



113-1基礎程式設計(1)

亞大資工系

課程大綱

- Essential-基本的
 - 啟思博的概念(Kissipo Learning)
 - KISS Principle: Colab + Github的使用
 - Anaconda 和Jupyter notebook
 - Hello World程式
 - IPO model: input-process-output (輸入-處理-輸出)
 - Input: input()函數
 - Process: 指定敘述(assignment)
 - Process:內建基本函數的使用(help, type)
 - Output: print()函數
- Advanced-進階的
 - 關於Python 程式語言
 - Python編輯器:IDLE, Spyder, Visual Studio Code, PyCharm
 - Python程式的執行 (Run)
 - Python程式的偵錯 (Debug)

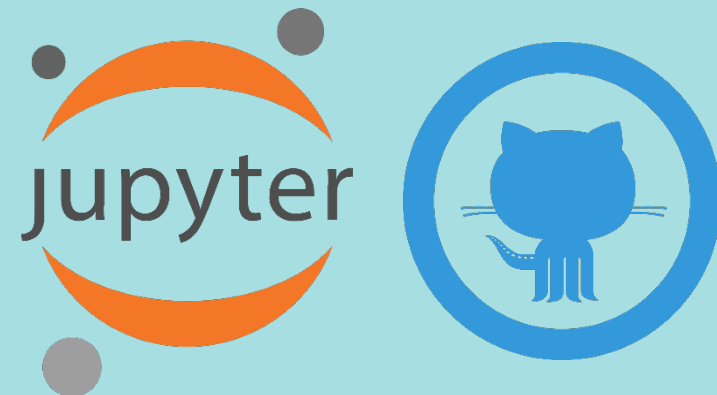


(A) ESSENTIAL-基本的



啟思博教學法

Kissipo = KISS principle + IPO model



啟思博Kissipo 學習法

Kissipo = **KISS** principle + **IPO** model

KISS principle

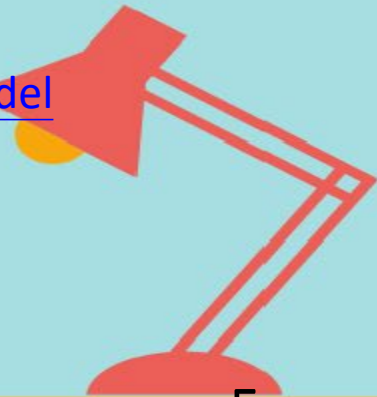
"keep it simple, stupid" or "keep it stupid simple", is a design principle noted by the U.S. Navy in 1960.

https://en.wikipedia.org/wiki/KISS_principle

IPO model

The input–process–output (IPO) model is a widely used approach in systems analysis and software engineering for describing the structure of an information processing program or other process.

https://en.wikipedia.org/wiki/IPO_model



Kissipo Learning for Programming with Python(PWP)

Courseware: Notebook+ Github

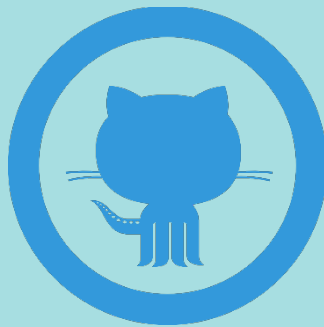
- (1) 使用Notebook(Google Colab)教學。
- (2) 使用Github建立教案

Keep:

Variables and assignment
operator and expression
left-hand side and right-hand side
unpacking

S&S:

help(), type(), len(), size()



IPO-I: input

input()
int(), float(), str()
split(), map()

