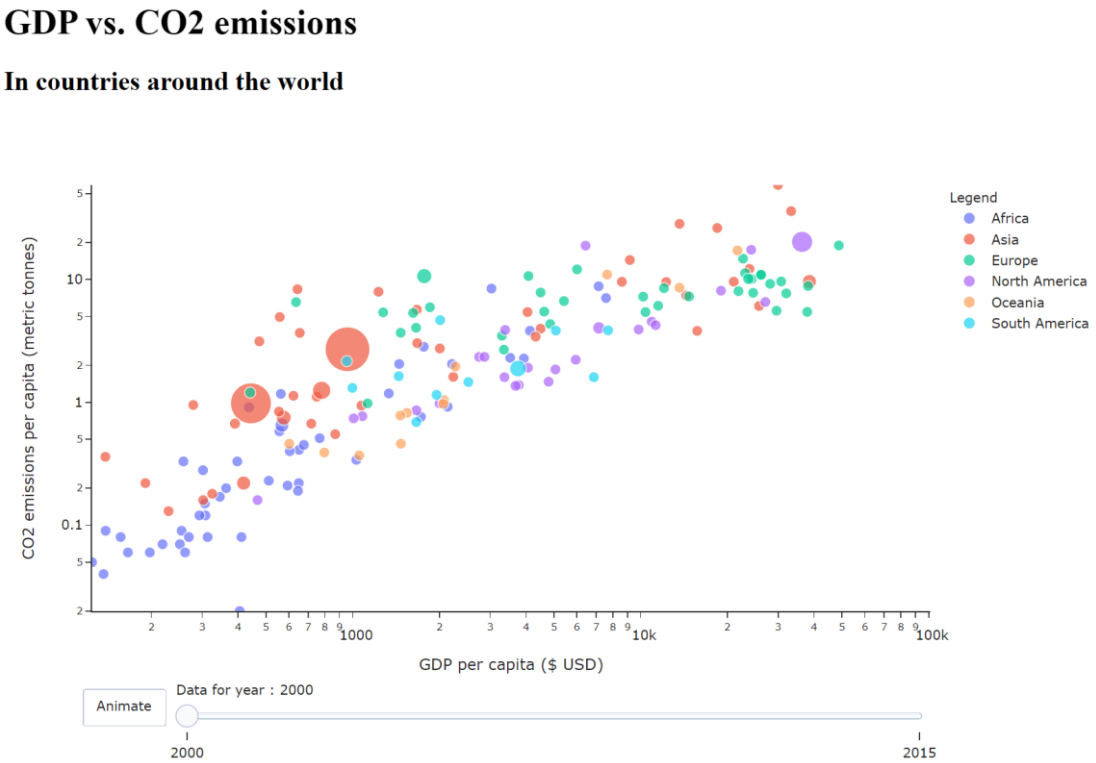
Guide TP4

INF8808 | Summer 2022

Version Python

Objectives

- The objective of this practical work is to create an interactive bubble chart.



Data

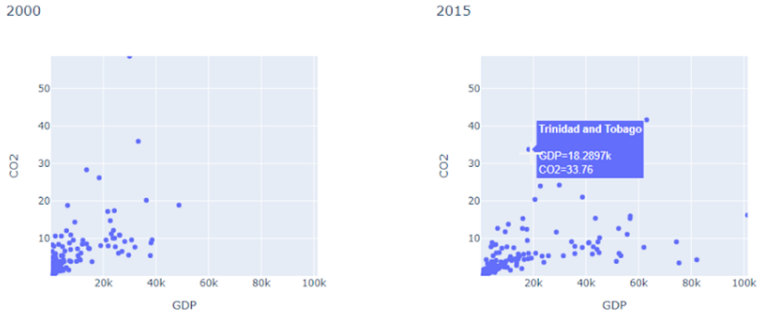
GDP and CO2 emissions

- The dataset contains an array of objects for the years 2000 and 2015.
- Each object contains the following keys:
  - `Country Name` : The name of the country.
  - `GDP` : The GDP per capita in current U.S. dollars.
  - `CO2` : The CO2 emissions per capita in metric tonnes.
  - `Population` : The population of the country.
  - `Continent` : The continent of the country.

Data Exploration

Create point clouds

- For this part, use the Jupyter notebook provided with this assignment
- You will implement the code to create scatterplots for the 2000 and 2015 data
- These graphs will be displayed in an interactive Dash application
- Specific guidelines for the scatterplots are contained in the Jupyter notebook



Trinidad and Tobago

	GDP per capita ($ USD)	CO2 emissions per capita (metric tonnes)
2000	6435.16	18.81
2015	18289.7	33.76

Data Exploration

Create point clouds

- On this part you will have to use advanced Dash callbacks.
- **dash.callback_context**

- Please read more here: https://dash.plotly.com/advanced-callbacks
  section: *Determining which Input Has Fired with dash.callback_context*

