

Milestone 3 - Functionality Tests

May 11, 2020

This is a report on functionality tests conducted within Milestone 3, as a part of Big Data. Our final product is created and maintained with the use of Django, that is also capable of performing functionality tests from the user's point of view.

For testing purposes we used Django LiveServerTestCase module and selenium library. For the moment two main functionalities were tested: page loading time and image loading correctness. Below is the source code of tests.py

```
from django.test import LiveServerTestCase
from selenium import webdriver
from time import time

class AnonymousUserTests(LiveServerTestCase):

    fixtures = ['functional_tests/fixtures.json']

    def setUp(self):
        self.browser = webdriver.Firefox()

    def tearDown(self):
        self.browser.quit()

    def test_index_page_loading_time(self):
        start_time = time()
        self.browser.get(self.live_server_url)
        self.assertLess(time()-start_time, 10)

    def test_images_are_displayed_correctly(self):
        self.browser.get(self.live_server_url)
        images = self.browser.find_elements_by_css_selector('img')
        for image in images:
            self.assertTrue(
                self.browser.execute_script(
                    "return arguments[0].complete &&"
```

```

        typeof arguments[0].naturalWidth != \"undefined\" &&
        arguments[0].naturalWidth > 0\", image)
    )

```

Test 1

We assume that a user will enjoy our website if the content will be fluid. Therefore we want to test whether website with its content is displayed in less than 10 seconds. Our goal is to obtain much better results, less than 2 seconds per request.

```

def test_index_page_loading_time(self):
    start_time = time()
    self.browser.get(self.live_server_url)
    self.assertLess(time()-start_time, 10)

```

```

(env) (base) ***$ python3 manage.py test functional_tests.tests.AnonymousUserTests...
test_index_page_loading_time
Creating test database for alias 'default'...
System check identified no issues (0 silenced).
.

```

```

-----
Ran 1 test in 13.354s

```

OK

```

Destroying test database for alias 'default'...

```

Our product passed the test.

Test 2

We expect that all the content is displayed properly and images are visible on the website.

```

def test_images_are_displayed_correctly(self):
    self.browser.get(self.live_server_url)
    images = self.browser.find_elements_by_css_selector('img')
    for image in images:
        self.assertTrue(
            self.browser.execute_script(
                "return arguments[0].complete &&
                typeof arguments[0].naturalWidth != \"undefined\" &&
                arguments[0].naturalWidth > 0\", image)
        )

```

```
(env) (base) ***$ python3 manage.py test functional_tests.tests.AnonymousUserTests...
test_images_are_displayed_correctly
Creating test database for alias 'default'...
System check identified no issues (0 silenced).
.
```

```
-----
Ran 1 test in 13.497s
```

```
OK
```

```
Destroying test database for alias 'default'...
```

Our product passed the test.

Summary

The functionality tests we performed confirmed high quality of our product and ensured us that the user might fully enjoy our website.