BITS F364 Human Computer Interaction

Assignment to test usability of a website

1. **Deadline: 23rd November, 2022, 23:59 hours**
2. Do this assignment in groups of 5 (may be different from other course activities). **Demos will be conducted individually, so make sure each and everyone in the team contributes.**
3. You need to use *Selenium* (https://www.selenium.dev/)
   a. Follow the instructions from class.
   b. You can also refer to the docs here (instructions for Windows users present as well): https://selenium-python.readthedocs.io/ and here: https://www.seleniumhq.org/selenium-ide/docs/en/introduction/getting-started/
   c. **There are two parts in the assignment**. In the first part, you need to write scripts (Selenium WebDriver) which automatically navigates parts of a website to test the response. In the second part you are going to record the session (Selenium IDE) of a user using some websites and analyse the session for different usability parameters.
4. What to do? Write selenium scripts to do the following:
   a. Take the following 6 websites:

https://nrega.nic.in/Nregahome/MGNREGA_new/Nrega_home.aspx
https://www.usa.gov/
https://www.bits-pilani.ac.in/
https://www.isro.gov.in/
https://medium.com/
https://www.education.gov.in/en

   b. For each of these websites, follow (using Selenium) all the hyperlinks on the home page. Note down the link, the time for the corresponding pages to load (take an average of 5 attempts), the number of deadlinks and the number of links that work (Hint: capture the HTTP Status code returned by the server). Do these tasks using the campus network.
   c. Programmatically generate the following table formats:

Website	Link	Link Load Time (average of 5 tries)	Link is dead or timed out (Y/N)

Website	Average Link Load Time "col1"	Number of Dead Links / Time Outs "col2"	Number of Working Links "col3"	Website Score (see below)

To obtain the website score, use the following 2 parameters:

A: normalized Average Link Load Time (Mobile Network)
A = (val(col1) - min(col1)) / (max(col1) - min(col1))

B: Fraction of dead links

B = val(col2) / (val(col2) + val(col3))

Website score = (A + B) / 2
Order the websites by **increasing** order of score in the table.

d. In the next part of the assignment, we are going to do user evaluations for a few websites. We are going to use Selenium IDE to record user sessions
   1. Find 2 users who are proficient in English but not proficient with e-booking (ideal user descriptions, but anything close by will also do). Find a travel route available on Yatra, IRCTC and MakeMyTrip. Ask the user to search and locate the route and perform a booking (you may stop at the Passenger Details/Payment Portal step). Record the user sessions. Change the sequence of the platforms for the two users.

   Write a script to analyse the recordings to find the number of clicks required by the users to perform the bookings on all 3 websites. Compare it with an expert user of the system (you don't need to record the session of the expert user, just observation will do). How many times was the user lost during the navigation? How many times did the user have to click the back button, or start anew, or cancel a course of action? What do these say about the usability of these portals? (You can start recording after logging in to avoid capturing passwords)

What to submit?
A single zip file per group (only one member needs to submit) containing two folders for the two parts a and b and a text file with the names and ID numbers of the group members. In the folder for part a, submit your script, a spreadsheet for the two tables, a PDF file of your observations (2 pages 12 font size max). In the folder for part b, submit the dumps of the session recordings, script to conduct the analysis, a PDF report on your observations (2 pages 12 font size max). All submissions must be made on CMS within the deadline. No email submissions before or after the deadline will be accepted.

Evaluations
You have to present a demo of the assignment to a TA. This is a 15 marks assignment and 5 bonus marks will be awarded if the TA feels your work is very good in terms of implementation, observations and results. Total marks for the assignment is capped at 15. So, if you score 12 in the assignment but your implementation, observations, results and approach stand out, you can get a max(15, 12+5) marks in the assignment.

Honesty
The highest level of academic honesty and sincerity is expected. It is OK to make mistakes and learn honestly. Any attempts at gaming the system or colluding with other groups of students will attract a zero score and also a grade penalty. Repeat offenders will be reported for disciplinary proceedings. All assignments will be checked for collusion using plagiarism software. At the same time, collaboration is encouraged. Please feel free to use the course Piazza forum for collaboration and to ask questions. For a good reference on cheating vs. collaboration see http://www.cse.iitd.ac.in/~mausam/courses/col772/spring2019/

NOTE: This assignment takes more time to complete unlike assignment 1. DO NOT delay it till one or two days before the deadline. Start working on it immediately to score good marks.