fire Fox):

Test Information:

- Total number of test cases: 69 Test Case
- Number of test cases Passed: 59 Pass
- Number of test cases Failed: 10 Fail (but 1 test case checkout error due to short timesleep so it failed)

3. Execution Time

a. Test on Webdriver Microsoft Edge

Total Execution Time for the Test:

Total time taken for the entire suite: **00:31:54** (31 minutes and 54 seconds)

Individual Test Execution Time:

Test Case Name	Duration
TestAddToCart::test_add_to_cart_empty_quantity	00:00:16
TestAddToCart::test_add_to_cart_invalid_quantity	00:00:16
TestAddToCart::test_add_to_cart_multiple_products_random_quantity	00:00:48
TestAddToCart::test_add_to_cart_negative_quantity	00:00:16
TestAddToCart::test_add_to_cart_one_quantity	00:00:15
TestAddToCart::test_add_to_cart_zero_quantity	00:00:17
TestAddToCart::test_remove_product_from_shopping_cart	00:01:04
TestAddToCart::test_remove_product_on_view_fast_cart	00:00:25
TestAddToCart::test_update_cart_multiple_products	00:01:07
TestAddToCart::test_update_cart_multiple_products_negative_quantity	00:01:13
TestAddToCart::test_update_cart_multiple_products_zero_quantity	00:01:13
TestAddToCart::test_update_cart_one_product	00:00:28
TestCheckout::test_checkout_guest	00:01:25
TestCheckout::test_checkout_guest_invalid	00:00:35
TestCheckout::test_checkout_register	00:01:26
TestCheckout::test_checkout_register_email_exist	00:01:09
TestCheckout::test_checkout_register_invalid	00:00:35
TestCheckout::test_checkout_register_password_invalid	00:00:35
TestCheckout::test_checkout_register_password_to_long	00:00:35
TestCheckout::test_checkout_register_password_to_short	00:00:36
TestCheckout::test_checkout_with_login	00:00:58
TestDataValidation::test_data_validation_show_all_Phones_and_PDAs	00:00:12
TestDataValidation::test_data_validation_show_all_cameras	00:00:12
TestDataValidation::test_data_validation_show_all_components	00:00:15
TestDataValidation::test_data_validation_show_all_desktops	00:00:15
TestDataValidation::test_data_validation_show_all_laptops	00:00:15
TestDataValidation::test_data_validation_show_all_mp3_players	00:00:15
TestDataValidation::test_data_validation_show_all_tablets	00:00:12
TestDataValidation::test_data_validation_show_desktops_mac	00:00:15
TestDataValidation::test_data_validation_show_desktops_pc	00:00:15
TestDataValidation::test_data_validation_show_laptops_windows	00:00:16
TestDataValidation::test_data_validation_show_macbooks	00:00:15
TestDataValidation::test_data_validation_show_monitors	00:00:15
TestLogin::test_login_email_not_exist	00:00:18
TestLogin::test_login_invalid_email	00:00:21
TestLogin::test_login_invalid_password	00:00:18
TestLogin::test_login_password_not_exist	00:00:18
TestLogin::test_login_valid	00:00:20

TestLogin::test_logout	00:00:27
TestNavigation::test_navigation_cameras	00:00:07
TestNavigation::test_navigation_components	00:00:56
TestNavigation::test_navigation_desktop	00:00:29
TestNavigation::test_navigation_laptops	00:00:29
TestNavigation::test_navigation_mp3_players	00:00:10
TestNavigation::test_navigation_phones_and_PDAs	00:00:07
TestNavigation::test_navigation_software	00:00:07
TestNavigation::test_navigation_tablets	00:00:07
TestRegister::test_register_email_exist	00:00:27
TestRegister::test_register_invalid_email	00:00:27
TestRegister::test_register_invalid_name	00:00:27
TestRegister::test_register_invalid_password	00:00:27
TestRegister::test_register_name_long	00:00:27
TestRegister::test_register_password_long	00:00:27
TestRegister::test_register_password_short	00:00:27
TestRegister::test_register_policy_not_check	00:00:27
TestRegister::test_register_valid	00:00:27
TestResponsive::test_responsive	00:01:03
TestSearch::test_search_empty	00:00:20
TestSearch::test_search_in_product_descriptions	00:00:17
TestSearch::test_search_in_product_descriptions_invalid_with_search_criteria	00:00:19
TestSearch::test_search_in_subcategory	00:00:20
TestSearch::test_search_invalid	00:00:17
TestSearch::test_search_max_length	00:00:17
TestSearch::test_search_special_characters	00:00:17
TestSearch::test_search_special_characters_percent	00:00:17
TestSearch::test_search_valid	00:00:17
TestSearch::test_search_with_category	00:00:20
TestSearch::test_search_with_category_invalid_product	00:00:20
TestSearch::test_search_with_category_invalid_search	00:00:20