IPO-P: Process

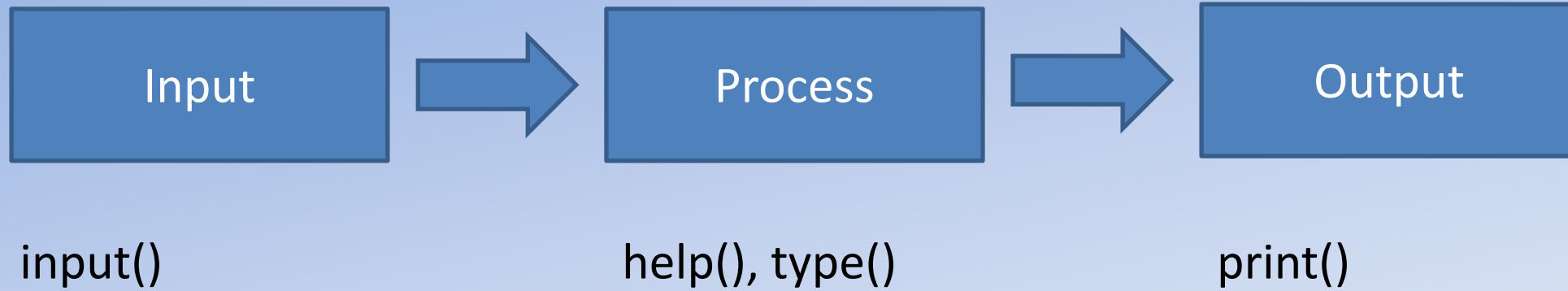
變數宣告, 資料容器
for-loop/while-loop
if, elif, else
range()

IPO-O: output

print()
open(), write()




IPO Model



本章基本觀念是同學要知道：
輸入用, 輸出用`print()`
`help()`可以查看函數或類別的說明
`type()`可以查看變數的型別



使用Notebook(Google Colab)教學



The screenshot displays the Google Colaboratory (Colab) interface. At the top, the 'Welcome To Colaboratory' header is visible, followed by a menu bar with options: File, Edit, View, Insert, Runtime, Tools, and Help. Below the menu bar, there's a sidebar on the left with a 'Table of contents' section, which includes links to 'Getting started', 'Data science', 'Machine learning', 'More Resources', and 'Machine Learning Examples'. The main content area on the right features a 'What is Colaboratory?' section, which explains that Colab allows writing and executing Python in the browser. It lists three key features: 'Zero configuration required', 'Free access to GPUs', and 'Easy sharing'. Below this, a paragraph states that Colab can make work easier for students, data scientists, and AI researchers, with a link to 'Introduction to Colab'. A 'Getting started' section follows, explaining that the document is an interactive 'Colab notebook' and provides an example of a 'code cell' with a short Python script.

PRO Welcome To Colaboratory

File Edit View Insert Runtime Tools Help

Table of contents

- Getting started
- Data science
- Machine learning
- More Resources
- Machine Learning Examples
- Section

+ Code + Text Copy to Drive

What is Colaboratory?

Colaboratory, or "Colab" for short, allows you to write and execute Python in your browser, with

- Zero configuration required
- Free access to GPUs
- Easy sharing

Whether you're a **student**, a **data scientist** or an **AI researcher**, Colab can make your work easier. Watch [Introduction to Colab](#) to learn more, or just get started below!

Getting started

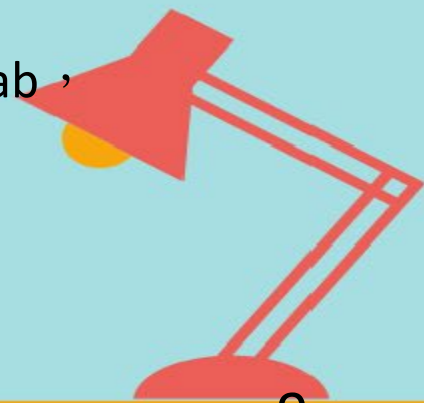
The document you are reading is not a static web page, but an interactive environment called a **Colab notebook** that lets you write and execute code.

For example, here is a **code cell** with a short Python script that computes a value, stores it in a variable, and prints the result:

