

Automation Testing

- Farklı platformlarda test edilecek test planlarını manuele oranla daha kolay test edebilir.
- Tüm iş akışlarının, tüm alanların, tüm olumsuz senaryoların testinin zaman ve maliyetini azaltır.
- Yeniden kullanılabilir.
- İnsan müdahalesi gerektirmez.
- Test kapsamının artırılmasına yardımcı olur.
- Geliştirilmiş hata tespiti sağlar
- Daha iyi raporlama sağlar.

Otomasyon Kod Katmanları

Testler ⇒ Framework ⇒ Selenium ⇒ Tarayıcı (Web Uygulaması)

Robot Framework ile React UI Otomasyon Testleri

Fonksiyonlar

- getByRole: Belirtilen role sahip öğeyi getirir.
- getText: Belirtilen metin içeren öğeyi getirir.
- getLabelText: Belirtilen label'a sahip öğeyi getirir.
- getTestId: Belirtilen test ID'sine sahip öğeyi getirir.
- waitFor: Belirtilen öğenin görünür hale gelmesini bekler.
- waitForElementToBeRemoved: Belirtilen öğenin görüntülenmesinin sona ermesini bekler.
- fireEvent: Belirtilen öğe için bir olay tetikler.
- queryBy: Öğenin görünür olup olmadığını kontrol eder.
- userEvent: Belirtilen öğe üzerinde bir kullanıcı eylemi tetikler.
- waitForValueToChange: Belirtilen öğenin değerinin değişmesini bekler.
- waitForElementToBeEnabled: Belirtilen öğenin etkin hale gelmesini bekler.

Test Otomasyon Framework'ü neleri sağlar?

- ☐ Yazılım dillerini destekler.
- ☐ Yeniden kullanılabilirlik sağlar.
- ☐ Okunabilirliği arttırmak için abstraction kavramı destekler.
- ☐ Web-API-Db-Mobil testleri yazabilmek için çeşitli kütüphaneleri destekler.
- ☐ Seçtiğimiz tag-capability'lerle testleri çalıştırabilmeyi, özelleştirmeyi sağlar.
- ☐ Test setup ve teardown kavramları ile sürekli tekrarlardan kaçınmamızı sağlayacak iyileştirmeler sunar.
- ☐ Çok iyi Raporlama yapmayı sağlar, örneğin özellikle fail veren test sonuçlarını ekran görüntüleri ile yakalamak mümkün.
- ☐ Sürekli entegrasyon ile zamanlayıcı kavramlarının gelmesi sağlar.

- ☐ Paralel çalıştırma imkanı ile aynı anda farklı makinalarda test kodlarını çalıştırmayı sağlar.
- ☐ Herkesce bilinen ortak düzen kural oluşturulması Robot Framework ile tüm bu sayılanları yapmak mümkün, hem de çok hızlı ve kolay bir şekilde. Robot Framework açık kaynak bir uygulamadır. Pekka Clark'ın test otomasyon hakkında olan fikirleri 2005'de Docker kavramını doğurmuştur. 3 yıl içerisinde versiyon 2 yi Open Source olarak çıkardı.

Yetenekleri ve Özellikleri:

Cross Platform (Win – Mac- Linux)

Keyword Driven- bu sayede test caseleri doğal bir dille business domain kullanarak yazmak mümkün. Ve böylece test caseleri ingilizce fransızca almanca gibi dillerde de yazmak mümkün oluyor. Böylece müşteride neyin testinin yazıldığını anlıyor.