b. Test on Webdriver Geckodriver (Fire Fox)

Total Execution Time for the Test:

Total time taken for the entire suite: **00:37:30** (37 minutes and 30 seconds)

Individual Test Execution Time:

Test Case Name	Duration
TestAddToCart::test_add_to_cart_empty_quantity	00:00:21
TestAddToCart::test_add_to_cart_invalid_quantity	00:00:21
TestAddToCart::test_add_to_cart_multiple_products_random_quantity	00:00:54
TestAddToCart::test_add_to_cart_negative_quantity	00:00:21
TestAddToCart::test_add_to_cart_one_quantity	00:00:18
TestAddToCart::test_add_to_cart_zero_quantity	00:00:21
TestAddToCart::test_remove_product_from_shopping_cart	00:01:13
TestAddToCart::test_remove_product_on_view_fast_cart	00:00:30
TestAddToCart::test_update_cart_multiple_products	00:01:13
TestAddToCart::test_update_cart_multiple_products_negative_quantity	00:01:19
TestAddToCart::test_update_cart_multiple_products_zero_quantity	00:01:19
TestAddToCart::test_update_cart_one_product	00:00:33
TestCheckout::test_checkout_guest	00:01:34
TestCheckout::test_checkout_guest_invalid	00:00:42
TestCheckout::test_checkout_register	00:01:34
TestCheckout::test_checkout_register_email_exist	00:00:54
TestCheckout::test_checkout_register_invalid	00:00:41
TestCheckout::test_checkout_register_password_invalid	00:00:42
TestCheckout::test_checkout_register_password_to_long	00:00:42
TestCheckout::test_checkout_register_password_to_short	00:00:42
TestCheckout::test_checkout_with_login	00:01:07
TestDataValidation::test_data_validation_show_all_Phones_and_PDAs	00:00:16
TestDataValidation::test_data_validation_show_all_cameras	00:00:16
TestDataValidation::test_data_validation_show_all_components	00:00:20
TestDataValidation::test_data_validation_show_all_desktops	00:00:20
TestDataValidation::test_data_validation_show_all_laptops	00:00:20
TestDataValidation::test_data_validation_show_all_mp3_players	00:00:20
TestDataValidation::test_data_validation_show_all_tablets	00:00:17
TestDataValidation::test_data_validation_show_desktops_mac	00:00:20
TestDataValidation::test_data_validation_show_desktops_pc	00:00:20
TestDataValidation::test_data_validation_show_laptops_windows	00:00:20
TestDataValidation::test_data_validation_show_macbooks	00:00:20
TestDataValidation::test_data_validation_show_monitors	00:00:20
TestLogin::test_login_email_not_exist	00:00:23
TestLogin::test_login_invalid_email	00:00:26
TestLogin::test_login_invalid_password	00:00:23
TestLogin::test_login_password_not_exist	00:00:23
TestLogin::test_login_valid	00:00:25
TestLogin::test_logout	00:00:32

