Functional Testing

GUI Testing

GUI testing refers to testing the Graphical User Interface of an application. Python provides various frameworks for GUI testing and one of the popular ones is Selenium. Selenium is a tool commonly used for automating web browsers. It refers to the process of automating web browser interactions to verify the functionality of the web application.

Selenium provides a range of features and tools for testing, including the ability to interact with various web elements such as buttons, forms, and links, as well as the ability to simulate user actions such as mouse clicks, keystrokes, and scrolling. Additionally, Selenium can be integrated with other testing tools and frameworks, allowing for more comprehensive testing of web applications.

Testing Login Page

```
16
17    def test_login():
18        driver = webdriver.Chrome()
19
20        driver.maximize_window()
21        driver.get("https://project-management-system.up.railway.app/login/")
22
23        # Find the username input element and enter a value
24        username_input = driver.find_element(By.NAME, "username")
25        username_input.clear()
26        username_input.send_keys("E000001")
27
28        # Find the password input element and enter a value
```

```
PROBLEMS    DEBUG CONSOLE    TERMINAL    OUTPUT

PS F:\PMS> pytest -rA
========================================= test session starts =========================================
platform win32 -- Python 3.11.0, pytest-7.3.1, pluggy-1.0.0
rootdir: F:\PMS
collected 1 item
[8264:19740:0427/133949.911:ERROR:device_event_log_impl.cc(222)] [13:39:49.911] USB: usb_device_handle_win.cc:1046 Failed t
o read descriptor from node connection: A device attached to the system is not functioning. (0x1F)
[8264:19740:0427/133949.912:ERROR:device_event_log_impl.cc(222)] [13:39:49.912] USB: usb_device_handle_win.cc:1046 Failed t
o read descriptor from node connection: A device attached to the system is not functioning. (0x1F)
.                                                                            [100%]

========================================= PASSES =========================================
========================================= short test summary info =========================================
PASSED ProjectManagementSystemApp/gui_test.py::test_login
========================================= 1 passed in 14.24s =========================================
```

This is an automated functional test script for testing a login functionality of a web application.

It uses the Selenium WebDriver library to automate the web browser actions such as navigating to the login page, entering login credentials, submitting the login form, and asserting the expected result after login.

The test script also includes some additional actions such as maximizing the browser window, waiting for the page to load, and closing the browser after the test execution.

Testing Log out Button


```python
46  ∨ def test_logout():
47        driver = webdriver.Chrome()
48
49        driver.maximize_window()
50        driver.get("https://project-management-system.up.railway.app/login/")
51
52        # Find the username input element and enter a value
53        username_input = driver.find_element(By.NAME, "username")
54        username_input.clear()
55        username_input.send_keys("E000001")
56
57        # Find the password input element and enter a value
58        password_input = driver.find_element(By.NAME, "password")
59        password_input.clear()
60        password_input.send_keys("pass")
61
```

```
PROBLEMS    DEBUG CONSOLE    TERMINAL    OUTPUT

PS F:\PMS> pytest -rA
======================================= test session starts =======================================
platform win32 -- Python 3.11.0, pytest-7.3.1, pluggy-1.0.0
rootdir: F:\PMS
collected 1 item


======================================== PASSES ========================================
=================================== short test summary info ===================================
PASSED ProjectManagementSystemApp/gui_test.py::test_logout
================================= 1 passed in 17.88s =================================
```

Testing to view Projects from the employee dashboard

```
46
47    def test_view_Projects_employee():
48        driver = webdriver.Chrome()
49
50        driver.maximize_window()
51        driver.get("https://project-management-system.up.railway.app/login/")
52
53        # Find the username input element and enter a value
54        username_input = driver.find_element(By.NAME, "username")
55        username_input.clear()
56        username_input.send_keys("E000002")
57
58        # Find the password input element and enter a value
59        password_input = driver.find_element(By.NAME, "password")
```