Robot framework scriptleri kütüphanelere bağlı. (Appium , Selenium , Swing , SSH, DB, SecreenShot, XML gibi kütüphaneler)

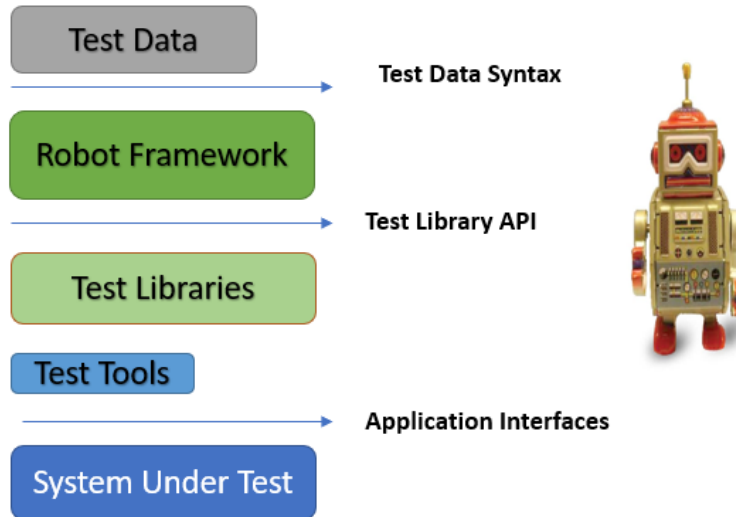


Fig: Robot Framework Architecture

RobotFramework Automation Project Reports

Bu otomasyon raporunda, işlemler tek tek maddeler haline getirilerek raporlanır.

1- InputValidation.robot

Inputvalidation Log

Generated
20230417 10:05:21 UTC+03:00
23 minutes 53 seconds ago

Test Statistics

Total Statistics	Total	Pass	Fail	Skip	Elapsed	Pass / Fail / Skip
All Tests	1	1	0	0	00:00:16	
Statistics by Tag	Total	Pass	Fail	Skip	Elapsed	Pass / Fail / Skip
No Tags						
Statistics by Suite	Total	Pass	Fail	Skip	Elapsed	Pass / Fail / Skip
Inputvalidation	1	1	0	0	00:00:16	

