

Practical 9 (Testing)

Aim: To prepare Black Box, White Box Test Suites and Test Cases.

Software requires: Software Testing tools.

Knowledge Required: Testing skills is dependent on the software used to test the software.

Theory/Logic:

Software Testing is evaluation of the software against requirements gathered from users and system specifications. It is an investigation conducted to provide stakeholders with information about the quality of the product or service under test.

Black-box testing alludes to tests that are conducted at the software interface. They are used to determine that software functional are operational, that input is properly accepted and output is correctly produced, and that the integrity of external information (e.g., database) is maintained. It does not consider the internal logic structure that importance.

White-box testing of software is predicated on close examination of procedural detail. Logical paths through the software are tested by providing test cases that exercise specific sets of conditions and/or loops. The status of the program may be examined at various points to determine if the expected or asserted status corresponds to the actual status.

Black Box Testing

Project Name: Charusat Quora

Module Name: Registration

Date of Creation: 29/10/2021

Test case no	Test Scenario	Pre-Conditions	Test Steps	Test Cases	Test Data	Expected Results	Actual Results	Post Conditions	Status
1	User Registration	User should be a Charusatian	Enter Charusat ID, Enter Charusat Email, Enter Password, Click on Register	Enter valid ID and Email	<Valid ID> <Valid Email>	Successful Registration	Successful Registration	Goes to Login Page	Pass
				Enter valid ID and invalid Email	<Valid ID> <invalid Email>	Invalid Username or Email	Invalid Username or Email	Remains on Register page	Pass
				Enter invalid ID	<invalid ID> <Valid>	Invalid Username or Email	Invalid Username or	Remains on Register page	Pass
				Enter invalid ID	<invalid ID> <invalid>	Invalid Username or Email	Invalid Username or	Remains on Register page	Pass

Module Name: Login

Date of Creation: 29/10/2021

Test case no	Test Scenario	Pre-Conditions	Test Steps	Test Cases	Test Data	Expected Results	Actual Results	Post Conditions	Status
1	User Registration	User should be a Charusatian	Enter Charusat ID, Enter Password, Click on Login	Enter valid ID and Password	<Valid ID> <Valid Password>	Successful Login	Successful Login	Goes to Home Page	Pass
				Enter valid ID and invalid Password	<Valid ID> <invalid Password>	Invalid Username or Password	Invalid Username or Password	Remains on Login page	Pass
				Enter invalid ID and valid Password	<invalid ID> <Valid Password>	Invalid Username or Password	Invalid Username or Password	Remains on Login page	Pass
				Enter invalid ID and Password	<invalid ID> <invalid Password>	Invalid Username or Password	Invalid Username or Password	Remains on Login page	Pass

Module Name: Ask

Date of Creation: 29/10/2021

Test Case No	Test Scenario	Pre-Condition	Test Steps	Test Case	Test Data	Expected Result	Actual Result	Post Condition	Status
1	Ask Question	User needs to be login first	Write the question, Post the question	Write Question and Post	Write the Question String	Question upload Successfully	Question upload Successfully	Ask Question	Pass
				Not write Question click post	No Data	Question not upload Successfully	Question not upload Successfully	Ask Question	Pass

Module Name: Answer

Date of Creation: 29/10/2021

Test Case No	Test Scenario	Pre-Condition	Test Steps	Test Case	Test Data	Expected Result	Actual Result	Post Condition	Status
1	Answer Question	User needs to be login first	Write the answer of Question and post it	Write Answer and Post it	Write the Answer String	Question upload Successfully	Question upload Successfully	Answer Question	Pass
				Not write Answer click post	No Data	Question not upload Successfully	Question not upload Successfully	Answer Question	Pass
				Write Answer again in previously Answered Question	Write the Answer String	Question upload Successfully	Question upload Successfully	Answer Question	Pass

Module Name: Comment

Date of Creation: 29/10/2021

Test Case No	Test Scenario	Pre-Condition	Test Steps	Test Case	Test Data	Expected Result	Actual Result	Post Condition	Status
2	Comment	User needs to be login first	Read the question, Post the Comment	Write Comment on Post	Write the Comment String	Comment Successful	Comment Successful	Ask Question	Pass
				Not write Comment click post	No Data	Comment not Successful	Comment not Successful	Ask Question	Pass