TestNavigation::test_navigation_cameras	00:00:11
TestNavigation::test_navigation_components	00:01:02
TestNavigation::test_navigation_desktop	00:00:34
TestNavigation::test_navigation_laptops	00:00:34
TestNavigation::test_navigation_mp3_players	00:00:15
TestNavigation::test_navigation_phones_and_PDAs	00:00:11
TestNavigation::test_navigation_software	00:00:11
TestNavigation::test_navigation_tablets	00:00:17
TestRegister::test_register_email_exist	00:00:32
TestRegister::test_register_invalid_email	00:00:32
TestRegister::test_register_invalid_name	00:00:32
TestRegister::test_register_invalid_password	00:00:32
TestRegister::test_register_name_long	00:00:32
TestRegister::test_register_password_long	00:00:32
TestRegister::test_register_password_short	00:00:32
TestRegister::test_register_policy_not_check	00:00:32
TestRegister::test_register_valid	00:00:32
TestResponsive::test_responsive	00:01:10
TestSearch::test_search_empty	00:00:21
TestSearch::test_search_in_product_descriptions	00:00:22
TestSearch::test_search_in_product_descriptions_invalid_with_search_criteria	00:00:24
TestSearch::test_search_in_subcategory	00:00:26
TestSearch::test_search_invalid	00:00:21
TestSearch::test_search_max_length	00:00:22
TestSearch::test_search_special_characters	00:00:21
TestSearch::test_search_special_characters_percent	00:00:22
TestSearch::test_search_valid	00:00:21
TestSearch::test_search_with_category	00:00:26
TestSearch::test_search_with_category_invalid_product	00:00:25
TestSearch::test_search_with_category_invalid_search	00:00:25

4. Error Details

Add To Cart functionality (empty_quantity)

Test case	TestAddToCart::test_add_to_cart_empty_quantity	Result	Fail

Description	Test the functionality to add products to cart when no quantity is specified.

Expected Result	Expect that the system will report an error.

Actual Result	The system notifies that the product has been successfully added to the cart

Stack Trace

```
self = <src.tests.test_add_to_cart.TestAddToCart object at 0x0000018A3D24F380>, driver
= <selenium.webdriver.edge.webdriver.WebDriver
(session="79133ac9d45961b6e8fe958852a379ee")>

    def test_add_to_cart_empty_quantity(self, driver):
        # Truy cập trang chủ của opencart
        driver.get("http://localhost/opencart/upload/")
        # Tạo đối tượng Navigation để điều hướng trang web
        navigation = Navigation(driver)
        navigation.go_to_phones_and_PDAs()

        # Tạo đối tượng AddToCart để thêm sản phẩm vào giỏ hàng
        add_to_cart = AddToCart(driver)
        add_to_cart.go_to_product("iPhone")
        add_to_cart.set_qty("")
        add_to_cart.add_to_cart()

        # So sánh kết quả với dự kiến
>       assert add_to_cart.get_message() in "Error: Please select a quantity", "Error message
not displayed"
E       AssertionError: Error message not displayed
E       assert 'Success: You have added iPhone to your shopping cart!' in 'Error: Please
select a quantity'
E        +  where 'Success: You have added iPhone to your shopping cart!' = get_message()
E        +    where get_message = <src.pages.add_to_cart.AddToCart object at
0x0000018A3D386210>.get_message

test_add_to_cart.py:115: AssertionError
```

Add To Cart functionality (zero_quantity)

Test case	TestAddToCart::test_add_to_cart_zero_quantity	Result	Fail

Description	Test the function of adding products to the cart with a quantity of 0.

Expected Result	Expect that the system will report an error.

Actual Result	The system notifies that the product has been successfully added to the cart