Test Execution Log

SUITE Inputvalidation
Full Name: Inputvalidation
Source: C:\Users\PC_4077\Desktop\Robot_Automation-master\Automation\inputvalidation.robot
Start / End / Elapsed: 20230417 10:05:05.227 / 20230417 10:05:21.624 / 00:00:16.397
Status: 1 test total, 1 passed, 0 failed, 0 skipped
TEST ValidationTest
Full Name: Inputvalidation.ValidationTest
Start / End / Elapsed: 20230417 10:05:05.376 / 20230417 10:05:21.622 / 00:00:16.246
Status: PASS
KEYWORD SeleniumLibrary.Open Browser \${url}, \${browser}
Documentation: Opens a new browser instance to the optional url.
Start / End / Elapsed: 20230417 10:05:05.377 / 20230417 10:05:10.269 / 00:00:04.892
10:05:05.377 INFO Opening browser 'chrome' to base url 'https://www.flipkart.com'.
KEYWORD SeleniumLibrary.Wait Until Page Contains \${url}
Documentation: Waits until text appears on the current page.
Start / End / Elapsed: 20230417 10:05:10.270 / 20230417 10:05:10.281 / 00:00:00.011
KEYWORD SeleniumLibrary.Maximize Browser Window
Documentation: Maximizes current browser window.
Start / End / Elapsed: 20230417 10:05:10.281 / 20230417 10:05:10.393 / 00:00:00.112
KEYWORD SeleniumLibrary.Title Should Be Online Shopping Site for Mobiles, Electronics, Furniture, Grocery, Lifestyle, Books & More. Best Offers!
Documentation: Verifies that the current page title equals title.
Start / End / Elapsed: 20230417 10:05:10.394 / 20230417 10:05:10.397 / 00:00:00.003
10:05:10.397 INFO Page title is 'Online Shopping Site for Mobiles, Electronics, Furniture, Grocery, Lifestyle, Books & More. Best Offers!'.
KEYWORD \${input_txt} = BuiltIn.Set Variable xpath:/html/body/div[2]/div/div/div/div[2]/div/form/div[1]/input
Documentation: Returns the given values which can then be assigned to a variables.
Start / End / Elapsed: 20230417 10:05:10.397 / 20230417 10:05:10.398 / 00:00:00.001
10:05:10.398 INFO \${input_txt} = xpath:/html/body/div[2]/div/div/div/div[2]/div/form/div[1]/input
KEYWORD SeleniumLibrary.Element Should Be Enabled \${input_txt}
Documentation: Verifies that element identified by locator is enabled.
Start / End / Elapsed: 20230417 10:05:10.398 / 20230417 10:05:10.430 / 00:00:00.032
KEYWORD SeleniumLibrary.Element Should Be Visible \${input_txt}
Documentation: Verifies that the element identified by locator is visible.
Start / End / Elapsed: 20230417 10:05:10.431 / 20230417 10:05:10.445 / 00:00:00.014
10:05:10.445 INFO Element 'xpath:/html/body/div[2]/div/div/div/div[2]/div/form/div[1]/input' is displayed.
KEYWORD BuiltIn.Sleep 3
Documentation: Pauses the test executed for the given time.
Start / End / Elapsed: 20230417 10:05:10.445 / 20230417 10:05:13.446 / 00:00:03.001
10:05:13.446 INFO Slept 3 seconds
KEYWORD SeleniumLibrary.Input Text xpath:/html/body/div[2]/div/div/div/div[2]/div/form/div[1]/input, hilalslmaz@outlook.com
Documentation: Types the given text into the text field identified by locator.
Start / End / Elapsed: 20230417 10:05:13.446 / 20230417 10:05:13.507 / 00:00:00.061
10:05:13.446 INFO Typing text 'hilalslmaz@outlook.com' into text field 'xpath:/html/body/div[2]/div/div/div/div[2]/div/form/div[1]/input'.
KEYWORD BuiltIn.Sleep 3
Documentation: Pauses the test executed for the given time.
Start / End / Elapsed: 20230417 10:05:13.507 / 20230417 10:05:16.508 / 00:00:03.001
10:05:16.508 INFO Slept 3 seconds
KEYWORD SeleniumLibrary.Clear Element Text xpath:/html/body/div[2]/div/div/div/div[2]/div/form/div[1]/input
Documentation: Clears the value of the text-input-element identified by locator.
Start / End / Elapsed: 20230417 10:05:16.508 / 20230417 10:05:16.526 / 00:00:00.018
KEYWORD BuiltIn.Sleep 3
Documentation: Pauses the test executed for the given time.
Start / End / Elapsed: 20230417 10:05:16.526 / 20230417 10:05:19.527 / 00:00:03.001
10:05:19.527 INFO Slept 3 seconds
KEYWORD SeleniumLibrary.Close Browser
Documentation: Closes the current browser.
Start / End / Elapsed: 20230417 10:05:19.528 / 20230417 10:05:21.620 / 00:00:02.092