Module Name: Vote

Date of Creation: 29/10/2021

Test case no	Test Scenario	Pre-Conditions	Test Steps	Test Cases	Test Data	Expected Results	Actual Results	Post Conditions	Status
1	Upvote/Down vote	User should be Logged in	Click a Button to upvote or downvote	Click Upvote	Click Upvote Button	upvote counts increases by 1	upvote counts increases by 1	upvote counts increases by 1	Pass
				Click Downvote	Click Upvote Button	downvote counts increases by 1	downvote counts increases by 1	downvote counts increases by 1	Pass

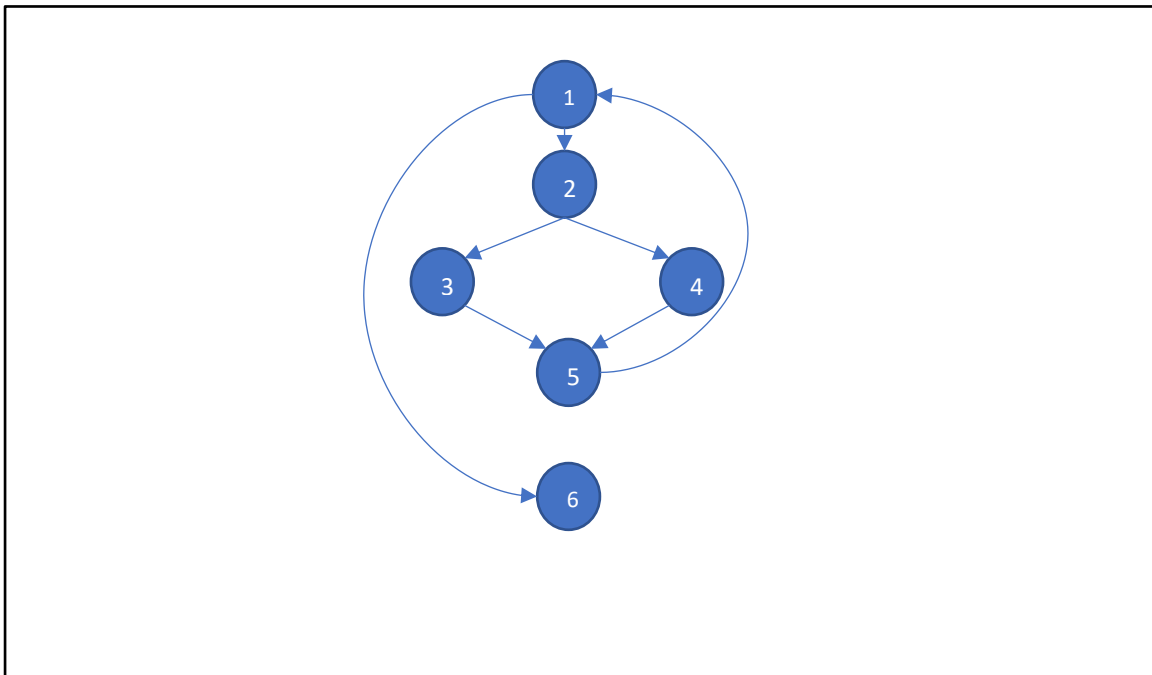
White Box Testing

Code Segment:

```
1      {% for i in quests.paginator.page_range %}
2      {% if quests.number == i %}
3          <li class="page-item active"><a class="page-link" href="#">{{i}}</a></li>
        {% else %}
4          <li class="page-item"><a class="page-link" href="?page={{i}}">{{i}}</a></li>
        {% endif %}
5      {% endfor %}
6      {% if quests.has_next %}
        <li class="page-item"><a class="page-link"
href="?page={{quests.next_page_number}}">Next</a></li>
        {% endif %}
    </ul>
</nav>
{% endif %}
```

Reference path: CharusatQuora\main\templates\tag.html

CFG:



Now, from CFG

$$E = 7, N = 6$$

So, Cyclomatic complexity $V(G) = E - N + 2$

$$= 7 - 6 + 2$$

$$V(G) = 3$$

Cyclomatic complexity $V(G) = 3$

Conclusion:

By performing this practical, we learned the Black-box and white-box testing.