ISOM 3400 Lab 1

Lab Logistic

- No attendance
- Revision of what you have learnt in lectures
- Will be video-recorded
- To ask questions, you may type in chatroom
- Respect me, yourself and other students

Agenda

- Anaconda & VSCode: Download, install and setup
- Use of Google Colab

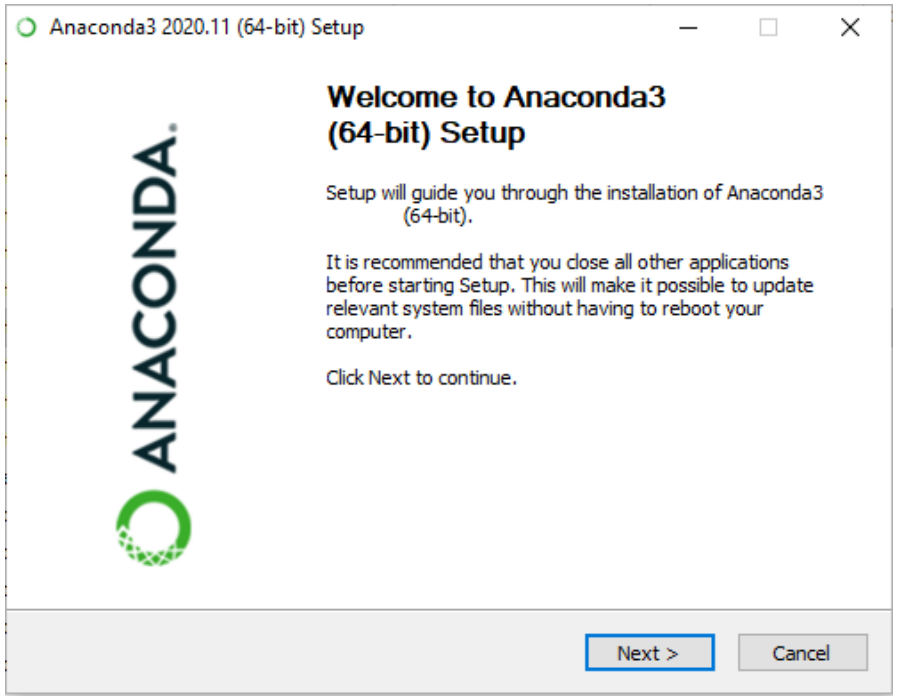
Anaconda: Download, install and set up

Anaconda: Download, install and set up

- Go to https://www.anaconda.com/products/individual, scroll down a little bit and download appropriate installer for your computer (Windows 64-Bit? Mac?)

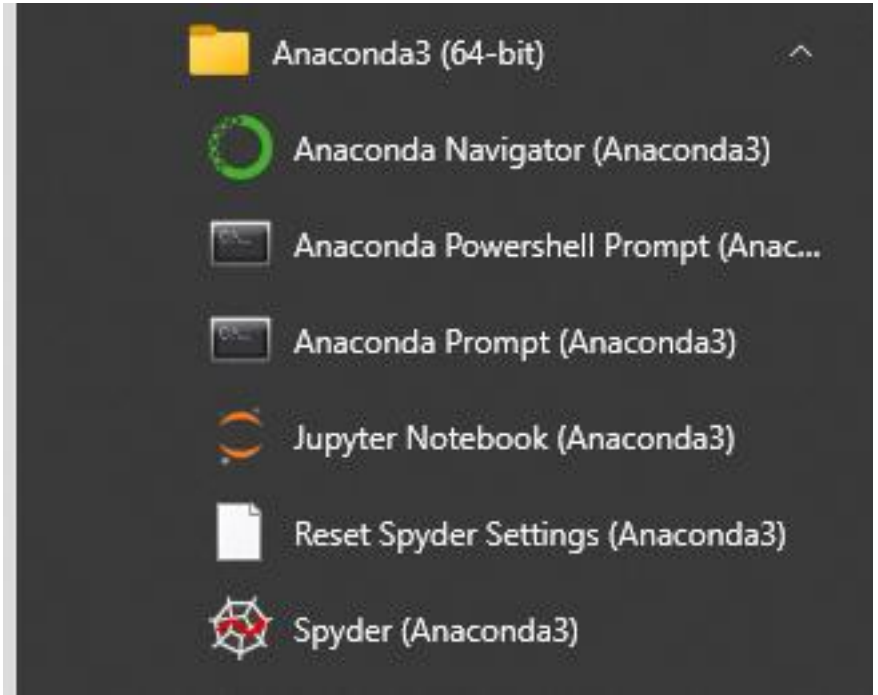
Anaconda: Download, install and set up

- **Windows** User: Open the exe file, use default option and install it. A most updated Python interpreter will be installed accordingly