Stack Trace

```
self = <src.tests.test_add_to_cart.TestAddToCart object at 0x0000018A3D24F6B0>,
driver = <selenium.webdriver.edge.webdriver.WebDriver
(session="bc91ff8761f883615d6cf37888cd6389")>

    def test_add_to_cart_zero_quantity(self, driver):
        # Truy cập trang chủ của opencart
        driver.get("http://localhost/opencart/upload/")

        # Tạo đối tượng Navigation để điều hướng trang web
        navigation = Navigation(driver)
        # Điều hướng đến trang "Phones & PDAs"
        navigation.go_to_phones_and_PDAs()

        # Tạo đối tượng AddToCart để thêm sản phẩm vào giỏ hàng
        add_to_cart = AddToCart(driver)
        # Đến trang chi tiết sản phẩm của 'iPhone'
        add_to_cart.go_to_product("iPhone")
        # Đặt số lượng sản phẩm là 0
        add_to_cart.set_qty(0)
        # Thêm sản phẩm vào giỏ hàng
        add_to_cart.add_to_cart()

        # So sánh kết quả với dự kiến
>       assert add_to_cart.get_message() in "Error: Please select a quantity", "Error message
not displayed"
E       AssertionError: Error message not displayed
E       assert 'Success: You have added iPhone to your shopping cart!' in 'Error: Please
select a quantity'
E        + where 'Success: You have added iPhone to your shopping cart!' = get_message()
E        +  where get_message = <src.pages.add_to_cart.AddToCart object at
0x0000018A3C5D9880>.get_message

test_add_to_cart.py:52: AssertionError
```

Add To Cart functionality (negative_quantity)

Test case	TestAddToCart::test_add_to_ cart_negative_quantity	Result	Fail

Description	Test the function of adding products to the cart with negative quantities.

Expected Result	Expect that the system will report an error.

Actual Result	The system notifies that the product has been successfully added to the cart

Stack Trace

self = <src.tests.test_add_to_cart.TestAddToCart object at 0x0000018A3D24F560>, driver = <selenium.webdriver.edge.webdriver.WebDriver (session="a310626c75673cb8e58e14b567d59139")>

```
  def test_add_to_cart_negative_quantity(self, driver):
      # Truy cập trang chủ của opencart
      driver.get("http://localhost/opencart/upload/")

      # Tạo đối tượng Navigation để điều hướng trang web
      navigation = Navigation(driver)
      # Điều hướng đến trang "Phones & PDAs"
      navigation.go_to_phones_and_PDAs()

      # Tạo đối tượng AddToCart để thêm sản phẩm vào giỏ hàng
      add_to_cart = AddToCart(driver)
      # Đến trang chi tiết sản phẩm của 'iPhone'
      add_to_cart.go_to_product("iPhone")
      # Đặt số lượng sản phẩm là -1
      add_to_cart.set_qty(-1)
      # Thêm sản phẩm vào giỏ hàng
      add_to_cart.add_to_cart()

      # So sánh kết quả với dự kiến
>     assert add_to_cart.get_message() in "Error: Please select a quantity" , "Error message
not displayed"
E     AssertionError: Error message not displayed
E     assert 'Success: You have added iPhone to your shopping cart!' in 'Error: Please
select a quantity'
E      + where 'Success: You have added iPhone to your shopping cart!' = get_message()
E      +   where get_message = <src.pages.add_to_cart.AddToCart object at
0x0000018A3D29FBF0>.get_message

test_add_to_cart.py:75: AssertionError
```

Add To Cart functionality (invalid_quantity)

Test case	TestAddToCart::test_add_to_ cart_invalid_quantity	Result	Fail

Description	Test the function of adding products to the cart with invalid quantities.

Expected Result	Expect that the system will report an error.

Actual Result	The system notifies that the product has been successfully added to the cart

Stack Trace

self = <src.tests.test_add_to_cart.TestAddToCart object at 0x0000018A3D24F710>, driver = <selenium.webdriver.edge.webdriver.WebDriver (session="ac6dcd14a13069f3767dac3f9187f8e6")>

```
    def test_add_to_cart_invalid_quantity(self, driver):
        # Truy cập trang chủ của opencart
        driver.get("http://localhost/opencart/upload/")

        # Tạo đối tượng Navigation để điều hướng trang web
        navigation = Navigation(driver)
        # Điều hướng đến trang "Phones & PDAs"
        navigation.go_to_phones_and_PDAs()

        # Tạo đối tượng AddToCart để thêm sản phẩm vào giỏ hàng
        add_to_cart = AddToCart(driver)
        # Đến trang chi tiết sản phẩm của 'iPhone'
        add_to_cart.go_to_product("iPhone")
        # Đặt số lượng sản phẩm là chuỗi "abc"
        add_to_cart.set_qty("abc")
        # Thêm sản phẩm vào giỏ hàng
        add_to_cart.add_to_cart()

        # So sánh kết quả với dự kiến
>       assert add_to_cart.get_message() in "Error: Please select a quantity", "Error message
not displayed"
E       AssertionError: Error message not displayed
E       assert 'Success: You have added iPhone to your shopping cart!' in 'Error: Please
select a quantity'
E        +  where 'Success: You have added iPhone to your shopping cart!' = get_message()
E        +    where get_message = <src.pages.add_to_cart.AddToCart object at
0x0000018A3D385340>.get_message

test_add_to_cart.py:98: AssertionError
```

