




程式設計概論

PROGRAMMING 101

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Outline

- Objective
- Content
 - *About Python*
- Grading
- Teaching Assistant (TA)
- About this field
- Grouping
- Q & A

Origin of Python

- The founder of Python is Guido van Rossum Python (吉多·范羅蘇姆, born 31 January 1956)
- Van Rossum received a master's degree in mathematics and computer science from the University of Amsterdam in 1982
- 1989年的聖誕節期間，Van Rossum為了在打發時間，決心開發一個新的指令碼解釋程式
- Van Rossum remains the primary developer of Python.
- His goal is “Computer Programming for everyone”
- Python 2.0 was released on Oct. 16, 2000.
- Python 3.0 was released on Dec. 3, 2008.
- Now, Python 3.12.2: the release date is Feb. 6, 2024



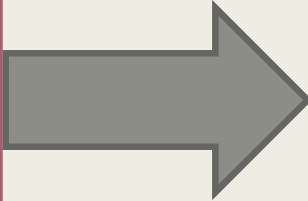
Python

- Easy to learn
 - Powerful
 - Interpreter language
 - Cross-platform
 - Free and open source
 - Portability(可移植性)
 - Embeddability(可嵌入性)
 - ...
- **Various modules**
 - Artificial Intelligence (AI)
 - Data science
 - Machine learning/deep learning
 - Web crawler
 - Big data
 - Object-oriented programming (OOP)
 -

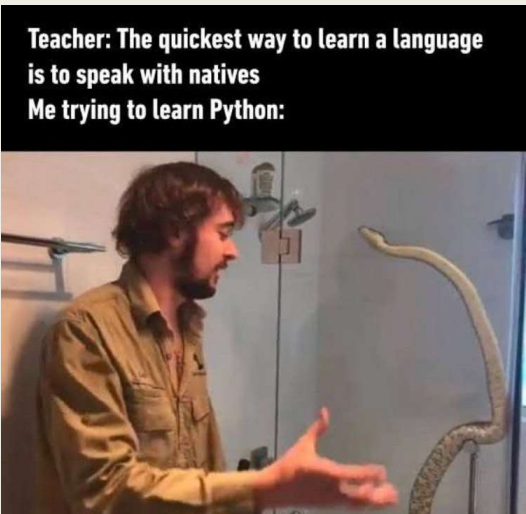


How to write Python programs?(2 steps)

Step 1:
Install Python from the
Website (3.12.1)
<https://www.python.org/>



Step 2:
Install Python
environment system



- Colab (need google account)
- Jupyter Notebook(install anaconda)
- Pycharm community

Grading

- Course participation : 30%
 - *Exercises in class*
 - *2 quizzes in class*
- Homework : 20%
- Midterm : 30%
- Final project : 20%

Contact

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分組說明

- 每組3-4人
- 自行分組、協助分組
- 上課皆將依據組別坐位置 (盡量)

Course in progress

- Do exercises every week and upload Python programs to Moodle

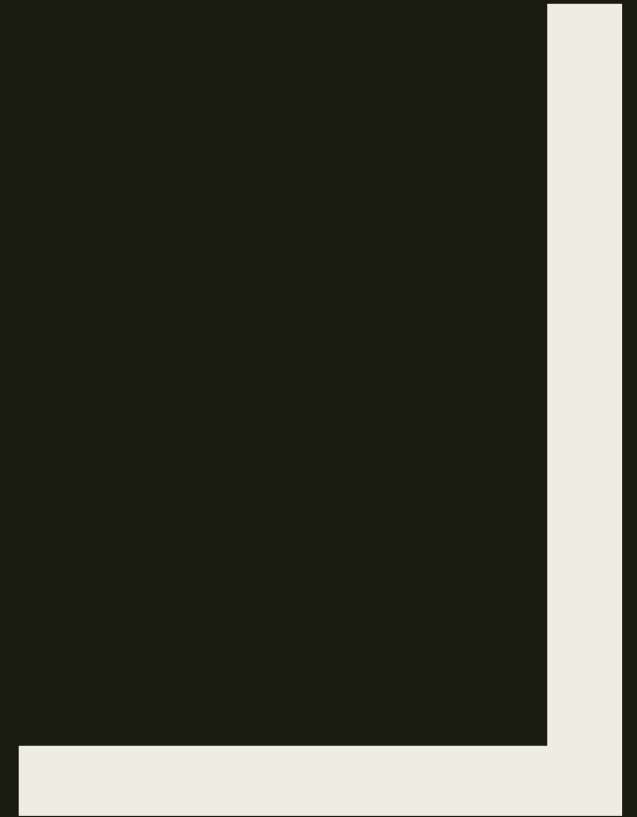
Google Colab：雲端的開發平台

Colaboratory 簡稱Colab，是由 Google 所提供，一個支援Python的雲端開發平台，主要目的是想要幫助人工智慧、機器學習和資訊教育的推廣。

- 開發者不需下載、不需安裝，只需要瀏覽器就可以運作，完全免費。
- 在Colab 中撰寫的程式碼預設是儲存在使用者的Google 雲端硬碟中，執行時由虛擬機器提供強大的運算能力，不會用到本機的資源，而且還提供免費的GPU。
- Colab 預設安裝了一些機器學習時常用的模組，像是TensorFlow、scikit-learn、pandas 等，讓你可以直接使用！



ABOUT THIS FIELD



Needed but not wanted

- 哈佛提供的專業教育與通識教育，哪一項對校友比較有幫助？
 - 40歲以下的大多認為是專業教育
 - 40歲以上的大多認為是通識教育

世界經濟論壇(WEF) <2020未來工作報告>調查2020年線上課程熱門度-1

- 待業者最重視的技能
 1. Python
 2. 演算法
 3. 寫作能力
 4. 策略分析
 5. 人工神經網絡 (AI)