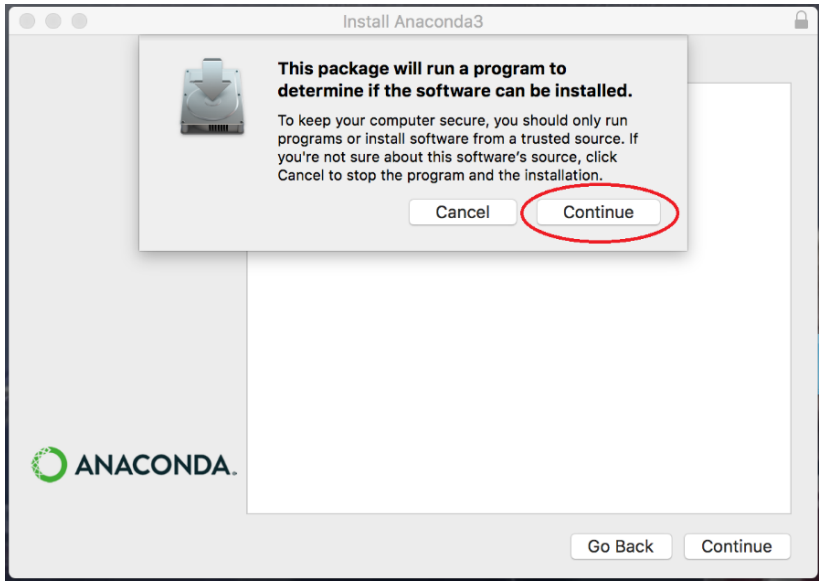
Anaconda: Download, install and set up

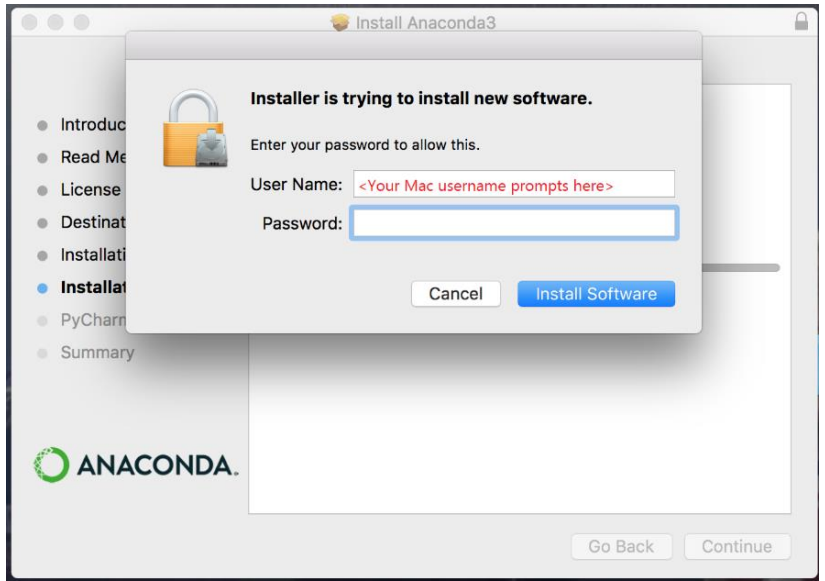
- **Windows** User: After installation, you can see on the start menu several shortcuts are created for you. The installation process for Anaconda is finished



Anaconda: Download, install and set up

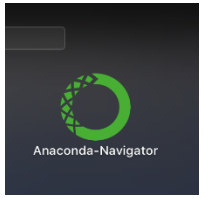
- **Mac** User: Open the installer, click **Continue**, you can simply use default option and install it
- As this installer is downloaded from the Internet, you will be prompted to enter password to allow installation. A most updated Python interpreter will be installed accordingly





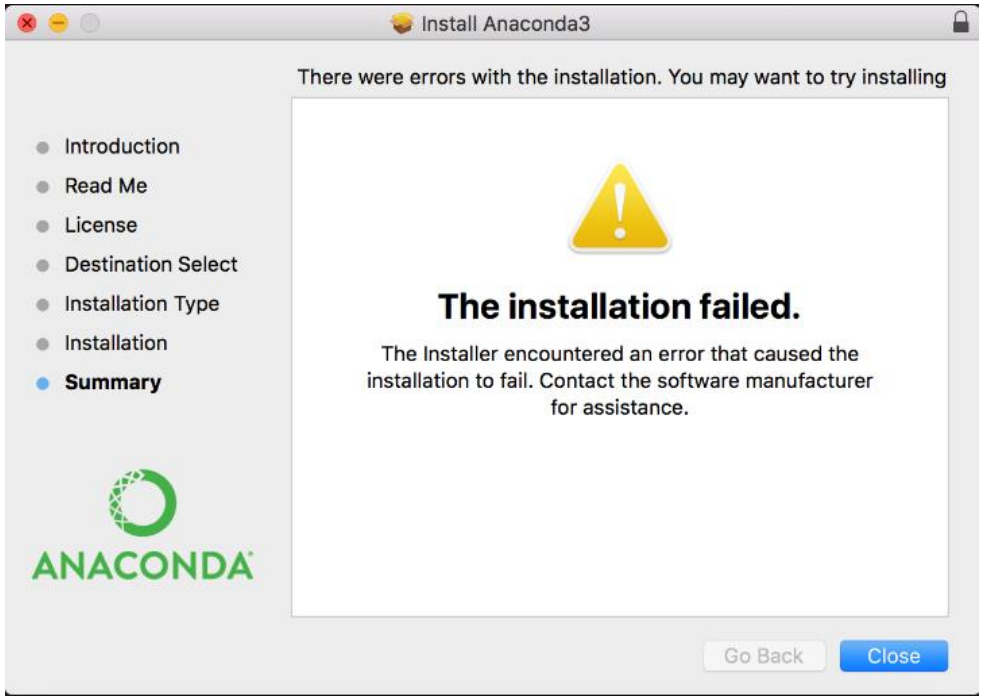
Anaconda: Download, install and set up

- **Mac** User: You should see on the dock the **Anaconda Navigator** after installation. The installation process for Anaconda is finished



