WnCC Recruitment Task 2021-22

The recruitment for WnCC convener is open for Freshies. The overview of the general process is as follows:

1. Ground Works
2. Assignments [1-2 conceptual design & programming assignments]
3. Personal Interviews [1-2 Rounds of interviews based on number of applicants]

Submitting the tasks is mandatory for being evaluated & considered for the personal interview.
Deadline - Monday, 24th May 2021, 23:59 IST

You're expected to do any one of the programming tasks (i.e task-1, task-2) and it is mandatory to do task-3

TASKS

Task 1: Maximum Number of Groundworks

Schedule.txt contains the start time and duration of groundworks of different clubs. One cannot attend two sessions if they are running at the same time. Your program should read the data from the .txt file for input and output the maximum number of groundworks one can attend.
You must do the following:

Implement 2 structures:

1. struct Groundwork having the following members:
   - Groundwork's start time
   - Groundwork's duration
   - Groundwork's end time
2. struct Available_Groundworks having the following members:
   - An integer, n (the number of groundworks the student signed up for).
   - An array of type Groundwork array having size n.

Implement 2 functions:

1. Available_Groundworks* initialize (int start_time[ ], int duration[ ], int n)
   Creates an Available_Groundworks object and initializes its elements using the elements in the start_time[ ] and duration[ ] parameters (both are of size n). Here, start time[i] and duration[i] are the respective start time and duration for the i^{th} groundwork. This function must return a pointer to an Available_Groundworks object.

2. int CalculateMaxGroundworks(Available_Groundworks* ptr)
   Returns the maximum number of groundworks the student can attend—without overlap. The next groundwork cannot be attended until the previous groundwork ends.

About the data: The data in the file is in the format: ABCD XX Y, where ABCD represents club name, XX represents the start time, and Y represents the duration in hours.

Task 2: COVID case update

As we are battling the second wave of COVID-19, it is important to stay updated on the daily number of cases to identify the trend. But sometimes, it gets cumbersome to get the number of cases from the state you want. Can you scrape the web to get the daily number of cases?

Your task is to **get the total number of cases in the districts of the state asked by the user in a .csv or .xlsx file.** You can use any website e.g., www.covid19india.org/ or https://www.mohfw.gov.in/

Scraping is essentially pulling text from an HTML page, programmatically. One can extract the HTML code directly, and then parse it for certain strings. In this case, the HTML code would contain the current headlines. One can store it as a string and use normal string methods to extract useful information from it. The wiki link below contains a how-to guide to scraping, along with any additional information you may need for the task.

Alternatively, you could use an Application Program Interface (API). This would essentially mean that you get the job done for yourself. (Google is your best friend ;)). You send a normal HTTP request to an API, and it returns data corresponding to what you asked for. There are extensive tutorials on how to send and receive data to APIs.

Check this out for an overview and resources for Web Scraping:
http://wiki.wncc-iitb.org/wiki/index.php/Web_Scraping

Task 3: In Case You Didn't Know

In case you didn't know, WnCC has an Instagram series called 'InCase You Didn't Know' which takes up any trending topic and describes it such that a person with no background knowledge also enjoys it. Checkout wncc.iitb Instagram handle to know more about the topics we have covered. (There are 11 such posts)

You have to design a post on any new/upcoming tech topic that can be added to our series 'In Case You Didn't Know', (e.g., https://www.instagram.com/p/CDifCm1H71J/). The post should be engaging, simple & clear. It can have a maximum of 10 picture slides. You are free to use tools such as Canva, etc. as per your wish. Put these in a Drive folder and share the link with viewing rights.

Submission Format: Maintain a repository for this assignment on GitHub & include its link in the form where asked. The repository should contain a README.md file mentioning the honor code as we **won't appreciate copying code and have a great way to check for the same.**