Navigation_Data_Validation (show_all_desktops)

Test case	TestDataValidation::test_data_validation_show_all_desktops	Result	Fail

Description	Check the data displayed for all desktops.

Expected Result	Expect that all information is displayed correctly.

Actual Result	The system does not display the correct products for the selected category

Stack Trace

```
self = <src.tests.test_data_validation.TestDataValidation object at
0x0000018A3D279D30>, driver = <selenium.webdriver.edge.webdriver.WebDriver

    def test_data_validation_show_all_desktops(self, driver):
        # Truy cập đến trang chủ
        driver.get("http://localhost/opencart/upload/")
        # Khởi tạo đối tượng Navigation
        navigation = Navigation(driver)
        # Điều hướng trang show all desktops
        navigation.go_to_desktops()
        navigation.show_all_desktops()
        # Khởi tạo đối tượng DataValidation
        data_validation = DataValidation(driver)
        # Lấy kết quả danh sách sản phẩm
        displayed_product_names = data_validation.data_validation_show_product()
        expected_product_names = ['IMac']
        # So sánh kết quả với kết quả mong đợi
>       assert set(displayed_product_names) == set(expected_product_names), f"Expected
{expected_product_names}, but got {displayed_product_names}"
E       AssertionError: Expected ['IMac'], but got ['Apple Cinema 30"', 'Canon EOS 5D',
'HP LP3065', 'HTC Touch HD', 'iPhone', 'iPod Classic', 'MacBook', 'MacBook Air', 'Palm
Treo Pro', 'Product 8']
E       assert {'Apple Cinem...ook Air', ...} == {'IMac'}
E
E         Extra items in the left set:
E         'Apple Cinema 30"'
E         'MacBook Air'
E         'HP LP3065'
E         'MacBook'
E         'Palm Treo Pro'...
E
E         ...Full output truncated (8 lines hidden), use '-vv' to show
```

test_data_validation.py:23: AssertionError

Navigation_Data_Validation (show_macbooks)

Test case	TestDataValidation::test_data_validation_show_macbooks	Result	Fail

Description	Check display data for MacBook.

Expected Result	Expect that all information is displayed correctly.

Actual Result	The system does not display the correct products for the selected category

Stack Trace

self = <src.tests.test_data_validation.TestDataValidation object at 0x0000018A3D27A3C0>, driver = <selenium.webdriver.edge.webdriver.WebDriver (session="342a0d6370fa86b4750e4fad588b609e")>

```
    def test_data_validation_show_macbooks(self, driver):
        driver.get("http://localhost/opencart/upload/")
        navigation = Navigation(driver)
        navigation.go_to_laptops()
        navigation.go_to_macbooks()
        data_validation = DataValidation(driver)
        displayed_product_names = data_validation.data_validation_show_product()
        expected_product_names = ['MacBook', 'MacBook Air', 'MacBook Pro']
>       assert set(displayed_product_names) == set(expected_product_names), f"Expected
{expected_product_names}, but got {displayed_product_names}"
E       AssertionError: Expected ['MacBook', 'MacBook Air', 'MacBook Pro'], but got []
E       assert set() == {'MacBook', '...'MacBook Pro'}
E
E         Extra items in the right set:
E         'MacBook Air'
E         'MacBook'
E         'MacBook Pro'
E         Use -v to get more diff
```

test_data_validation.py:73: AssertionError

Navigation_Data_Validation (show_laptops_windows)

Test case	TestDataValidation::test_data_validation_show_laptops_windows	Result	Fail

Description	Check the display data for Windows laptops.