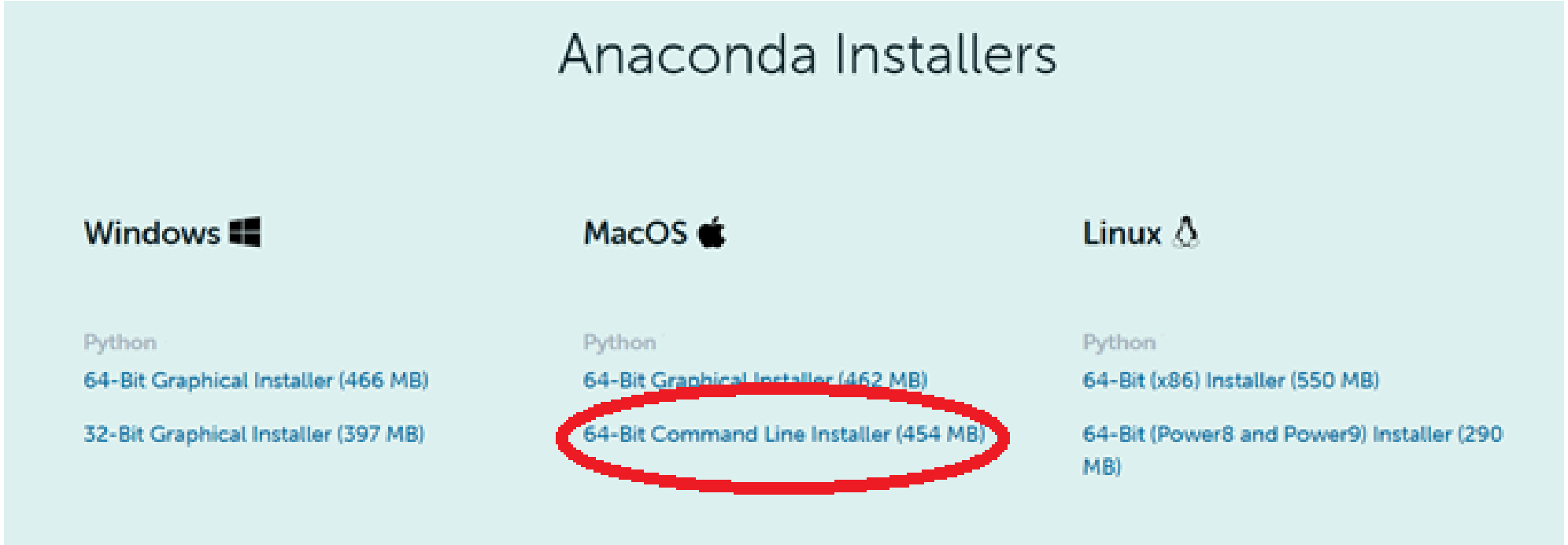
Anaconda: Download, install and set up

- **Mac** User: The following slides are for students who encounter an error message like the one below when installing Anaconda using **Graphical Installer**. An alternate option is to use **Command Line Installer**



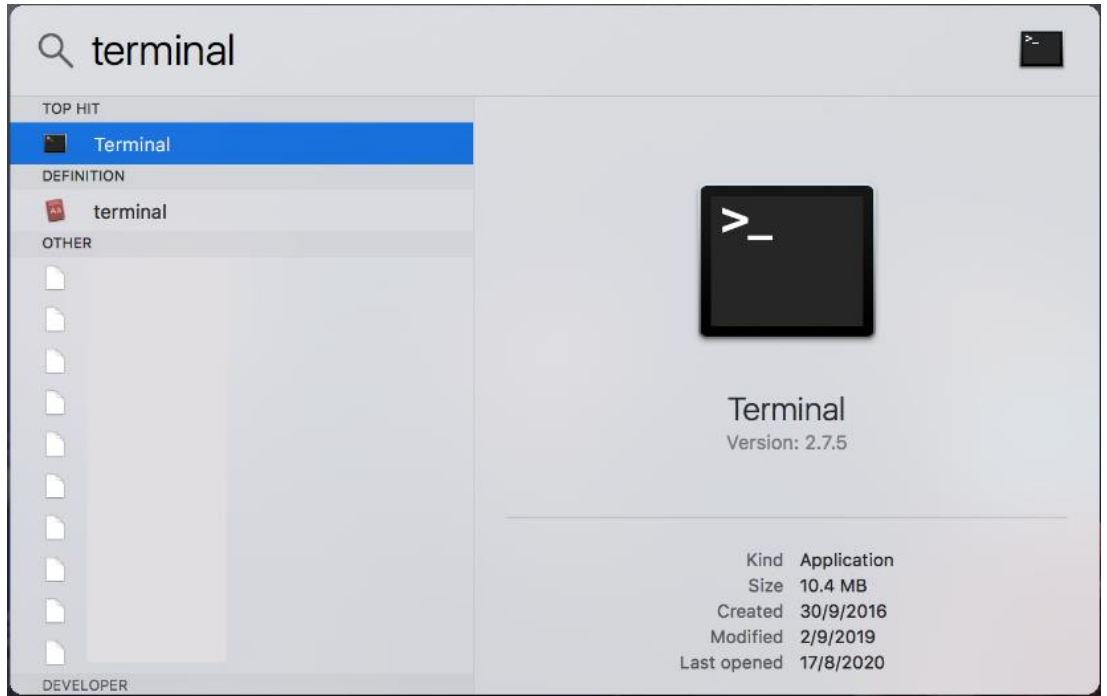
Anaconda: Download, install and set up

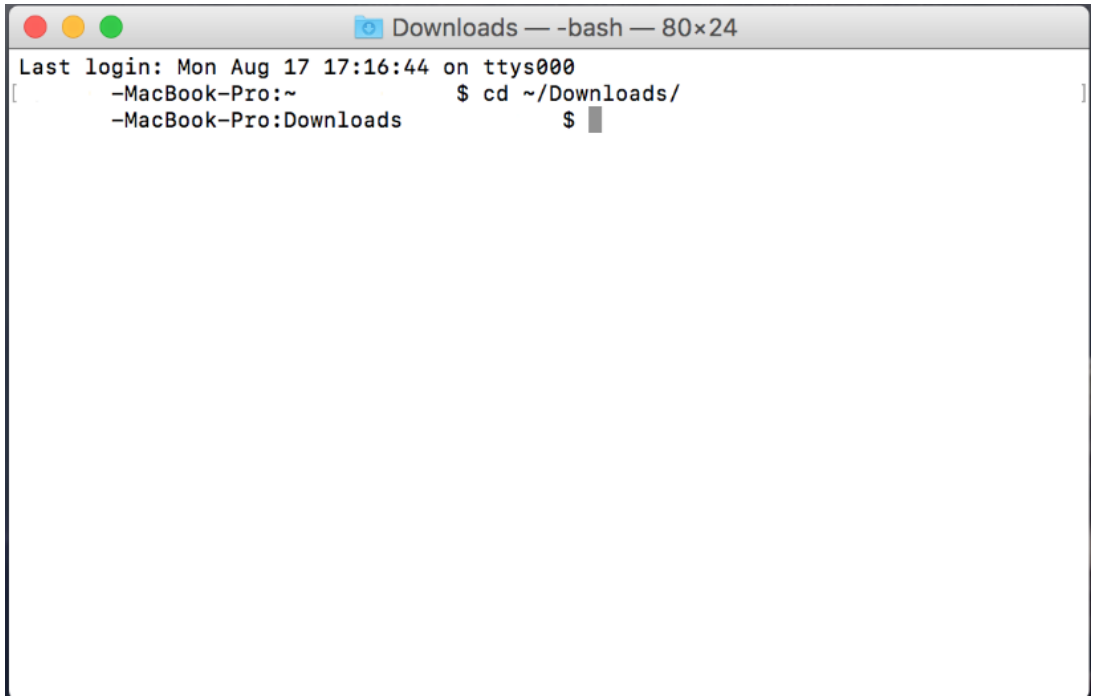
- **Mac** User: Go to https://www.anaconda.com/products/individual, download **Command Line Installer** instead