2- radiobutton.robot

Test Execution Log

- SUITE Radiobutton	
Full Name:	Radiobutton
Source:	C:\Users\PC_4077\Desktop\Robot_Automation-master\Automation\radiobutton.robot
Start / End / Elapsed:	20230417 10:45:52.062 / 20230417 10:46:28.121 / 00:00:36.059
Status:	1 test total, 1 passed, 0 failed, 0 skipped
- TEST checking radio buttons and check boxes	
Full Name:	Radiobutton.checking radio buttons and check boxes
Start / End / Elapsed:	20230417 10:45:52.218 / 20230417 10:46:28.117 / 00:00:35.899
Status:	PASS
- KEYWORD SeleniumLibrary. Open Browser \${url}, \${browser}	
Documentation:	Opens a new browser instance to the optional url.
Start / End / Elapsed:	20230417 10:45:52.218 / 20230417 10:45:53.683 / 00:00:01.465
10:45:52.219	INFO opening browser 'chrome' to base url 'https://sauravsarkar-codersarcade.github.io/ca_automationpractice.com/'.
- KEYWORD SeleniumLibrary. Maximize Browser Window	
Documentation:	Maximizes current browser window.
Start / End / Elapsed:	20230417 10:45:53.684 / 20230417 10:45:53.799 / 00:00:00.115
- KEYWORD SeleniumLibrary. Set Selenium Speed 2seconds	
Documentation:	Sets the delay that is waited after each Selenium command.
Start / End / Elapsed:	20230417 10:45:53.800 / 20230417 10:45:53.801 / 00:00:00.001
- KEYWORD SeleniumLibrary. Select Radio Button gender, female	
Documentation:	Sets the radio button group group_name to value.
Start / End / Elapsed:	20230417 10:45:53.801 / 20230417 10:45:59.848 / 00:00:06.047
10:45:53.801	INFO Selecting 'female' from radio button 'gender'.
- KEYWORD SeleniumLibrary. Select Checkbox Option 1	
Documentation:	Selects the checkbox identified by locator.
Start / End / Elapsed:	20230417 10:45:59.848 / 20230417 10:46:07.919 / 00:00:08.071
10:45:59.849	INFO Selecting checkbox 'Option 1'.
- KEYWORD SeleniumLibrary. Select Checkbox Option 2	
Documentation:	Selects the checkbox identified by locator.
Start / End / Elapsed:	20230417 10:46:07.919 / 20230417 10:46:15.974 / 00:00:08.055
10:46:07.920	INFO Selecting checkbox 'Option 2'.
- KEYWORD SeleniumLibrary. Unselect Checkbox Option 2	
Documentation:	Removes the selection of checkbox identified by locator.
Start / End / Elapsed:	20230417 10:46:15.975 / 20230417 10:46:24.058 / 00:00:08.083
10:46:15.976	INFO Unselecting checkbox 'Option 2'.
- KEYWORD SeleniumLibrary. Close Browser	
Documentation:	Closes the current browser.
Start / End / Elapsed:	20230417 10:46:24.059 / 20230417 10:46:28.116 / 00:00:04.057

Database Automation Testing

Veritabanı Kitaplığı, Robot Framework'ün kullanımına yönelik yardımcı programları içerir. Bu, sonuçları doğrulamak için bir eylem yapıldıktan sonra veritabanınızı sorgulamanıza izin verebilir.

```
1  *** Settings ***
2  Library      DatabaseLibrary
3  Library      OperatingSystem
4
5
6  Suite Setup   Connect To Database    pymysql    ${DBName}    ${DBUser}    ${DBPass}    ${DBHost}    ${DBPort}
7  Suite Teardown Disconnect From Database
8
9  *** Variables ***
10 ${DBName}    sakila
11 ${DBUser}    root
12 ${DBPass}    YES
13 ${DBHost}    127.0.0.1
14 ${DBPort}    3306
15
16 *** Test Cases ***
17 #Create country table
18 # ${output}=    Execute Sql String    Create table person(id integer,first_name varchar(20),last_name varchar(20))
19 # Log To Console    ${output}
20 # Should Be Equal As Strings    ${output}    None
21
22 ▶ Inserting Data in person Table
23     ${output}=    Execute Sql String    Insert into person values(103,"Berra","Solmaz");
24     Log to console    ${output}
25     Should Be Equal As Strings    ${output}    None
26
27
28 ▶ Check Hilal record present in Person Table
29     Check If Exists In Database    select id from sakila.person where first_name= "Hilal";
30
31 ▶ Check Ahmet record Not present in Person Table
32     Check If Not Exists In Database    select id from sakila.person where first_name="Ahmet";
33
34 ▶ Check person table exist in my sakila database
35     Table Must Exist    person
36
37
38 ▶ verify Row Count is Zero
39     row count is 0    SELECT * FROM sakila.person WHERE first_name='xyz';
```

```
▶ verify Row Count is Greater to Some Value
    Row Count Is Greater Than X    SELECT * FROM sakila.person WHERE first_name= 'Hilal';    1

▶ verify Row Count is Less to Some Value
    Row Count Is Less Than X    SELECT * FROM sakila.person WHERE first_name= 'Hilal';    5

▶ Update record in person table
    ${output}=    Execute Sql String    Update sakila.person set first_name="Furkan" where id=103;
    Log To Console    ${output}
    Should Be Equal As Strings    ${output}    None
```