Expected Result	Expect that all information is displayed correctly.

Actual Result	The system does not display the correct products for the selected category

Stack Trace

self = <src.tests.test_data_validation.TestDataValidation object at
0x0000018A3D27A5A0>, driver = <selenium.webdriver.edge.webdriver.WebDriver
(session="d9be4f9fe12e72e68249106e0280bd86")>

   def test_data_validation_show_laptops_windows(self, driver):
      driver.get("http://localhost/opencart/upload/")
      navigation = Navigation(driver)
      navigation.go_to_laptops()
      navigation.go_to_windows_laptops()
      data_validation = DataValidation(driver)
      displayed_product_names = data_validation.data_validation_show_product()
      expected_product_names = ['HP LP3065', 'Sony VAIO']
>   assert set(displayed_product_names) == set(expected_product_names), f"Expected
{expected_product_names}, but got {displayed_product_names}"
E   AssertionError: Expected ['HP LP3065', 'Sony VAIO'], but got []
E   assert set() == {'HP LP3065', 'Sony VAIO'}
E
E   Extra items in the right set:
E   'HP LP3065'
E   'Sony VAIO'
E   Use -v to get more diff

test_data_validation.py:84: AssertionError

Navigation_Data_Validation (show_all_components)

Test case	TestDataValidation::test_data_validation_show_all_components	Result	Fail

Description	Check the data displayed for all components.

Expected Result	Expect that all information is displayed correctly.

Actual Result	The system does not display the correct products for the selected category

Stack Trace

self = <src.tests.test_data_validation.TestDataValidation object at
0x0000018A3D27A960>, driver = <selenium.webdriver.edge.webdriver.WebDriver
(session="4ba0c7f33f909932c223362c7018d205")>

```
    def test_data_validation_show_all_components(self, driver):
        driver.get("http://localhost/opencart/upload/")
        navigation = Navigation(driver)
        navigation.go_to_components()
        navigation.show_all_components()
        data_validation = DataValidation(driver)
        displayed_product_names = data_validation.data_validation_show_product()
        expected_product_names = ['Apple Cinema 30"', 'Samsung SyncMaster 941BW']
>       assert set(displayed_product_names) == set(expected_product_names), f"Expected
{expected_product_names}, but got {displayed_product_names}"
E       AssertionError: Expected ['Apple Cinema 30"', 'Samsung SyncMaster 941BW'], but
got []
E       assert set() == {'Apple Cinem...Master 941BW'}
E
E         Extra items in the right set:
E         'Samsung SyncMaster 941BW'
E         'Apple Cinema 30"'
E         Use -v to get more diff
```

test_data_validation.py:106: AssertionError

Navigation_Data_Validation (show_all_components)

Test case	TestSearch::test_search_special_characters_percent	**Result**	Fail

Description	Test the search function with keywords containing special characters such as percent signs (%).

Expected Result	The expectation is that the system will process it correctly and return appropriate results.

Actual Result	The system returns all products and displays them

Stack Trace

```
self = <src.tests.test_search.TestSearch object at 0x0000018A3D29D700>, driver =
<selenium.webdriver.edge.webdriver.WebDriver
(session="a32d438897e4e9aea10adb5fc0c68442")>

  def test_search_special_characters_percent(self, driver):
     # Truy cập trang chủ của opencart
     driver.get("http://localhost/opencart/upload/")

     # Tạo đối tượng Search để thực hiện tìm kiếm
     search = Search(driver)

     # Tạo đối tượng DataValidation để kiểm tra kết quả
     data_validation = DataValidation(driver)

     # Tìm kiếm sản phẩm với từ khóa "%"
     search.search_product("%")

     # Lấy danh sách của sản phẩm tìm thấy
     product_name_search = data_validation.data_validation_show_product()
     product_name = []

     # So sánh kết quả với dự kiến
>    assert product_name_search == product_name
E    assert ['Apple Cinem...'iPhone', ...] == []
E
E     Left contains 10 more items, first extra item: 'Apple Cinema 30'"
E     Use -v to get more diff

test_search.py:116: AssertionError
```