Anaconda: Download, install and set up

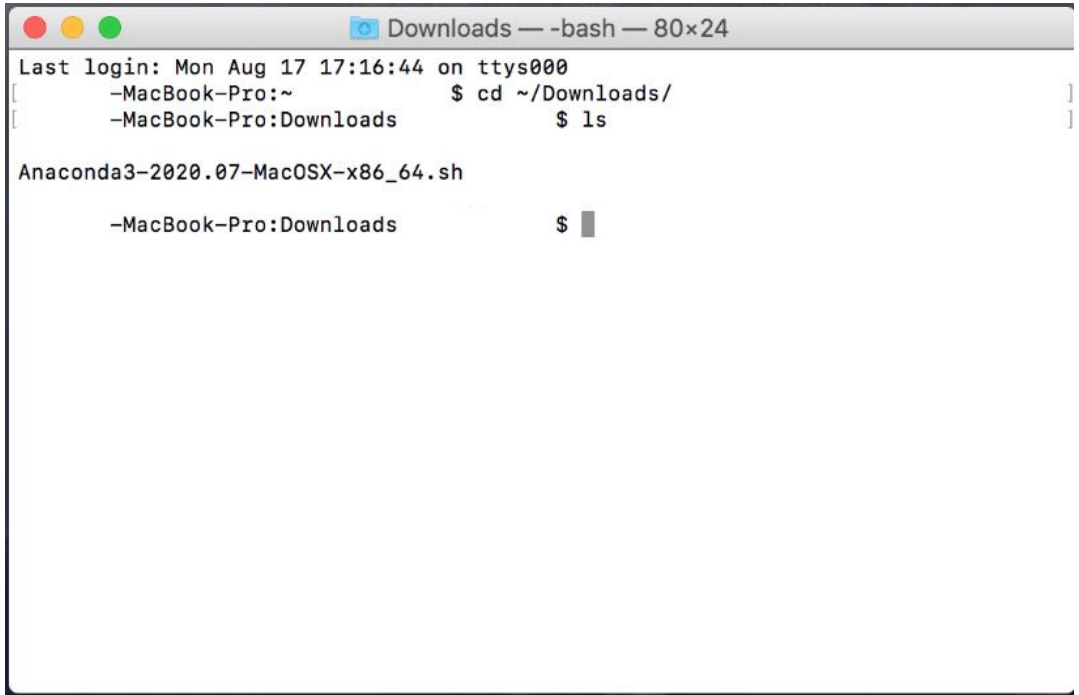
- **Mac** User: Launch **Spotlight Search** and open **Terminal**. Type **cd ~/Downloads/** and press enter

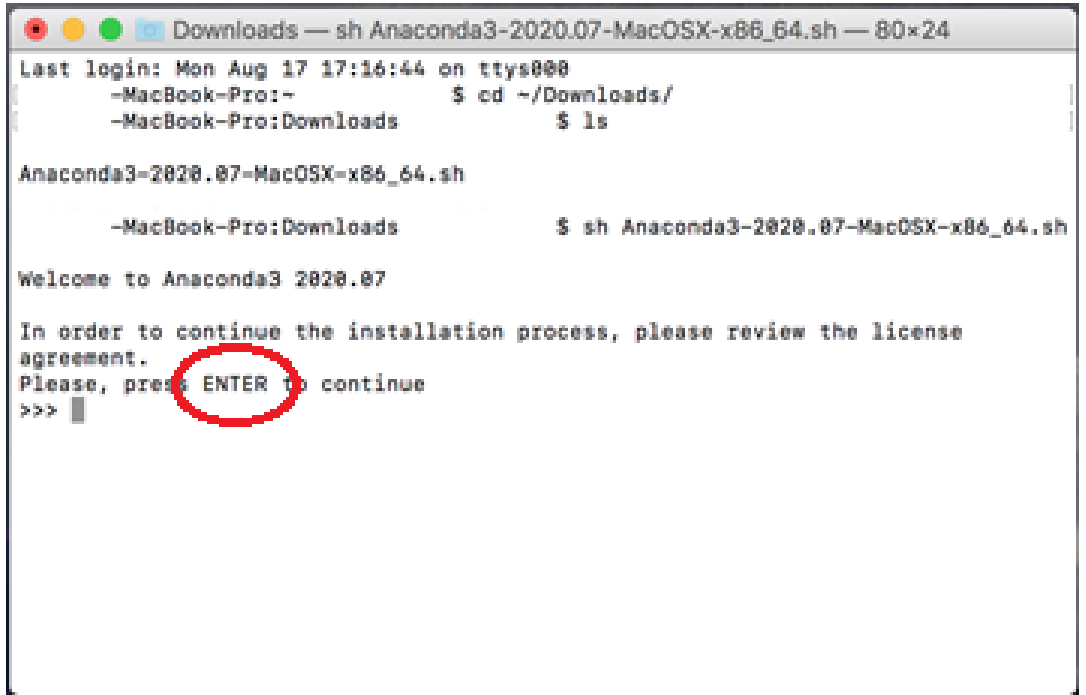




Anaconda: Download, install and set up

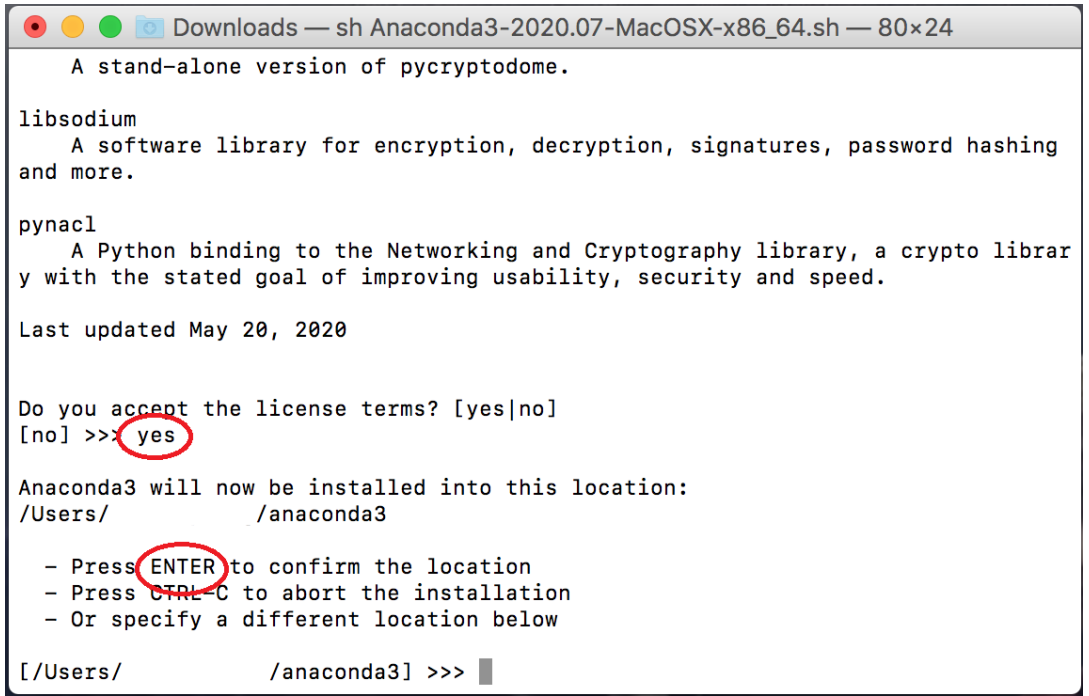
- **Mac** User: Type **ls** (lowercase letter of **L**) and press **Enter**, you should see the downloaded **Anaconda3-2020.07-MacOSX-x86_64.sh** file
- Type **sh Anaconda3-2020.07-MacOSX-x86_64.sh** and press **Enter**. This is to start the installation process, press **Enter** again as instructed