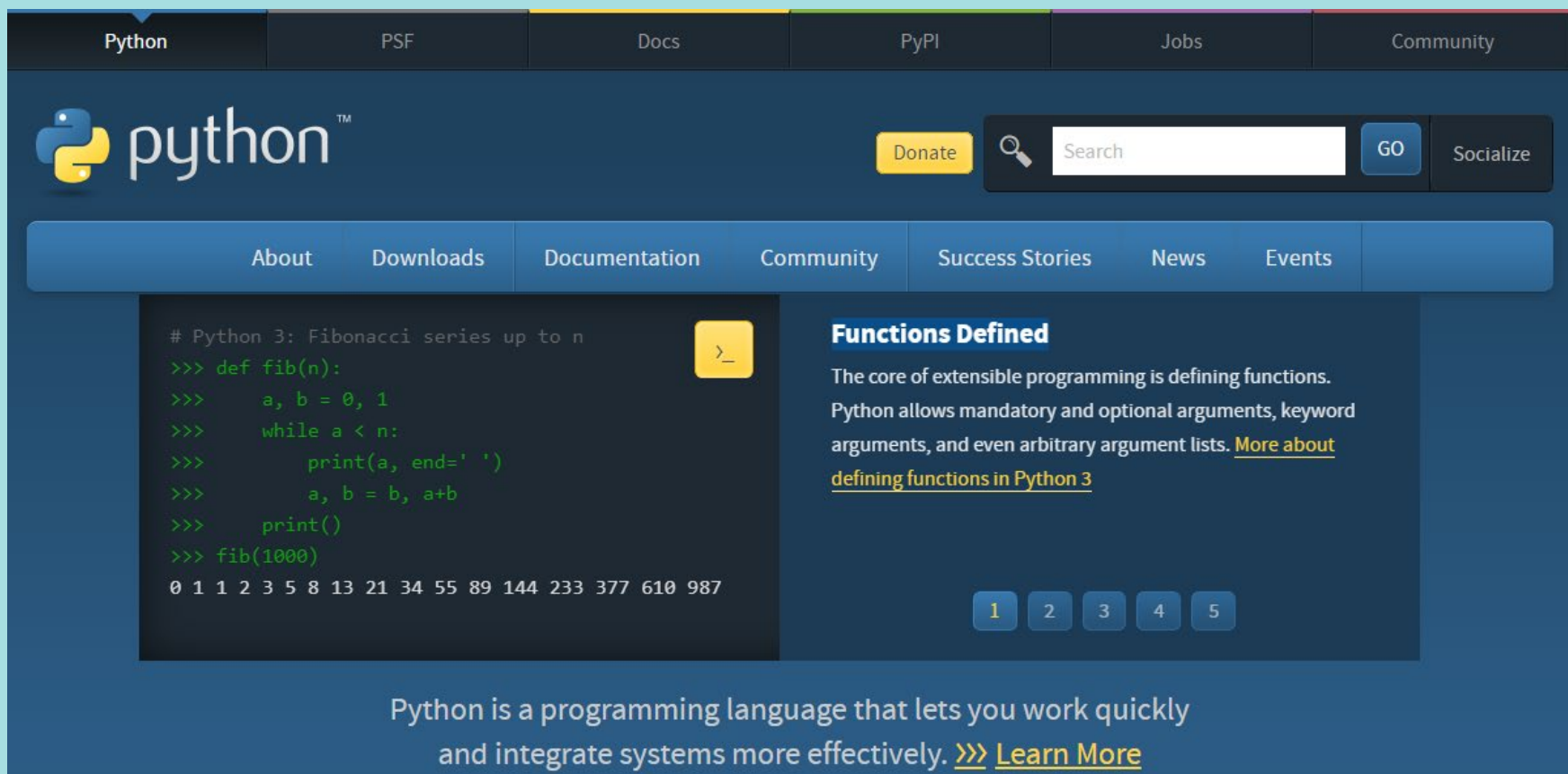
Jupyter Notebooks



- Jupyter是一個非營利組織，旨在「為數十種程式語言的互動式計算開發開源軟件，開放標準和服務」。
- 2014年由Fernando Pérez從IPython中衍生出來，Jupyter支援幾十種語言的執行環境。
- Jupyter Project的名稱是對Jupyter支援的三種核心程式語言的引用，這三種語言是Julia、Python和R。
- 也是對伽利略記錄發現木星的衛星的筆記本的致敬。
- Jupyter專案開發Jupyter Notebook、JupyterHub和JupyterLab，這是Jupyter Notebook的下一代版本。



Python官網的介紹



Python的版本

- 目前版本~~Python 2.7.x~~和Python 3.8.x
- `print` 函数
- Unicode
- 除法运算 //



Sunsetting Python 2



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Python Software Foundation
@ThePSF

CUDA in Your Python: Effective Parallel Programming on the GPU by William Horton. Learn how to speed up your Python programs using Nvidia's CUDA platform.
pyvideo.org/pycolorado-201...