世界經濟論壇(WEF) <2020未來工作報告>調查2020年線上課程熱門度-2

- 在職進修者最重視的技能
 1. 寫作能力
 2. 策略分析
 3. Python
 4. 正念(Mindfulness)
 5. 靜坐與情緒管理

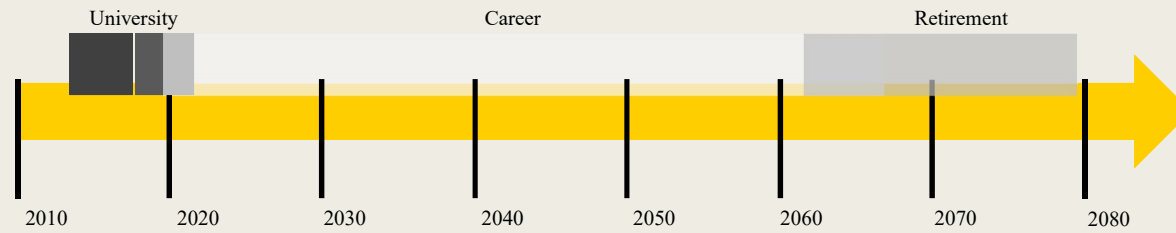


Dow Jones Index – 100 Year Chart

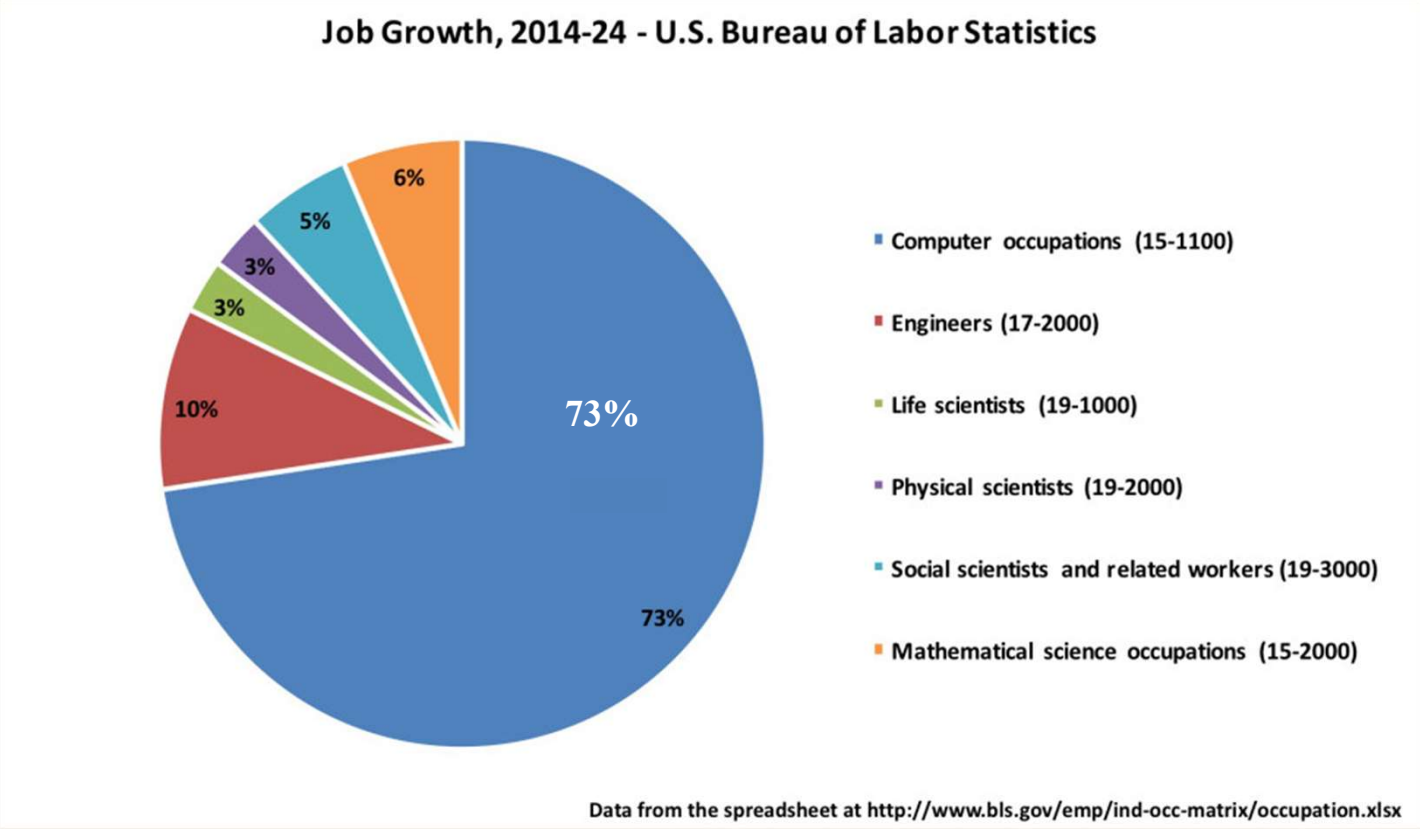
What does the history tell us?



Role of Education = Prepare Students for the Future



Where the Jobs Are (USA)



Market Cap (USA)

2001 Market Cap

1. General Electric
2. Microsoft
3. Exxon Mobile
4. Wal-Mart
5. Citigroup



2021 Market Cap

1. Apple
2. Alphabet, Inc.
3. Microsoft
4. Amazon
5. Tesla

ABOUT TA



About next week

- 建議若有筆電的同學 可以自備筆電來上課
 - 帶筆電，進行Python安裝及相關開發程式平台

Review

- Textbook Chapter1



Q & A