PROBLEMS   DEBUG CONSOLE   TERMINAL   OUTPUT

```
PS F:\PMS> pytest -rA
================================================ test session starts ================================================
platform win32 -- Python 3.11.0, pytest-7.3.1, pluggy-1.0.0
rootdir: F:\PMS
DevTools listening on ws://127.0.0.1:53343/devtools/browser/ac54eed3-77d9-4328-865e-213bbc7ea35b
[6744:11904:0426:212701.200:ERROR:cert_issuer_source_aia.cc(34)] Error parsing cert retrieved from AIA (as DER):
ERROR: Couldn't read tbsCertificate as SEQUENCE
ERROR: Failed parsing Certificate

.                                                                                            [100%]


==================================================== PASSES ====================================================
=============================================== short test summary info ===============================================
PASSED ProjectManagementSystemApp/gui_test.py::test_view_Projects_employee
================================================= 1 passed in 10.41s =================================================
```

Testing to view Resources from the employee dashboard

```
72
73
74    def test_view_Resources_employee():
75        driver = webdriver.Chrome()
76
77        driver.maximize_window()
78        driver.get("https://project-management-system.up.railway.app/login/")
79
80        # Find the username input element and enter a value
81        username_input = driver.find_element(By.NAME, "username")
82        username_input.clear()
83        username_input.send_keys("E000002")
84
85        # Find the password input element and enter a value
```

PROBLEMS   DEBUG CONSOLE   TERMINAL   OUTPUT

```
PS F:\PMS> pytest -rA
================================================ test session starts ================================================
collected 1 item

ProjectManagementSystemApp\gui_test.py
DevTools listening on ws://127.0.0.1:55932/devtools/browser/c4fc43f0-ad8f-4ec6-ba25-19baa382b629
[5340:19840:0426:213045.240:ERROR:cert_issuer_source_aia.cc(34)] Error parsing cert retrieved from AIA (as DER):
ERROR: Couldn't read tbsCertificate as SEQUENCE
ERROR: Failed parsing Certificate

.                                                                                            [100%]


==================================================== PASSES ====================================================
=============================================== short test summary info ===============================================
PASSED ProjectManagementSystemApp/gui_test.py::test_view_Resources_employee
================================================= 1 passed in 9.73s =================================================
```

Testing to view Teams from the Manager dashboard

```
ProjectManagementSystemApp >  gui_test.py >  test_view_Teams_Manager
101
102   def test_view_Teams_Manager():
103       driver = webdriver.Chrome()
104
105       driver.maximize_window()
106       driver.get("https://project-management-system.up.railway.app/login/")
107
108       # Find the username input element and enter a value
109       username_input = driver.find_element(By.NAME, "username")
110       username_input.clear()
111       username_input.send_keys("PM00001")
112
113       # Find the password input element and enter a value
```

```
PROBLEMS    DEBUG CONSOLE    TERMINAL    OUTPUT

=========================================== test session starts ===========================================
platform win32 -- Python 3.11.0, pytest-7.3.1, pluggy-1.0.0
rootdir: F:\PMS
collected 1 item

ProjectManagementSystemApp\gui_test.py
DevTools listening on ws://127.0.0.1:59732/devtools/browser/e50e4e34-7432-49a6-8124-12e425237d09
[7672:24276:0426/213251.408:ERROR:cert_issuer_source_aia.cc(34)] Error parsing cert retrieved from AIA (as DER):
ERROR: Couldn't read tbsCertificate as SEQUENCE
ERROR: Failed parsing Certificate

.                                                                                        [100%]

=========================================== PASSES ===========================================
========================================= short test summary info =========================================
PASSED ProjectManagementSystemApp/gui_test.py::test_view_Teams_Manager
========================================= 1 passed in 9.18s =========================================
```