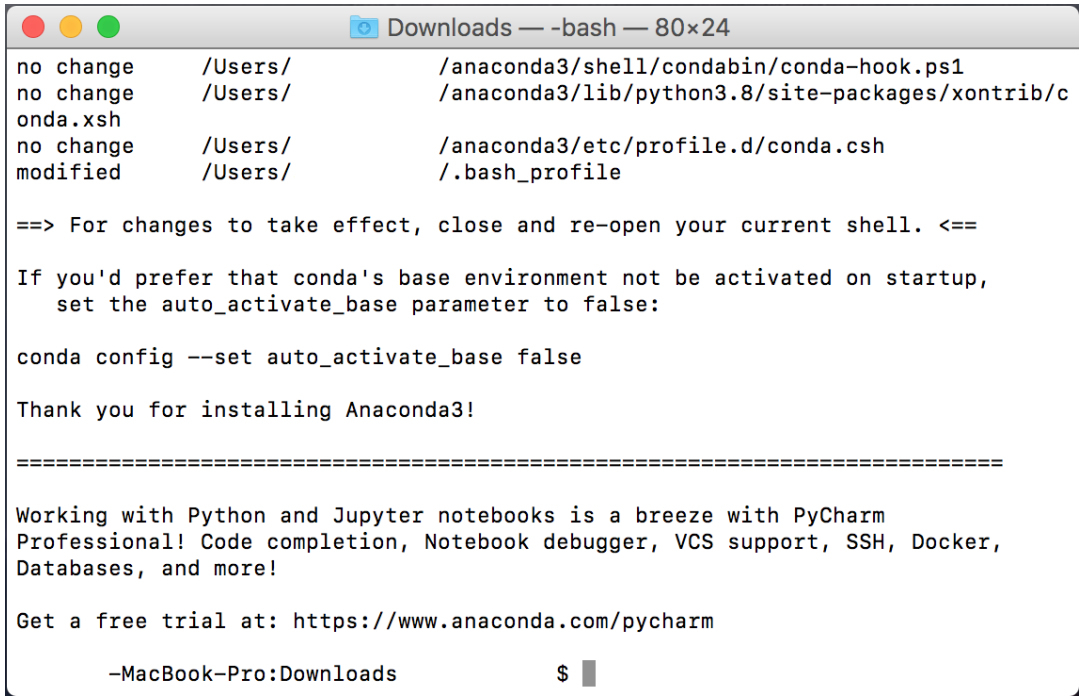
Anaconda: Download, install and set up

- **Mac** User: Follow the instruction, you may want to use **Spacebar** or **Down Arrow Key** to scroll down the license agreement. Type **yes** and press **Enter** to accept the agreement, then press **Enter** again to install Anaconda into default location



