CS458

SOFTWARE VERIFICATION AND VALIDATION

2024-2025 SPRING

PROJECT Part 1

INTRODUCTION TO TEST AUTOMATION (WEB)

You are asked to do the following staff as a team work:

- Implement the web login pages. Attach your code and UML diagrams. The web page asks for user email address/phone number and password and then decides either login or give an error message. You should also implement the login with Google or Facebook account. No need to implement the pages after logged-in with details.

- Attach your code and UML diagrams (Activity, State, Use-case, Sequence, and Class) for log-in features.

- Examine Selenium which automates browsers. List main 10 capabilities.

- Write 5 test cases for your login page.

- Write test automation code for 5 test cases using Selenium for your login page. Attach your code.

- Evaluate your automation experience.

- Explain how test automation contributes to software development life cycle in terms of velocity and quality.

- Prepare a report covering all of the above tasks and follows the instructions below.

<u>**Instructions**</u>

A-Test cases and test automation

- Try to come up with test cases of comprehensive nature. For instance if you say
  - Test case#1: Check how the code responds to valid/invalid name.
  - Test case#2: Check how the code responds to valid/invalid birthdate.
  - Test case#3: Check how the code responds to valid/invalid City. .. etc (you got the idea).

  Those will be considered as 1 test case, not 5. Try to be creative when designing your tests. Take your time when thinking about test cases; this is the most important part of your project. Please remember that, testing should focus on finding errors with minimal effort, then during test case writing, think like test expert not like a developer.

- When automating tests, think about executing thousands of tests in a few seconds. Do not write trivial test codes that require the simple interaction of the end-user (such as examining the behavior of the application during a test by displaying a pop-up message).

B-Report preparation:

The report should have the following properties:

- It should contain screenshots as well as UML diagrams of the actual application.
- It should contain important **excerpts** of the test code, explaining how those excerpts correspond to the automation of your test cases.
- It **should not** exceed 20 pages including the cover page.
- It **should** contain your code of the project not the code libraries. Auto-generated HTML or CSS codes should not be included. Your code should be submitted next to the report as discussed in the following.
- The report should be self-contained. That is, the reader shouldn't feel the need to refer to your code for understanding what you have done, s/he only needs to refer to the code if s/he feels curious about some implementation detail.
- Cheating is prohibited.
- Your own ideas and your own words are expected.
- Creativity is appreciated.

C-Code submission:

The code can be submitted either as a separate zipped file (attached or a link to online storage) or as a link to an online code repository. The code directory *__must__* contain a README file with information about where to find the source as well as the test codes (or in case you send the whole project, the README file explains how the project is structured and instruction on how to run the code).

D-Submission details:

- Deadline: **3rd of March, 24:00 PM.**
- Email subject: CS458 p#1 submission - [Name][Surname] (of the sender)
- Email body should contain: [Name] [Surname] - [Email address]-[Student ID] of all group members.
- Attach the report in (**pdf format only)** and send to *altunel@bilkent.edu.tr* and TA Giray Akyol (giray.akyol@bilkent.edu.tr) along with the code/ link to code.

E- Frequently Asked Questions:

Q: Can we form our group from different sections?

A: No

Q: Can we form group of 2 or 3 people?

A: Yes, you can, as long as you finish your projects on time.

Q: Do we need to implement sign-up page as well?

A: No, you need to follow the instructions and implement only sign-in part.

Q: Do we need need to implement same pages after successful sign-in?

A: No, create a page that shows successful sign-in.

Q: Do we need to implement different profiles after sign-in?

A: No, profile option is not required.

Q: Do we need to share test users in the report?

A: Yes, you should.

Q: In sign-in with Google or Facebook option, do we need to create different types of users?

A: Yes, you should implement at least one with a Facebook account and one without a Facebook account.

Q: Do we have the liberty to make changes into the UI?

A: In the instructions, it is underlined as sign-in page, therefore no need to add more functionality or complex UI.

Q: Are we supposed to have a database?

A: It depends on your architectural design. Having a database is not a must.

Good luck