Testing to view Tasks from the Manager dashboard

```
198   def test_view_task_manager():
199       driver = webdriver.Chrome()
200
201       driver.maximize_window()
202       driver.get("https://project-management-system.up.railway.app/login/")
203
204       # Find the username input element and enter a value
205       username_input = driver.find_element(By.NAME, "username")
206       username_input.clear()
207       username_input.send_keys("PM00002")
208
209       # Find the password input element and enter a value
210       password_input = driver.find_element(By.NAME, "password")
```

```
PROBLEMS    DEBUG CONSOLE    TERMINAL    OUTPUT

=========================================== test session starts ===========================================
platform win32 -- Python 3.11.0, pytest-7.3.1, pluggy-1.0.0
rootdir: F:\PMS
collected 1 item

ProjectManagementSystemApp\gui_test.py
DevTools listening on ws://127.0.0.1:57445/devtools/browser/66c8377c-d153-4f6f-9099-a2edb208d43c
[17852:22964:0426/222751.452:ERROR:cert_issuer_source_aia.cc(34)] Error parsing cert retrieved from AIA (as DER):
ERROR: Couldn't read tbsCertificate as SEQUENCE
ERROR: Failed parsing Certificate

.                                                                                        [100%]

=========================================== PASSES ===========================================
========================================= short test summary info =========================================
PASSED ProjectManagementSystemApp/gui_test.py::test_view_task_manager
========================================= 1 passed in 14.74s =========================================
```

Testing to view Resources from the Employee dashboard

```python
74    def test_view_Resources_employee():
75        driver = webdriver.Chrome()
76
77        driver.maximize_window()
78        driver.get("https://project-management-system.up.railway.app/login/")
79
80        # Find the username input element and enter a value
81        username_input = driver.find_element(By.NAME, "username")
82        username_input.clear()
83        username_input.send_keys("E000002")
84
85        # Find the password input element and enter a value
86        password_input = driver.find_element(By.NAME, "password")
```

```
PROBLEMS    DEBUG CONSOLE    TERMINAL    OUTPUT

=================================================== test session starts ====================================================
platform win32 -- Python 3.11.0, pytest-7.3.1, pluggy-1.0.0
rootdir: F:\PMS
collected 1 item

ProjectManagementSystemApp\gui_test.py
DevTools listening on ws://127.0.0.1:56348/devtools/browser/4400fbed-4d4b-46c4-a3d7-a26f2feed235
[23792:14736:0426/225340.587:ERROR:cert_issuer_source_aia.cc(34)] Error parsing cert retrieved from AIA (as DER):
ERROR: Couldn't read tbsCertificate as SEQUENCE
ERROR: Failed parsing Certificate

.                                                                                    [100%]

==================================================== PASSES ====================================================
=============================================== short test summary info ================================================
PASSED ProjectManagementSystemApp/gui_test.py::test_view_Resources_employee
==================================================== 1 passed in 13.80s ================================================
```

Testing to Request Resources from the Manager dashboard

```python
130    def test_view_Resource_booking():
131        driver = webdriver.Chrome()
132
133        driver.maximize_window()
134        driver.get("https://project-management-system.up.railway.app/login/")
135
136        # Find the username input element and enter a value
137        username_input = driver.find_element(By.NAME, "username")
138        username_input.clear()
139        username_input.send_keys("PM00001")
140
141        # Find the password input element and enter a value
142        password_input = driver.find_element(By.NAME, "password")
```

```
PROBLEMS    DEBUG CONSOLE    TERMINAL    OUTPUT

=================================================== test session starts ====================================================
platform win32 -- Python 3.11.0, pytest-7.3.1, pluggy-1.0.0
rootdir: F:\PMS
collected 1 item

ProjectManagementSystemApp\gui_test.py
DevTools listening on ws://127.0.0.1:56399/devtools/browser/ed90d434-e99d-4c20-a450-9125b019311b
[20656:17028:0426/225531.183:ERROR:cert_issuer_source_aia.cc(34)] Error parsing cert retrieved from AIA (as DER):
ERROR: Couldn't read tbsCertificate as SEQUENCE
ERROR: Failed parsing Certificate

.                                                                                    [100%]

==================================================== PASSES ====================================================
=============================================== short test summary info ================================================
PASSED ProjectManagementSystemApp/gui_test.py::test_view_Resource_booking
==================================================== 1 passed in 13.08s ================================================
```