Anaconda: Download, install and set up

- **Mac** User: While for a file and done



VSCode: Download, install and setup

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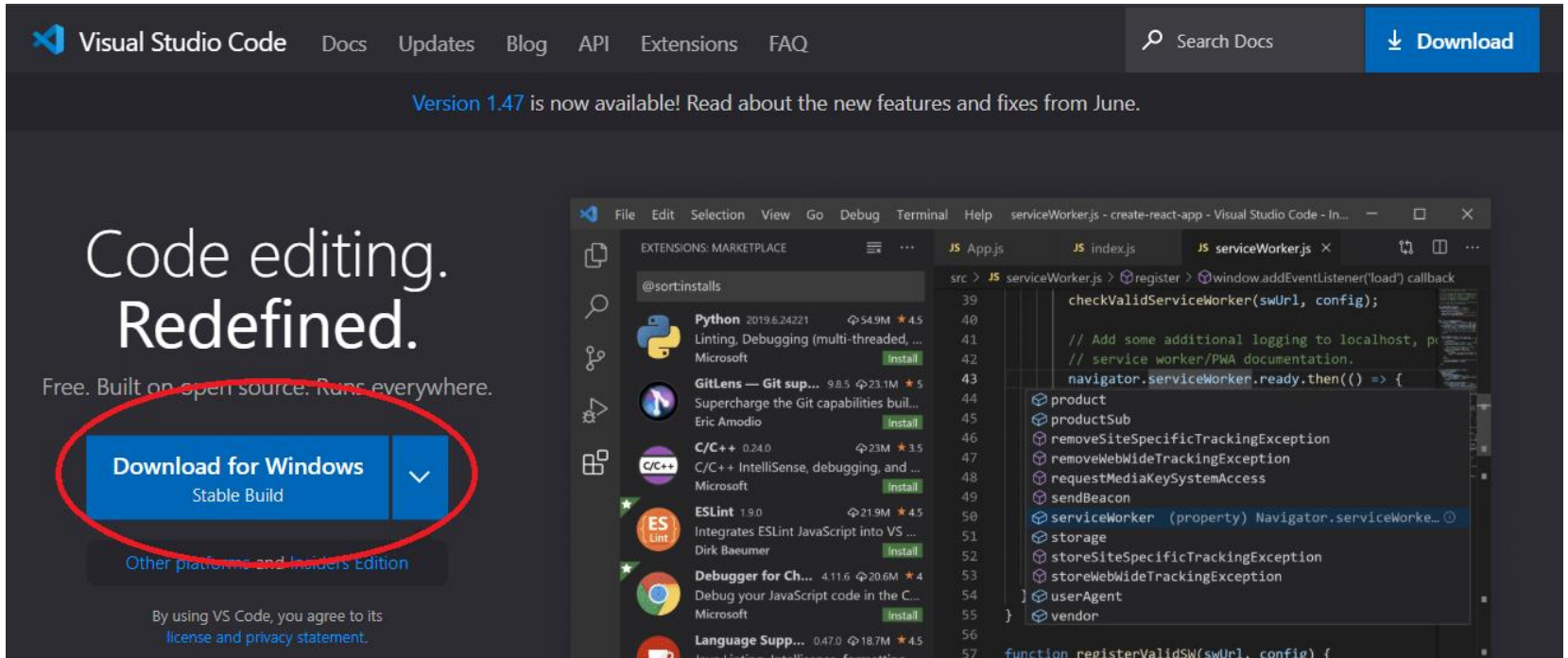
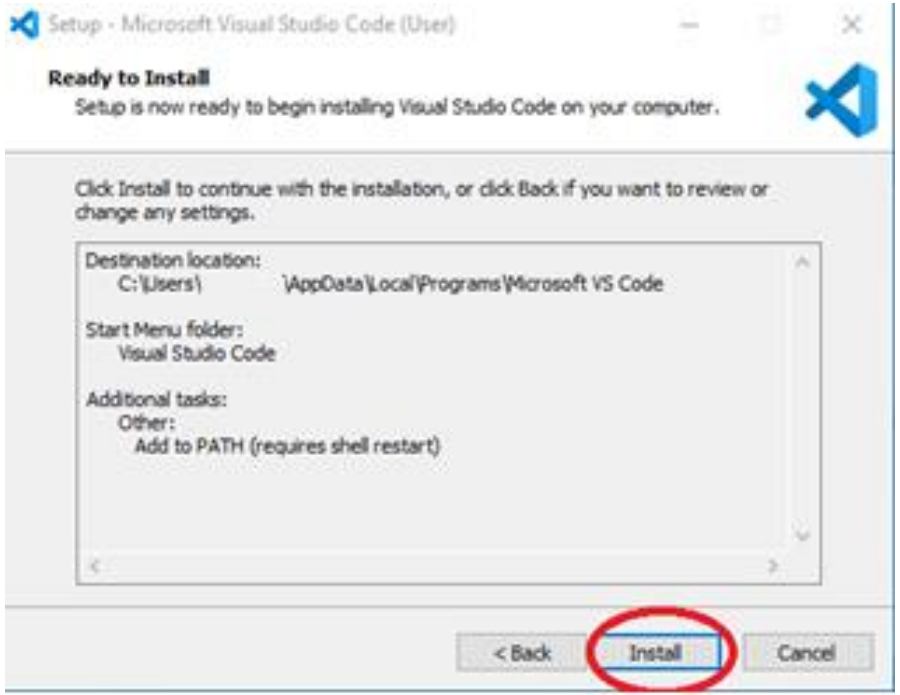
- **Windows** User: Go to https://code.visualstudio.com/ and click **Download for Windows**



VSCode: Download, install and setup

- **Windows** User: Open the installer, choose **I accept the agreement**, click **Next** for 4 times (i.e. use default option) and click **Install**



VSCode: Download, install and setup

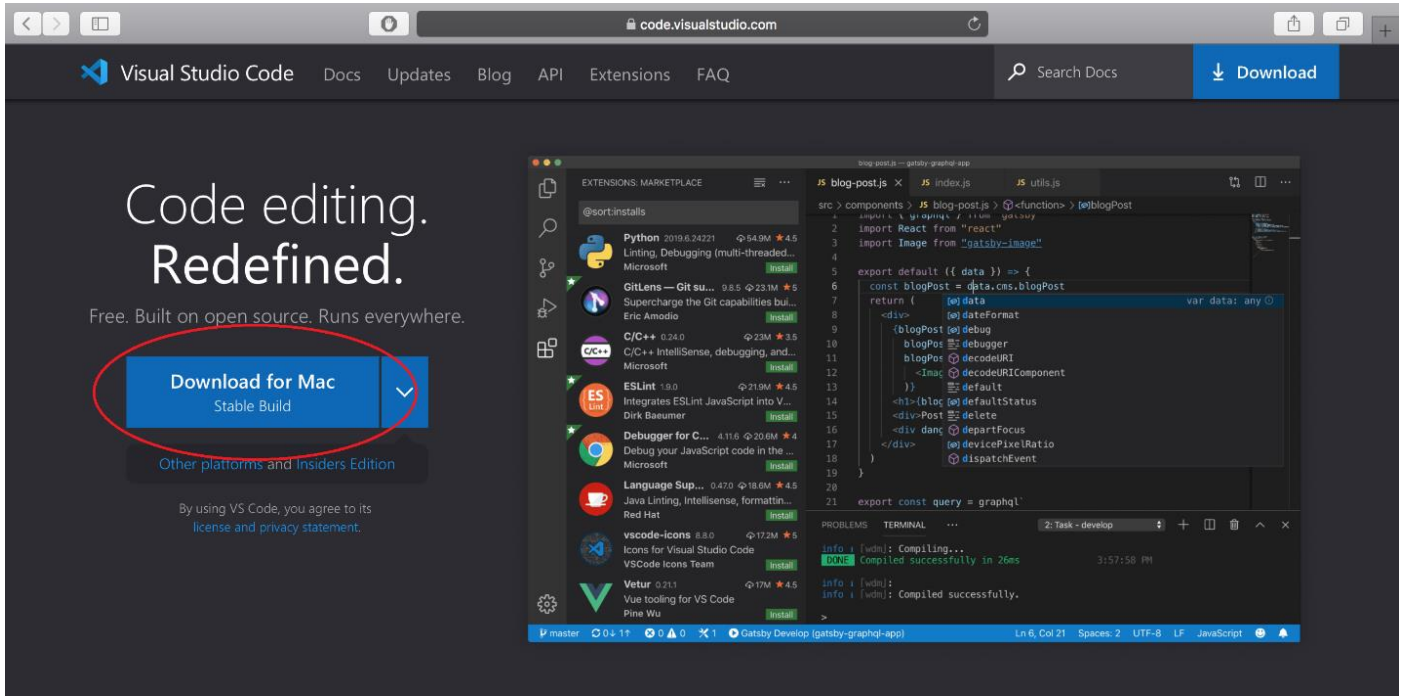
- **Windows** User: After installation, launch VS Code
- On the left menu bar, select the fifth icon **Extensions** (or simply **Ctrl + Shift + X**)