MYSQL VERİLERİ

SCHEMAS

Filter objects

- city
- country
- customer
- film
- film_actor
- film_category
- film_text
- inventory
- language
- payment
- person

Limit to 1000 rows

```
1 • SELECT * FROM sakila.person;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content: [IA](#)

	id	first_name	last_name
▶	101	Hilal	Solmaz
	101	Hilal	Solmaz
	101	Hilal	Solmaz
	101	Hilal	Solmaz
	103	Furkan	Solmaz
	103	Furkan	Solmaz
	103	Furkan	Solmaz
	103	Furkan	Solmaz

Tüm testler başarıyla geçmiştir.

```
PS C:\Users\PC_4077\PycharmProjects\pythonProject1> robot Automation\DataBaseTest.robot
=====
DataBaseTest
=====
Inserting Data in person Table                               .None
Inserting Data in person Table                               | PASS |
-----
Check Hilal record present in Person Table                   | PASS |
-----
Check Ahmet record Not present in Person Table               | PASS |
-----
Check person table exist in my sakila database               | PASS |
-----
verify Row Count is Zero                                     | PASS |
-----
verify Row Count is Greater to Some Value                    | PASS |
-----
verify Row Count is Less to Some Value                       | PASS |
-----
Update record in person table                               .None
Update record in person table                               | PASS |
-----
DataBaseTest                                                 | PASS |
8 tests, 8 passed, 0 failed
=====
```

Inputvalidation Log

Generated

20230417 10:05:21 UTC+03:00

34 minutes 55 seconds ago

Test Statistics

Total Statistics	Total	Pass	Fail	Skip	Elapsed	Pass / Fail / Skip
All Tests	1	1	0	0	00:00:16	
Statistics by Tag	Total	Pass	Fail	Skip	Elapsed	Pass / Fail / Skip
No Tags						
Statistics by Suite	Total	Pass	Fail	Skip	Elapsed	Pass / Fail / Skip
Inputvalidation	1	1	0	0	00:00:16	

Test Execution Log

SUITE

Inputvalidation

Full Name: Inputvalidation

Source: C:\Users\PC_4077\Desktop\Robot_Automation-master\Automation\inputvalidation.robot

Start / End / Elapsed: 20230417 10:05:05.227 / 20230417 10:05:21.624 / 00:00:16.397

Status: 1 test total, 1 passed, 0 failed, 0 skipped

TEST

ValidationTest

Full Name: Inputvalidation.ValidationTest

Start / End / Elapsed: 20230417 10:05:05.376 / 20230417 10:05:21.622 / 00:00:16.246

Status: PASS

KEYWORD

SeleniumLibrary.Open Browser \${url}, \${browser}

Documentation: Opens a new browser instance to the optional url.

Start / End / Elapsed: 20230417 10:05:05.377 / 20230417 10:05:10.269 / 00:00:04.892

10:05:05.377 INFO Opening browser 'chrome' to base url 'https://www.flipkart.com'.

KEYWORD

SeleniumLibrary.Wait Until Page Contains \${url}

Documentation: Waits until text appears on the current page.

Start / End / Elapsed: 20230417 10:05:10.270 / 20230417 10:05:10.281 / 00:00:00.011

KEYWORD

SeleniumLibrary.Maximize Browser Window

Documentation: Maximizes current browser window.

Start / End / Elapsed: 20230417 10:05:10.281 / 20230417 10:05:10.393 / 00:00:00.112

KEYWORD

SeleniumLibrary.Title Should Be Online Shopping Site for Mobiles, Electronics, Furniture, Grocery, Lifestyle, Books & More. Best Offers!

Documentation: Verifies that the current page title equals title.