Testing to available Resources from the Employee dashboard

```python
161    def test_view_avilable_resources():
162        driver = webdriver.Chrome()
163
164        driver.maximize_window()
165        driver.get("https://project-management-system.up.railway.app/login/")
166
167        # Find the username input element and enter a value
168        username_input = driver.find_element(By.NAME, "username")
169        username_input.clear()
170        username_input.send_keys("E000004")
171
172        # Find the password input element and enter a value
173        password_input = driver.find_element(By.NAME, "password")
```

PROBLEMS   DEBUG CONSOLE   TERMINAL   OUTPUT

```
===================================================== test session starts =====================================================
platform win32 -- Python 3.11.0, pytest-7.3.1, pluggy-1.0.0
rootdir: F:\PMS
collected 1 item

ProjectManagementSystemApp\gui_test.py
DevTools listening on ws://127.0.0.1:57888/devtools/browser/741c9950-25b6-4ce1-bd18-4fee1cdce4d6
[13200:10868:0426/230314.681:ERROR:cert_issuer_source_aia.cc(34)] Error parsing cert retrieved from AIA (as DER):
ERROR: Couldn't read tbsCertificate as SEQUENCE
ERROR: Failed parsing Certificate

.                                                                                        [100%]

===================================================== PASSES =====================================================
================================================= short test summary info =================================================
PASSED ProjectManagementSystemApp/gui_test.py::test_view_avilable_resources
===================================================== 1 passed in 13.41s =====================================================
```

Testing to create a new team from the owner's dashboard

```python
ProjectManagementSystemApp > gui_test.py > test_create_new_team
336
337    def test_create_new_team():
338        driver = webdriver.Chrome()
339
340        driver.maximize_window()
341        driver.get("https://project-management-system.up.railway.app/login/")
342
343        # Find the username input element and enter a value
344        username_input = driver.find_element(By.NAME, "username")
345        username_input.clear()
346        username_input.send_keys("E000010")
347
```

PROBLEMS   DEBUG CONSOLE   TERMINAL   OUTPUT

```
PS F:\PMS> pytest -rA
===================================================== test session starts =====================================================
platform win32 -- Python 3.11.0, pytest-7.3.1, pluggy-1.0.0
rootdir: F:\PMS
collected 1 item

ProjectManagementSystemApp\gui_test.py
DevTools listening on ws://127.0.0.1:53585/devtools/browser/720f2fb0-9ff1-4b99-93be-d956ea1826f8
[23160:16624:0427/035941.938:ERROR:cert_issuer_source_aia.cc(34)] Error parsing cert retrieved from AIA (as DER):
[24392:16860:0427/040031.735:ERROR:ssl_client_socket_impl.cc(992)] handshake failed; returned -1, SSL error code 1, net_err
or -101

.                                                                                        [100%]

===================================================== PASSES =====================================================
================================================= short test summary info =================================================
PASSED ProjectManagementSystemApp/gui_test.py::test_create_new_team
===================================================== 1 passed in 58.12s =====================================================
```

Testing for creating a new project

```
384
385    def test_create_project():
386        driver = webdriver.Chrome()
387
388        driver.maximize_window()
389        driver.get("https://project-management-system.up.railway.app/login/")
390
391        # Find the username input element and enter a value
392        username_input = driver.find_element(By.NAME, "username")
393        username_input.clear()
394        username_input.send_keys("E000010")
395
```

PROBLEMS   DEBUG CONSOLE   **TERMINAL**   OUTPUT

```
=================================================== test session starts ===================================================
platform win32 -- Python 3.11.0, pytest-7.3.1, pluggy-1.0.0
rootdir: F:\PMS
collected 1 item

ProjectManagementSystemApp\gui_test.py
DevTools listening on ws://127.0.0.1:64025/devtools/browser/95506cee-3d72-4a1e-927e-4e17d3a125cb
[24160:8164:0427/044111.322:ERROR:cert_issuer_source_aia.cc(34)] Error parsing cert retrieved from AIA (as DER):
ERROR: Couldn't read tbsCertificate as SEQUENCE
ERROR: Failed parsing Certificate

.                                                                                    [100%]


===================================================== PASSES =====================================================
================================================ short test summary info ================================================
PASSED ProjectManagementSystemApp/gui_test.py::test_create_project
==================================================== 1 passed in 9.61s ====================================================
```