**Understand COVID-19 through Python Plotting**

**Introduction**

As the COVID-19 pandemic is still ravaging the world, everyone is trying to stay at home as often as possible to avoid getting infected or infect other people. It is important, therefore, to understand what the COVID-19 data looks like and how to interpret the various data such as daily changes and total cases. Most of these data are shown clearly in what is called **histograms** or **bar charts**. In this tutorial, you will be introduced to what is a histogram or bar chart, why a histogram or bar chart is useful and how to use them.

We will be using the computational programming language ***Python*** to draw histograms or bar charts. Don't worry, you don't need to know Python in advance, this tutorial will also introduce you to simple Python programming.

At the end of the tutorial, you will be able to use real data to plot your own COVID-19 cases for your selected counties, or states.

**Running the tutorial**

* Go to <https://mybinder.org/v2/gh/claireshiye/GK12/master>, and then click open the folder **covid\_data\_analysis**.
* First open file **Histogtam\_Tutorial.ipynb** and follow the tutorial and enter your answers to the practice below.

**Answers for the tutorial**

1. Example 1: Which age range of people likes to watch Demon Slayer the most? Copy/paste a screenshot of the hisgram here.

Copy down the code used in this question for histogram plotting in the answer sheet, i.e., **plt.hist(sample\_all)**.

1. **Example 1: Which age ranges of men/women like to watch Demon Slayer the most?** Copy/paste a screenshot of the histograms here.
2. Practice 1: Copy/paste your screenshot here

**(Follow the instruction in between long hashtag marks and fill in the code.)**

Copy down the code used in this question for histogram plotting in the answer sheet, i.e., **plt.hist(nameofdata, color='nameofcolor')**.

1. Example 2: Which Harry Potter book has the biggest share of revenue? Copy/paste a screenshot of the bar chart here.

Copy down the code used in this question for bar chart plotting in the answer sheet.

i.e., **my\_cmap = cm.get\_cmap('jet') (This is used to generate different colors for bars)**

**plt.bar(ind, grosses, color=my\_cmap(my\_norm(ind)), align='edge') (This is used for plotting bars)**

1. Practice 2: Copy/paste your screenshot here.

**(Follow the instruction in between long hashtag marks and fill in the code.)**

Copy down the code used in this question for bar chart plotting in the answer sheet.

* Then go back to the Home page and open file COVID-19\_cases\_histogram.ipynb and finish the project.

1. Plot 1: Copy/paste your screenshot here

**(Follow the instructions in between long hashtag marks in the cell below and enter the main plot command and run the cell.)**

1. Plot 2: Copy/paste your screenshot here

**(Follow the instructions in between long hashtag marks in the cell below and enter the main plot command and run the cell.)**

1. Plot 3: Most of the states have less than how many total number of cases in the plot? Copy/paste your screenshot here

**(Follow the instructions in between long hashtag marks in the cell below and enter the main plot command and run the cell.)**