VSCode: Download, install and setup

- **Windows** User: On the search bar, type **python**, click on the Python extension published by Microsoft and install it.
- The setup of VSCode is finished (We will use it next lab)

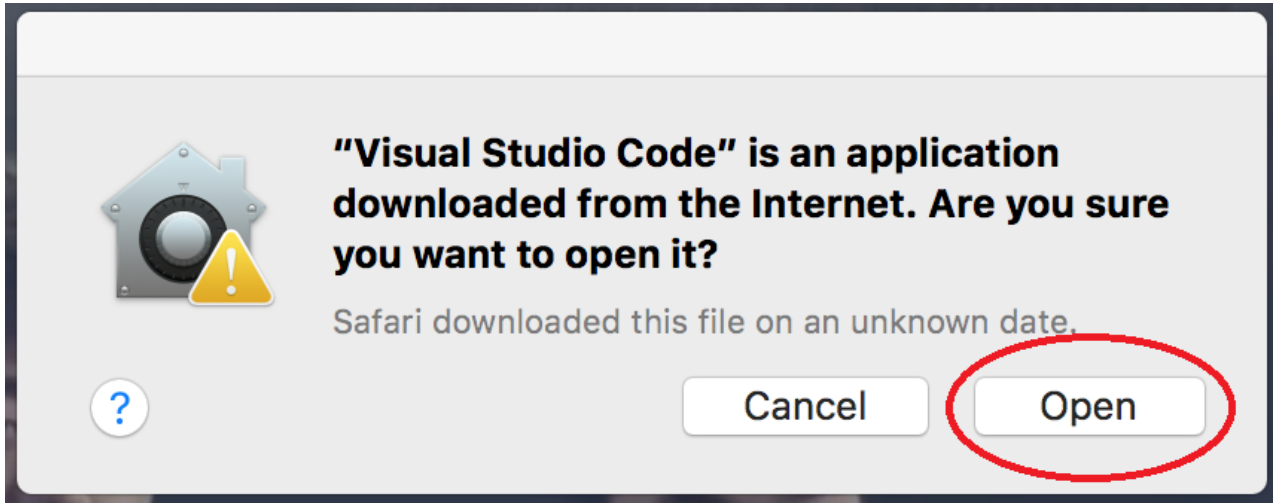
VSCode: Download, install and setup

- **Mac** User: Go to https://code.visualstudio.com/ and click **Download for Mac**



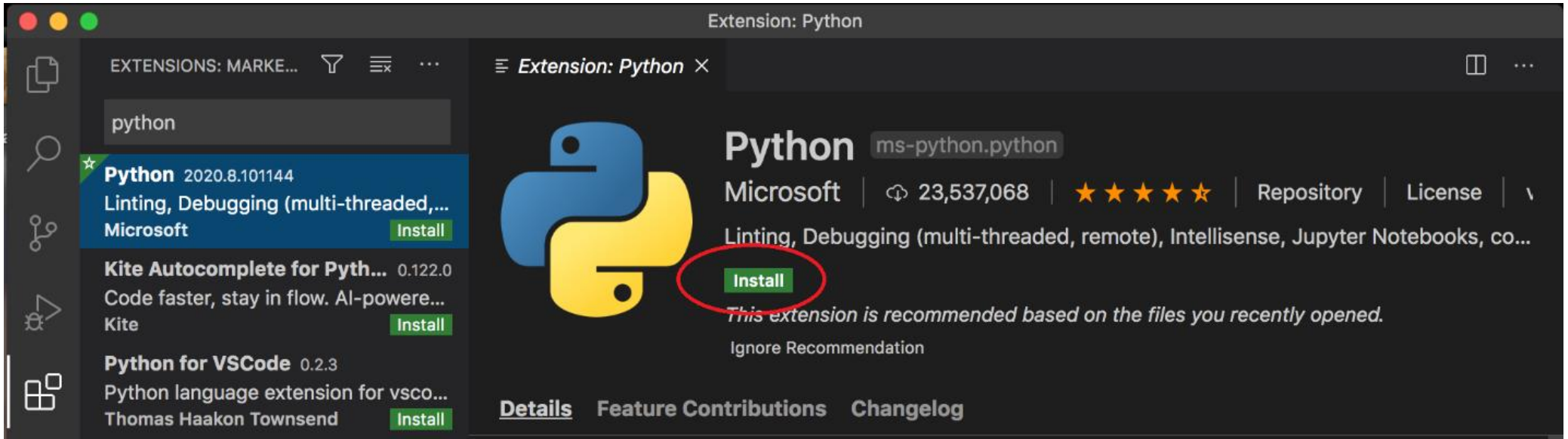
VSCode: Download, install and setup

- **Mac** User: Open the application, click **Open**. In fact, no installation is needed
- VS Code is launched. On the left menu bar, select the fifth icon **Extensions** (or simply **Shift + Command + X**)



