

# Principles and Applications of Data Science

## Homework #2

Due: May 13, 2020

This assignment is to practice creating a bar graph grid using the tool such as Matplotlib with Taipei's traffic accident data from year 101 (2012) to 108 (2019). The files we provide are the data files (`xxxTraffic_accident.csv`) of eight years and a correspondence table for mapping codes to certain fields (`Traffic_accident_chart.csv`). In the data file, there are fifteen attributes, including *Year*, *Month*, *Day*, *Hour*, *Minute*, *Processing\_class*, *death\_toll*, *Injuries\_Person*, *Vehicle\_type*, *Sex*, *Age*, *Weather*, *Speed\_limit*, *Road\_pattern*, *Accident\_location*. With the data files and table, your homework should be done according to the following **requirements**:

- There are six main topics to be shown in each year:
  1. Number of traffic accident death\_toll per month
  2. Number of traffic accident injuries per month
  3. Number of traffic accident injuries per vehicle\_type (take the top 10)
  4. Number of traffic accident injuries per weather
  5. Number of traffic accident injuries per road\_pattern (take the top 10)
  6. Number of traffic accident injuries per accident\_location (take the top 10)
- Each topic will be presented by a bar chart.
- For each year, use bar graph grid to show the six topics. Thus, there will be eight grids for years and each grid has six bar charts for each topic.
- On the other hand, please produce the grids for the six topics respectively. Each grid will have eight bar charts for the eight years.
- Please do not forget, in each chart, to have the topic on the top and label the x-axis and y-axis.

### About submitting this homework

- Please upload your homework project named as `HW2-SID.ipynb` to **i-school(Plus)** (<https://istudy.ntut.edu.tw/learn/index.php>) platform .
- The **deadline** is the **midnight of May 13, 2020** and **Late work** is not acceptable.
- **Honest Policy**: We encourage students to discuss their work with the peer. However, each student should write the program or the problem solutions on her/his own. Those who copy others work will get 0 on the homework grade.