



**T.C.**

**SAKARYA UNIVERSITY**

**FACULTY OF COMPUTER AND INFORMATION SCIENCES**

**COMPUTER ENGINEERING DEPARTMENT**

**SOFTWARE TESTING ASSIGNMENT REPORT**

**WEB SCRAPER WITH JAVA AND SELENIUM LIBRARY**

**B181210562 - Hajer GAFSI**

**SAKARYA**

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Software Testing Course

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## Summary

The written program is a java program that should test a website with automated tests using selenium library and JUnit5

Keyword: software testing, java, selenium, JUnit5, web scraping

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## 1. DEVELOPED SOFTWARE

The website that will be tested is <https://www.trendyol.com/> , tests can be divided into 8 categories as follows:

- Auth tests:
  - Tests login functionality with valid and invalid credentials
  - Tests register functionality with invalid/valid password formats and expects an error
- Cart tests:
  - Tests adding single product to cart
  - Tests adding multiple products to cart and verifies total
  - Tests removing items from cart
  - Tests calculating the total after discounts
- Filtering and Sorting tests:
  - Tests filtering items by price range
  - Tests filtering items by applying the free-shipping filter
  - Tests sorting items by descending/ascending price
- Navigator tests:
  - Tests the Navigator class of the project which is responsible for navigating to different pages of the website
- Payment tests:
  - Tests the total price displayed on the payment page
  - Tests navigating to payment page without prior authentication, expects redirection to sign in page
  - Tests navigating to payment page with a free cart, expects empty cart error message
- Product tests:
  - Tests adding a product to favorites
  - Tests adding a product to favorites without a prior authentication
  - Tests removing items from favorites
- Update user test:
  - Tests update user information (name, surname, gender) functionality
  - Tests reset password with a wrong current password, expects error message.
- Website Tester class tests:
  - These tests were made for testing the WebDriver mainly and making sure the browser is open and navigates to the correct address

- Tests accept cookies function

## 2. Used Libraries and technologies:

- Junit5 for testing
- Selenium for running tests on browsers
- Chrome as a browser for the tests and ChromeDriver as a WebDriver
- faker library for generating data for testing
- Docker for creating the Docker image
- ChromeDriver for testing inside Docker

## 3. Dockerization of the java Program

- Dockerfile:
  - Base Image: openjdk:11
  - Installed dependencies: firefox, geckodriver for firefox, chrome, chromeDriver,xvfb
  - Copied jar files: selenium jars, faker jars, JUnit5 jars
- Building Docker image command:

```
>docker build -t websitetester .
```

- Running Docker imager command:

```
>docker run -t -i websitetester
```

Note:

- Sometimes tests can fail due to internet speed and website's server-related issues, therefore it is encouraged to re-run the tests in case of failure

## Program.java Output:

```
Choose a category:
1. Auth Tests Category
2. Cart Tests Category
3. Filtering Tests Category
4. Sorting Tests Category
5. Navigator Tests Category
6. Payment Tests Category
7. Products Tests Category
8. Update User Tests Category
9. Website Tester class Tests Category
10. Exit
10
Exiting...
```

- This menu allows the user to choose which tests to run by choosing the category

The output consists of number of tests run, failed and succeeded as well failed tests' names and the exception that caused their failure

## Program.java Output After running some tests:

```
Cookies accepted !
Tests run: 4
Tests passed: 4
Tests failed: 0
Choose a category:
```

```
Tests run: 7
Tests passed: 7
Tests failed: 0
Choose a category:
1. Auth Tests Category
2. Cart Tests Category
3. Filtering Tests Category
4. Sorting Tests Category
5. Navigator Tests Category
6. Payment Tests Category
7. Products Tests Category
8. Update User Tests Category
9. Website Tester class Tests Category
10. Exit
2
```

### Payment tests

### Auth Tests

```
Tests run: 6
Tests passed: 6
Tests failed: 0
Choose a category:
```

```
Tests run: 3
Tests passed: 3
Tests failed: 0
Choose a category:
```

### Cart Tests

### Filtering Tests

**NOTE:** When running Chrome Driver inside Docker, chrome's headless mode

(without interface), but tests can be ran on chrome on headed mode if program is run from eclipse by commenting the following line from WebTester.java file :

```
40 options.addArguments("--headless");
```