Start / End / Elapsed: 20230417 10:05:10.394 / 20230417 10:05:10.397 / 00:00:00.003

10:05:10.397 INFO Page title is 'Online Shopping Site for Mobiles, Electronics, Furniture, Grocery, Lifestyle, Books & More. Best Offers!'.

KEYWORD

Set Variable \${input_txt} = xpath://html/body/div[2]/div/div/div/div[2]/div/form/div[1]/input

Documentation: Returns the given values which can then be assigned to a variables.

Start / End / Elapsed: 20230417 10:05:10.397 / 20230417 10:05:10.398 / 00:00:00.001

10:05:10.398 INFO \${input_txt} = xpath://html/body/div[2]/div/div/div/div[2]/div/form/div[1]/input

KEYWORD

SeleniumLibrary.Element Should Be Visible \${input_txt}

Documentation: Verifies that the element identified by locator is visible.

Start / End / Elapsed: 20230417 10:05:10.431 / 20230417 10:05:10.445 / 00:00:00.014

10:05:10.445 INFO Element 'xpath://html/body/div[2]/div/div/div/div[2]/div/form/div[1]/input' is displayed.

KEYWORD

Builtin.Sleep 3

Documentation: Pauses the test executed for the given time.

Start / End / Elapsed: 20230417 10:05:10.445 / 20230417 10:05:13.446 / 00:00:03.001

10:05:13.446 INFO Slept 3 seconds

KEYWORD

SeleniumLibrary.Input Text xpath://html/body/div[2]/div/div/div/div[2]/div/form/div[1]/input, hilalslmaz@outlook.com

Documentation: Types the given text into the text field identified by locator.

Start / End / Elapsed: 20230417 10:05:13.446 / 20230417 10:05:13.507 / 00:00:00.061

10:05:13.446 INFO Typing text 'hilalslmaz@outlook.com' into text field 'xpath://html/body/div[2]/div/div/div/div[2]/div/form/div[1]/input'.

KEYWORD

Builtin.Sleep 3

Documentation: Pauses the test executed for the given time.

Start / End / Elapsed: 20230417 10:05:13.507 / 20230417 10:05:16.508 / 00:00:03.001

10:05:16.508 INFO Slept 3 seconds

KEYWORD

SeleniumLibrary.Clear Element Text xpath://html/body/div[2]/div/div/div/div[2]/div/form/div[1]/input

Documentation: Clears the value of the text-input-element identified by locator.

Start / End / Elapsed: 20230417 10:05:16.508 / 20230417 10:05:16.526 / 00:00:00.018

KEYWORD

Builtin.Sleep 3

Documentation: Pauses the test executed for the given time.

Start / End / Elapsed: 20230417 10:05:16.526 / 20230417 10:05:19.527 / 00:00:03.001

10:05:19.527 INFO Slept 3 seconds

KEYWORD

SeleniumLibrary.Close Browser

Documentation: Closes the current browser.

Start / End / Elapsed: 20230417 10:05:19.528 / 20230417 10:05:21.620 / 00:00:02.092

Test Execution Log

SUITE	Radiobutton
Full Name:	Radiobutton
Source:	C:\Users\PC_4077\Desktop\Robot_Automation-master\Automation\radiobutton.robot
Start / End / Elapsed:	20230417 10:45:52.062 / 20230417 10:46:28.121 / 00:00:36.059
Status:	1 test total, 1 passed, 0 failed, 0 skipped
TEST	checking radio buttons and check boxes
Full Name:	Radiobutton.checking radio buttons and check boxes
Start / End / Elapsed:	20230417 10:45:52.218 / 20230417 10:46:28.117 / 00:00:35.899
Status:	PASS
KEYWORD	SeleniumLibrary. Open Browser \${url}, \${browser}
Documentation:	Opens a new browser instance to the optional url.
Start / End / Elapsed:	20230417 10:45:52.218 / 20230417 10:45:53.683 / 00:00:01.465
10:45:52.219	INFO opening browser 'chrome' to base url 'https://sauravsarkar-codersarcade.github.io/ca_automationpractice.com/'.