Sunsetting Python 2

We are volunteers who make and take care of the Python programming language. We have decided that **January 1, 2020**, was the day that we sunset Python 2. That means that we will not improve it anymore after that day, even if someone finds a security problem in it. You should upgrade to Python 3 as soon as you can.

(B) ADVANCED-進階的

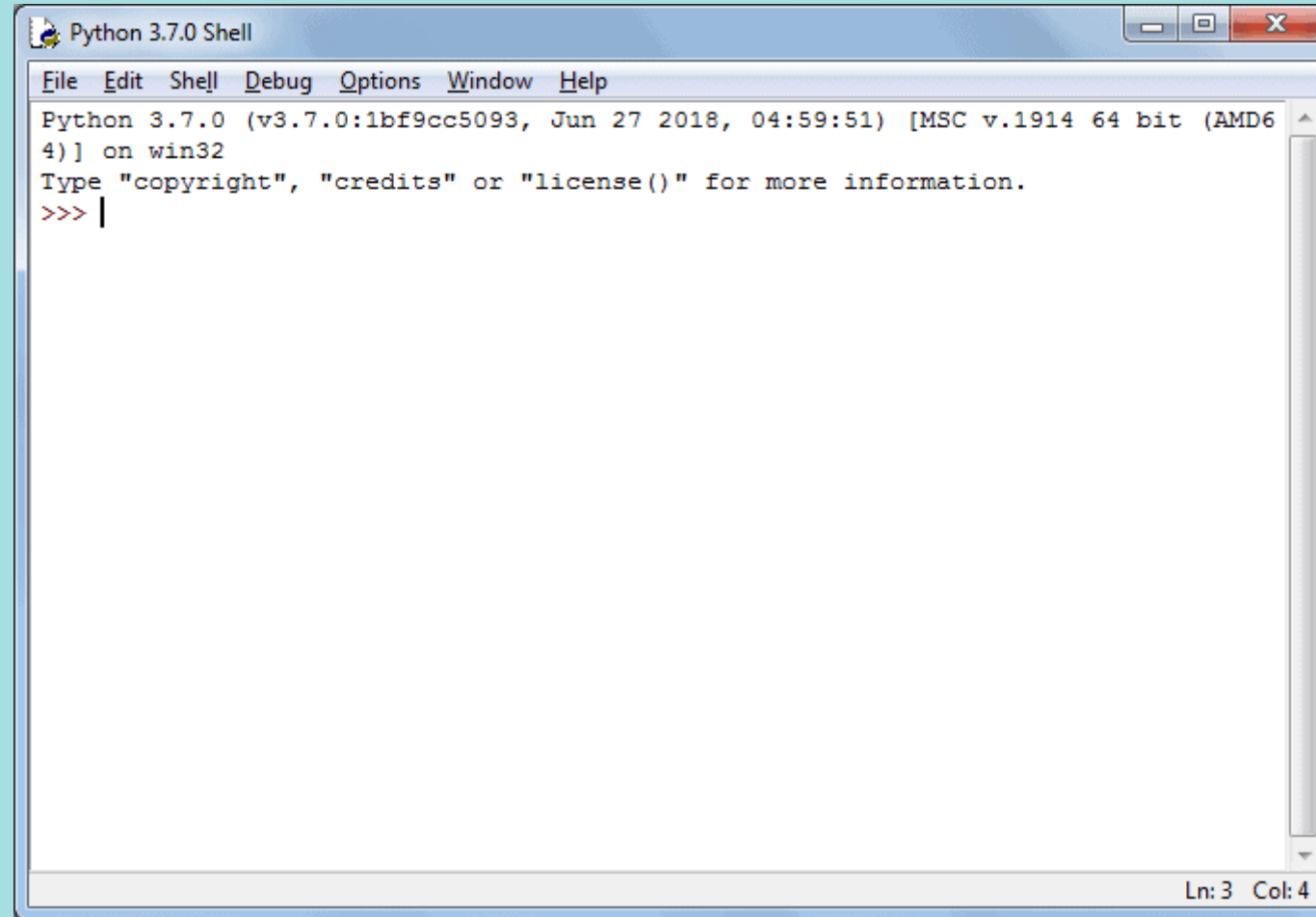


Python程式的編輯工具

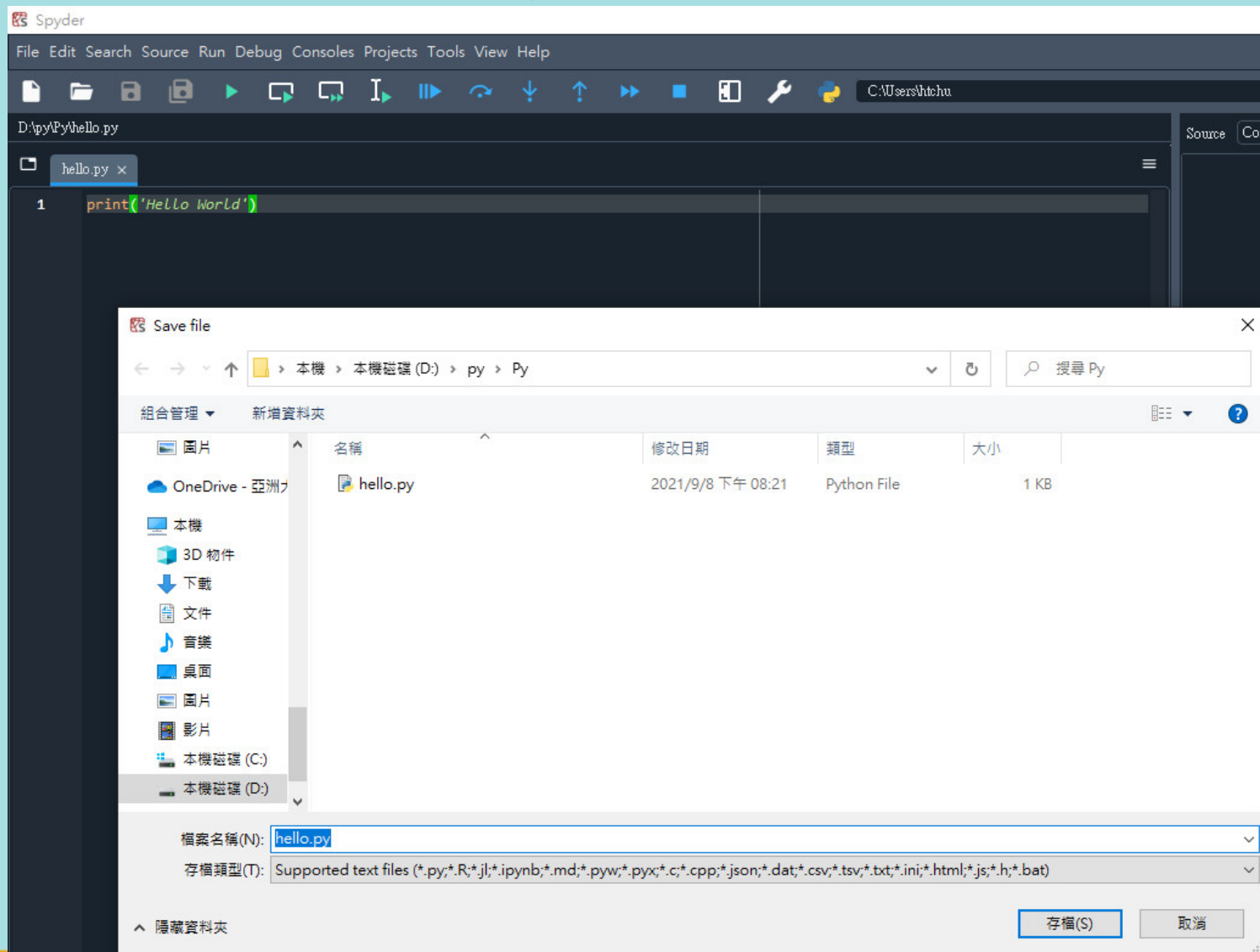
- Python IDLE工具
- Spyder
- Visual Studio Code
- PyCharm
- Colab



