DATA VISUALIZATION AND INTERACTIVE DASHBOARDS USING PYTHON

Final Assignment (12.5 %; Due 3rd November 2021)

Submission Points:

Your final sub missions should be 2 things:
1. Zip file of your App project folder
2. Website link of the app deployed by you on Heroku.

Notes:

3. The Dataset for this application is world covid data set.
   o "https://covid.ourworldindata.org/data/owid-covid-data.xlsx"
   o This is a live link which is updated every day. So, in order to use the latest data, you can always read the weblink directly from pandas.
4. The dataset and description of the dataset is given in following link
   o https://github.com/owid/covid-19-data/tree/master/public/data
5. Marks will be given for selecting suitable graphs and including interactive features in the app
6. **As usual give importance to title, axis names, legends, fig size, color maps.**
7. plagiarism, copying, giving, or receiving aid are strictly not permitted and considered as exam violation. (App script will be examined to validate your assignment) but of course you can discuss with your friends and get their help.
8. Selection of graphs is completely arbitrary, but it should explain the question properly.
9. You need to use plotly for your Visualization. (Use your preferred way to render the graph.)
10. Make sure at the bottom part of your app there should be a HTML tag which should be always visible, and it should contain the below lines
    o Created by your name # indexnum

Note: Design and Structure of the App is completely Open. So, it is your creativity to design the app. But points highlighted below will be considered for Grading. So Make sure proper visualizations are included in your app.

Requirements:

1. Include a line chart to track worldwide changes in below variables. **[15 marks]**
   'total_cases', 'new_cases', 'new_deaths', 'total_deaths' [5 marks]
   Interactive features:
   1. Dropdown to select one variable of interest [5 marks]
   2. Data range to select the date of interest [5 marks]

   Note: filter location='world' for this purpose.

2. Create another graph which is similar to graph above but this time a multiple line chart where one line for Sri Lanka and other lines for below Variables. But Sri Lanka line should be always visible. This should also contain the 2 features requested in question 1. **[20 marks]**

   - 'Rest of the world' >> get location=world and subtract it from Sri Lanka in daily series. [3 marks]
   - 'Asia' >> directly obtain it from location=Asia [2 marks]
   - 'SAARCK' >> get these daily series of below countries [Afghanistan, Bangladesh, Bhutan, India, the Maldives, Nepal, Pakistan, and Sri Lanka] and add them [4 marks]
   - Srilanka. [1 mark]

   ❖ Create a check box so user can either select any combination of the 3 variables above (RoW, Asia, SAARCK) with Sri Lanka. [5 marks]

   ❖ Create another dropdown so user can select one of the below aggregation methods to view the data. [5 marks]
      o Daily – Default, Weekly average, Monthly average, 7-day average, 14-day average
   hint: can use Pd.Grouper('Date', freq='') >> 'w', 'm' create weekly and monthly.
   can use df['columnanme']. rolling(roll_num). mean() >> to create rolling averages.

3. Create another multiple line chart to show the daily test_to_detection ratio for Sri Lanka and any other countries. **[10 marks]**
   Test_to_detection = new_tests/new_cases
   Interactive features:
   Dropdown: to select any of the option in the location column. [5 marks]
   Date Range: to select range [5 marks]

4. A scatter plot to show the relationship between Tests and new cases only for Sri Lanka. **[10 marks]**
   Interactive features:
   Date range: to select the dates [5 marks]
   Correlation: Correlation between 2 variables between the selected date range should be printed anywhere near or inside the graph. [5 marks]

5. Create Your own graph with any 2 interactive features using variables you interested.
   So, visualize any important information you feel necessary from this dataset. **[15 marks]**
   For using variables [5 marks]
   Have at least 2 interactive features [5 marks]
   The Quality of the information, developer tried to give it to the user. [5 marks]

6. Using CSS selectors for style the app **[5 marks]**

7. Completely working final app with all the features requested above and zip file **[25 marks]**.

Note: Make sure to preprocess dataset earlier and create necessary datasets if possible, so you can reduce the response time of each interaction by the user. Do not waste lot of time Styling the app. A neat app is sufficient as I give only 5 marks for that. But make sure your app works after deploying.

** End of Assignment **