KEYWORD	SeleniumLibrary. Maximize Browser Window
Documentation:	Maximizes current browser window.
Start / End / Elapsed:	20230417 10:45:53.684 / 20230417 10:45:53.799 / 00:00:00.115
KEYWORD	SeleniumLibrary. Set Selenium Speed 2seconds
Documentation:	Sets the delay that is waited after each Selenium command.
Start / End / Elapsed:	20230417 10:45:53.800 / 20230417 10:45:53.801 / 00:00:00.001
KEYWORD	SeleniumLibrary. Select Radio Button gender, female
Documentation:	Sets the radio button group group_name to value.
Start / End / Elapsed:	20230417 10:45:53.801 / 20230417 10:45:59.848 / 00:00:06.047
10:45:53.801	INFO Selecting 'female' from radio button 'gender'.
KEYWORD	SeleniumLibrary. Select Checkbox Option 1
Documentation:	Selects the checkbox identified by locator.
Start / End / Elapsed:	20230417 10:45:59.848 / 20230417 10:46:07.919 / 00:00:08.071
10:45:59.849	INFO Selecting checkbox 'option 1'.
KEYWORD	SeleniumLibrary. Select Checkbox Option 2
Documentation:	Selects the checkbox identified by locator.
Start / End / Elapsed:	20230417 10:46:07.919 / 20230417 10:46:15.974 / 00:00:08.055
10:46:07.920	INFO Selecting checkbox 'option 2'.
KEYWORD	SeleniumLibrary. Unselect Checkbox Option 2
Documentation:	Removes the selection of checkbox identified by locator.
Start / End / Elapsed:	20230417 10:46:15.975 / 20230417 10:46:24.058 / 00:00:08.083
10:46:15.976	INFO Unselecting checkbox 'option 2'.
KEYWORD	SeleniumLibrary. Close Browser
Documentation:	Closes the current browser.
Start / End / Elapsed:	20230417 10:46:24.059 / 20230417 10:46:28.116 / 00:00:04.057

Bu raporlamalarda yapılan tüm işlemler açıklamalarıyla birlikte verilir ve kontrolü sağlanır.

1. **Fonksiyonel Testler:** Web uygulamanın işlevselliğini doğrulamak için tasarlanmış testlerdir. Bu testler, kullanıcı etkileşimleri ile web uygulama tarafından sunulan fonksiyonların doğru çalışıp çalışmadığını kontrol eder.
2. **UI Testleri:** Web uygulamanın kullanıcı arayüzünü test etmek için tasarlanmış testlerdir. Bu testler, web sayfasının doğru şekilde yüklenip yüklenmediğini, sayfanın düzgün görüntülendiğini, kullanıcı etkileşimlerinin doğru şekilde çalıştığını kontrol eder.
3. **Performans Testleri:** Web uygulamanın performansını test etmek için tasarlanmış testlerdir. Bu testler, web sayfasının hızlı ve stabil şekilde yüklendiğini, aynı anda birçok kullanıcının erişimine dayanabilecek şekilde tasarlandığını kontrol eder.
4. **Güvenlik Testleri:** Web uygulamanın güvenliğini test etmek için tasarlanmış testlerdir. Bu testler, web sayfasında potansiyel olarak açık olan güvenlik açıklarını tespit eder ve uygulamanın kullanıcı verilerini koruyacak şekilde tasarlandığını doğrular.
5. **Uyumluluk Testleri:** Web uygulamanın farklı platformlar ve tarayıcılar arasında uyumlu olduğunu kontrol etmek için tasarlanmış testlerdir. Bu testler, web sayfasının farklı tarayıcılar, işletim sistemleri ve cihazlarda doğru şekilde yüklendiğini ve çalıştığını kontrol eder.
6. **Veritabanı Testleri:** Web uygulamanın veritabanı işlevselliğini test etmek için tasarlanmış testlerdir. Bu testler, web sayfasındaki verilerin doğru şekilde kaydedildiğini ve alındığını, veritabanındaki işlemlerin doğru şekilde gerçekleştirildiğini doğrular.