資料視覺化
Data Visualization

Instructor: 　林金玲
Classroom: 　S303
Active time: 　Tue. 13:10~16:00
Active mode: 　課堂講授，分組討論、實例演練
Office: 　S505（分機 83369）(email: jllin@mail.shu.edu.tw)
Lab.: 　M518 人工智慧暨科技生活研究中心（分機 63481）
Office hour: 　Tue. 11:00~13:00, Wed. 10:00~12:00 or make an appointment
Prerequisite: Basic Computer Concept, Programming Design
Text: 　Abha Belorkar, Sharath Chandra Guntuku, Shubhangi Hora, and Anshu Kumar, "Interactive Data Visualization with Python," 2nd, Packt, 2020.
　　https://github.com/TrainingByPackt/Interactive-Data-Visualization-with-Python

Reference: 　1 Jonathan Schwabish, "Better Data Visualizations – A Guide for Scholars, Researchers, and Wonks," Columbia Univ. Press, New York, 2021.

2 Steve Wexler, "The Big Picture-How to Use Data Visualization to Make Better Decisions-Faster," McGraw Hill, 2021.

3 Christian Tominski, "Interactive Visual Data Analysis," CRC Press, Taylor & Francis Group, 2020.

4 Mario Dobler and Tim Gromann, "Data Visualization with Python – Create an impact with meaningful data insights using interactive and engaging visuals," Packt, 2019.

5 Claus O. Wilke, "Fundamentals of Data Visualization – A primer on Making informative and Compelling Figures," O'Reilly, 2019.

6 James D. Miller, "Big Data Visualization," Packt Publishing, 2017.

7 On-line references
- https://vizartpandey.com/27-data-visualization-books/
- https://www.microsoft.com/en-us/research/project/data-driven-storytelling/
- https://python-graph-gallery.com/
- https://matplotlib.org/
- https://plotly.com/python/
- https://docs.bokeh.org/en/latest/
- https://altair-viz.github.io/

Objective: 　透過資料視覺化工具的使用，從巨量資料中，找出有效且清楚的資訊，轉化成簡單、清楚的視覺化圖像，以助資料的洞察與解析

Grading: 　作業/平時成績　　70%
　　測驗/報告成績　　30%

Extra credit: presence, bonus works, learning attitude

Rules 1: 　課程講授中嚴禁不必要的聲音及干擾課程進行的任何行為或動作，手機、平板等電子裝置請關機，經規勸仍不遵守者，每糾正一次扣學期總成績一分，直至改善或零分為止
　　2: 　作業或報告未依規定繳交以零分計，抄襲則分數為該次成績除以相同版本的人數
　　3: 　期末成績送出校方後，除登記有誤外，不接受修正之要求

Schedule: （課程進度會依學生學習狀況作小弧度調整）

Week	Hours	Topic	Reading
1	3	Introduction	
2	3	Basic Components of DV Environment of DV tools	Tx:Preface
3, 4, 5	9	Getting/Processing Data – Pandas	Tx:Ch1,
6, 7, 8	9	Static DV – Matplotlib, Pandas, Seaborn	Tx:Ch1, 2
9, 10	6	Interactive DV – Bokeh, Plotly	Tx:Ch3
11, 12	6	Interactive DV – Altair	Tx:Ch4
13, 14	6	Case Study 1: Data Across Time	Tx:Ch5
15, 16	6	Case Study 2: Geographical Data	Tx:Ch6
17	3	Avoiding common Pitfalls in IDV	Tx:Ch7*
18	3	Final Evaluation	All of above materials

- 請同學自行於自己常用的電腦中安裝 Anaconda, Git, XAMPP, Excel, lightshot
- * denote option