Data pre-processing

Rearrange some parts so that they can be properly used by Plotly

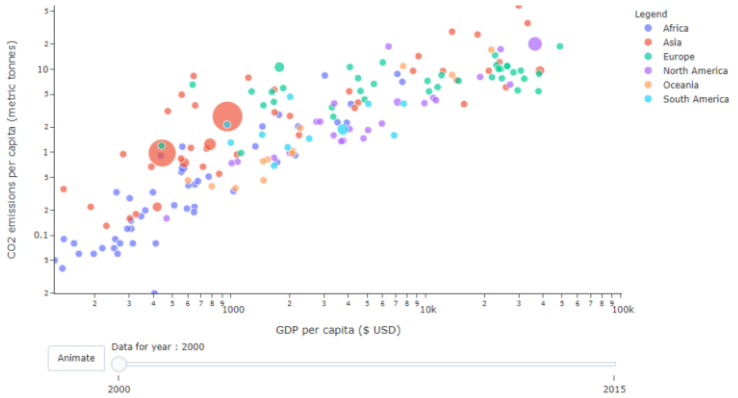
- Round the numbers in the data down so that they have fewer decimal places to display - **'round_decimals'** function. *
- Get the range of possible values for the x and y axis - **'get_range'** function. *
- Combine the data into a structure that is more easily readable by Plotly - function **'combine_dfs'.**
- Sort data by year and continent to simplify display - **'sort_dy_by_yr_continent'** function

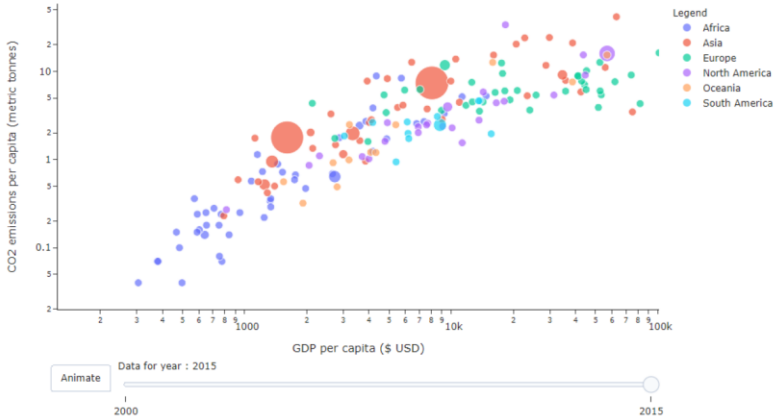
** You can reuse some of your code from your notebook for this step.*

Animated bubble chart

Generate the bubble chart with an animation opposite the year

- Draw the animated bubble chart - **'get_plot'** function. * You can reuse some of your code from your notebook for this step.
- Update the hover template so that it appears on all frames of the animation - function **'update_animation_hover_template'.**
- Simplify the animation menu display - **'update_animation_menu'** function
- Update some visual elements of the figure, such as axis labels, template and legend - **'update_axes_labels', 'update_template'** and **'update_legend'** functions

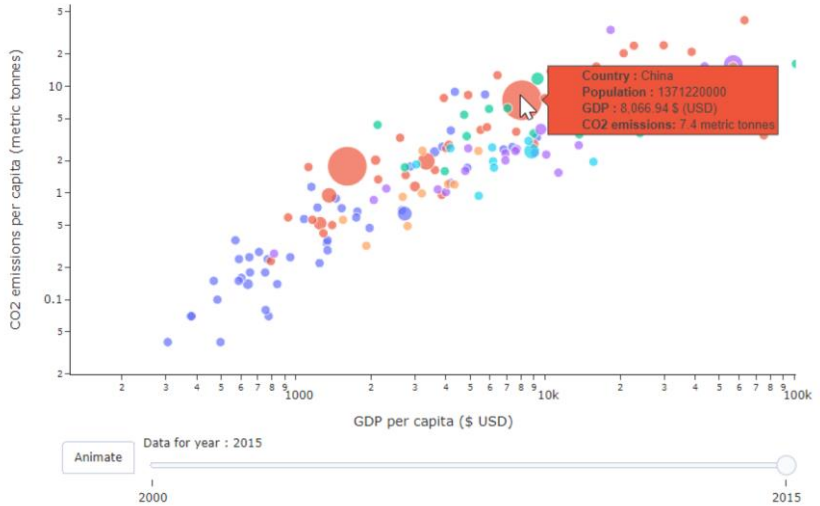




Tooltip

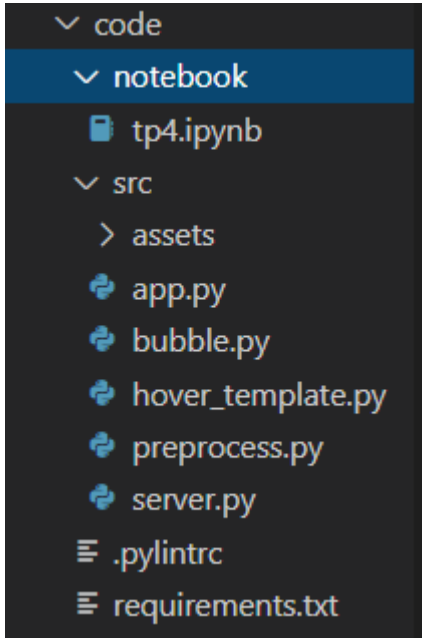
Implement the tooltip

- The tooltip should contain the country name, population, GDP per capita and CO2 emissions per capita, in that order
- The whole code of this section can be written in the **'get_bubble_hover_template'** function



General Info

File Structure



- Create *venv* and install *requirements.txt*
- You don’t need to modify the files ***app.py*** and ***server.py***
- You must fill all the **TODO’s** on the other files.

Soumission

Due date : June 5th 23h59