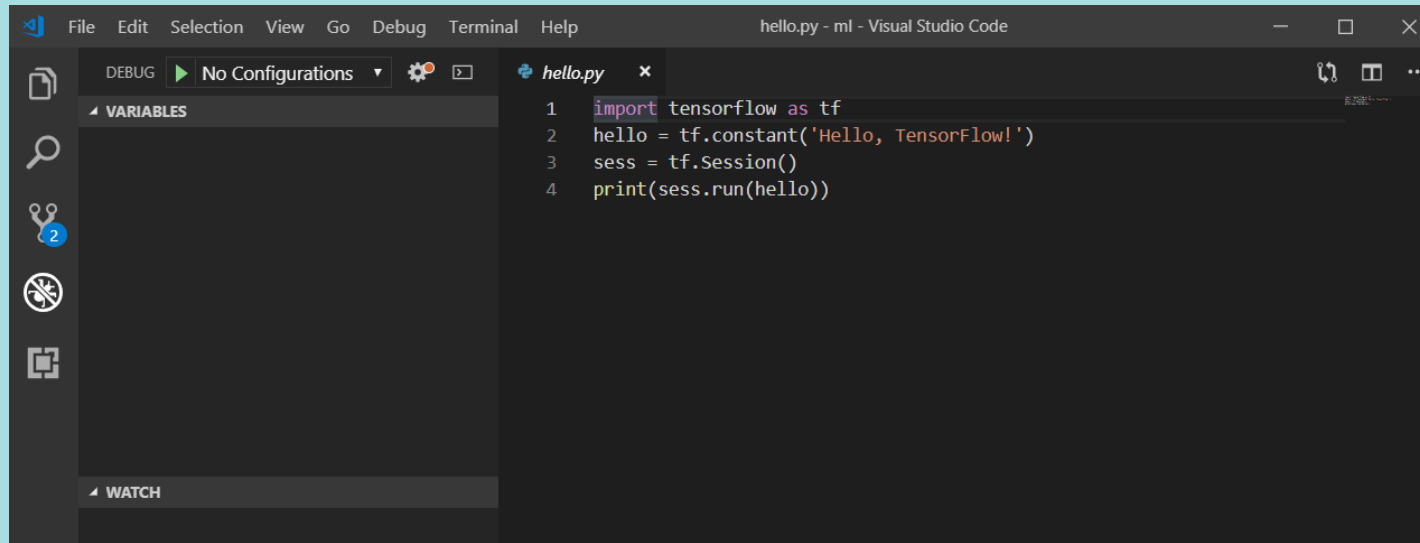
Python IDLE



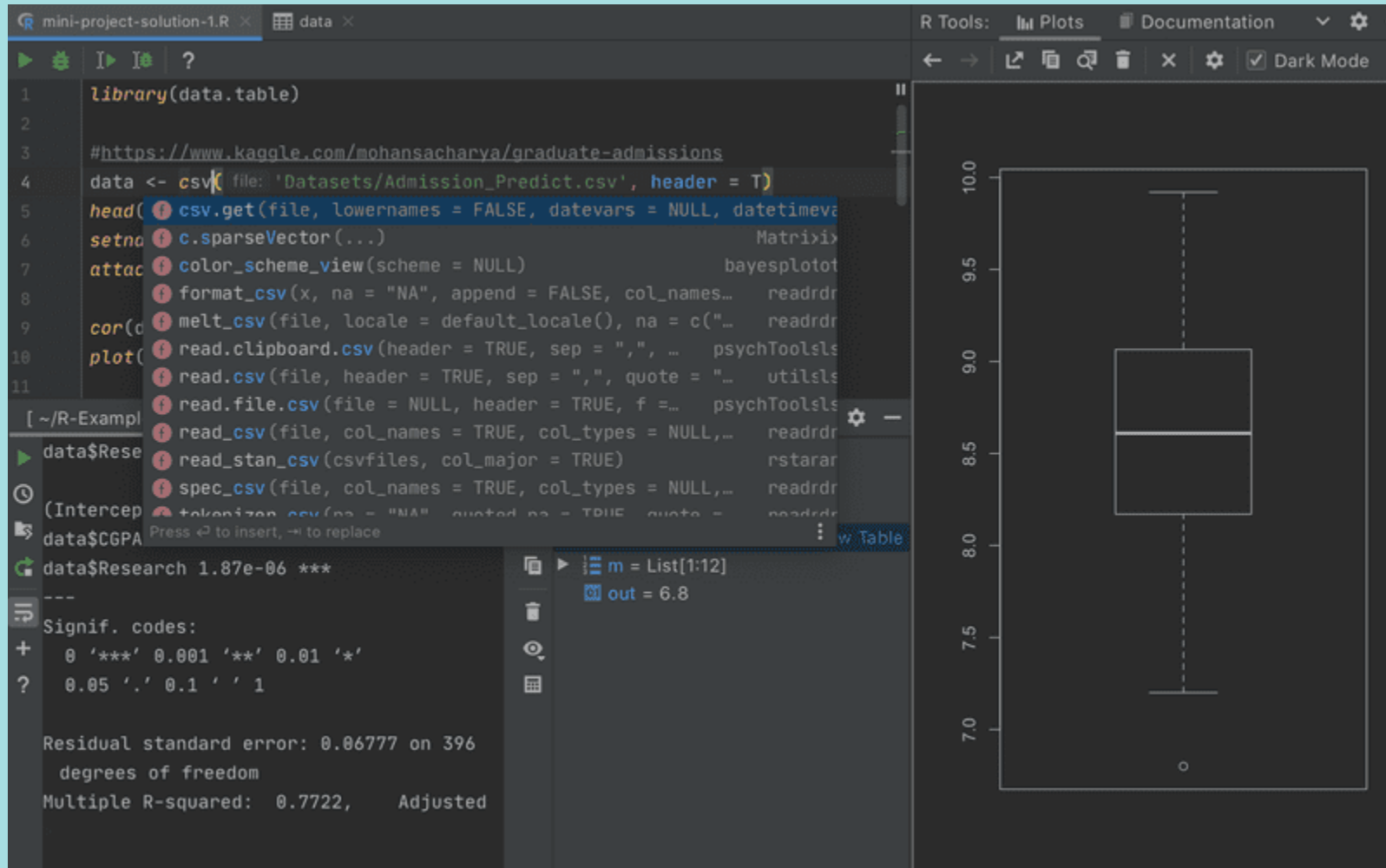
Spyder



Visual Studio Code



PyCharm



JetBrains Product Pack for Students

The screenshot shows the JetBrains account page for Hsueh-Ting Chu. The browser address bar shows 'account.jetbrains.com/licenses'. The page has a dark header with the JetBrains logo, 'Licenses' and 'Your Account' tabs, and a user profile 'Hsueh-Ting Chu'. A green notification banner states 'Two-factor authentication is available!'. The main content area is titled '1 License' and features a blue 'Buy new license' button. The license details for 'JetBrains Product Pack for Students' are shown, including the license ID '4AK9G...M', the user 'Hsueh-Ting Chu', and a list of included products: AppCode, CLion, DataGrip, dotCover, dotMemory, dotTrace, GoLand, IntelliJ IDEA Ultimate, PhpStorm, PyCharm, ReSharper, ReSharper C++, Rider, and WebStorm. The license is valid through April 08, 2021.

account.jetbrains.com/licenses

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JETBRAINS

Licenses Your Account

Help Hsueh-Ting Chu

Hsueh-Ting Chu

Transactions / Invoices

Notifications

Two-factor authentication is available!

To enable an extra layer of security for your JetBrains account, turn on two-factor auth.

1 License

Buy new license

JetBrains Product Pack for Students

Download

License ID: 4AK9G...M

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Valid through: April 08, 2021

Following products included:

- AppCode
- CLion
- DataGrip
- dotCover
- dotMemory
- dotTrace
- GoLand
- IntelliJ IDEA Ultimate
- PhpStorm
- PyCharm
- ReSharper
- ReSharper C++
- Rider
- RubyMine
- WebStorm



Thanks!

Q&A