VSCode: Download, install and setup

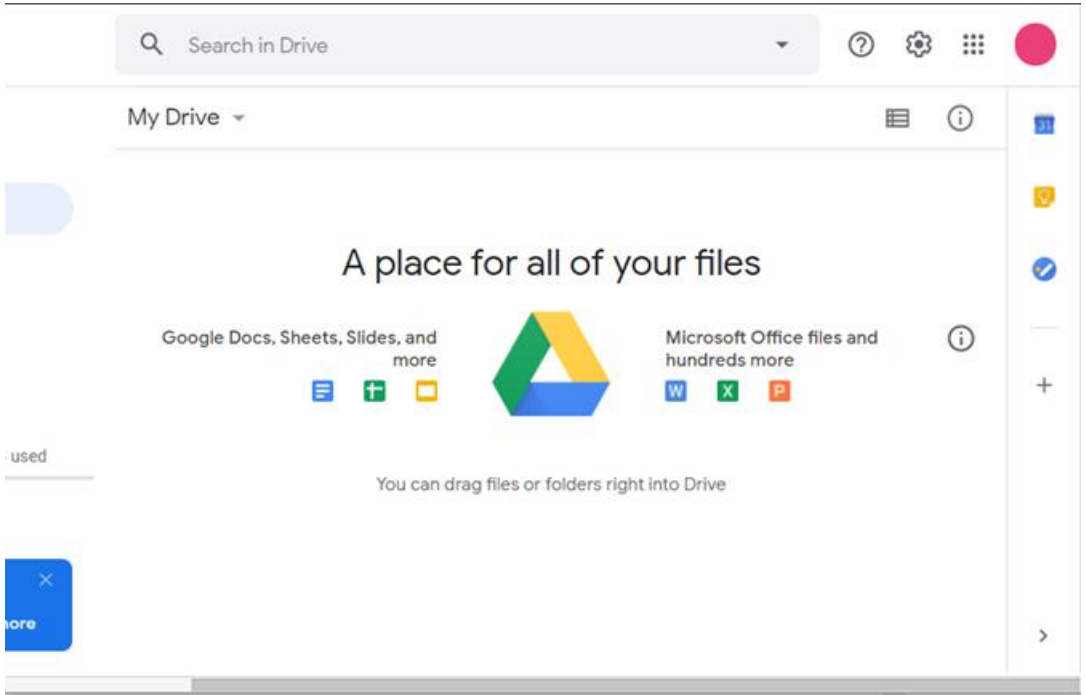
- **Mac** User: By default, an extension named **Python** is installed. If not, type **python** in the search bar, click on the Python extension published by Microsoft and install it
- The setup of VSCode is finished (We will use it next lab)



Installing Google Colab to Google Drive

Installing Google Colab to Google Drive

- Go to https://drive.google.com and sign in to your Google Drive

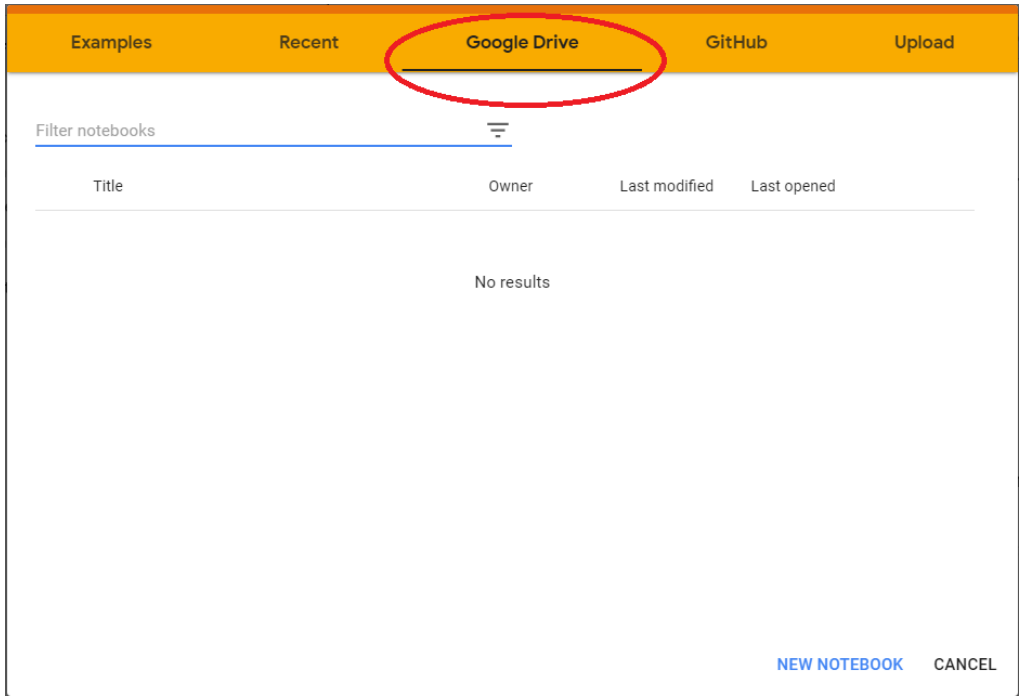


Installing Google Colab to Google Drive

- Open a new tab, navigate to https://colab.research.google.com/

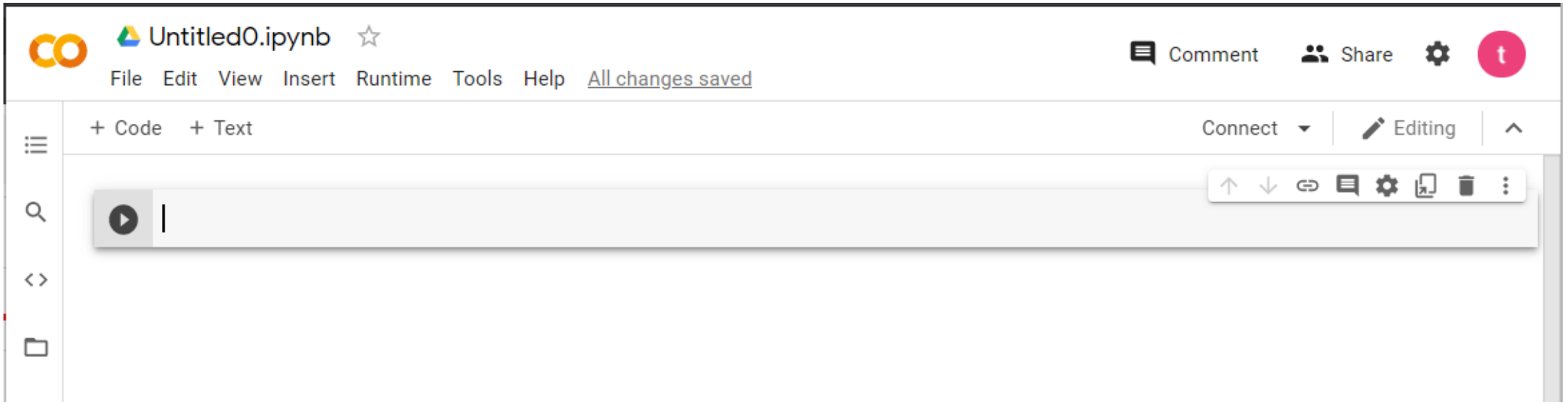
Installing Google Colab to Google Drive

- Choose **Google Drive** along the top to create your first/ new notebook

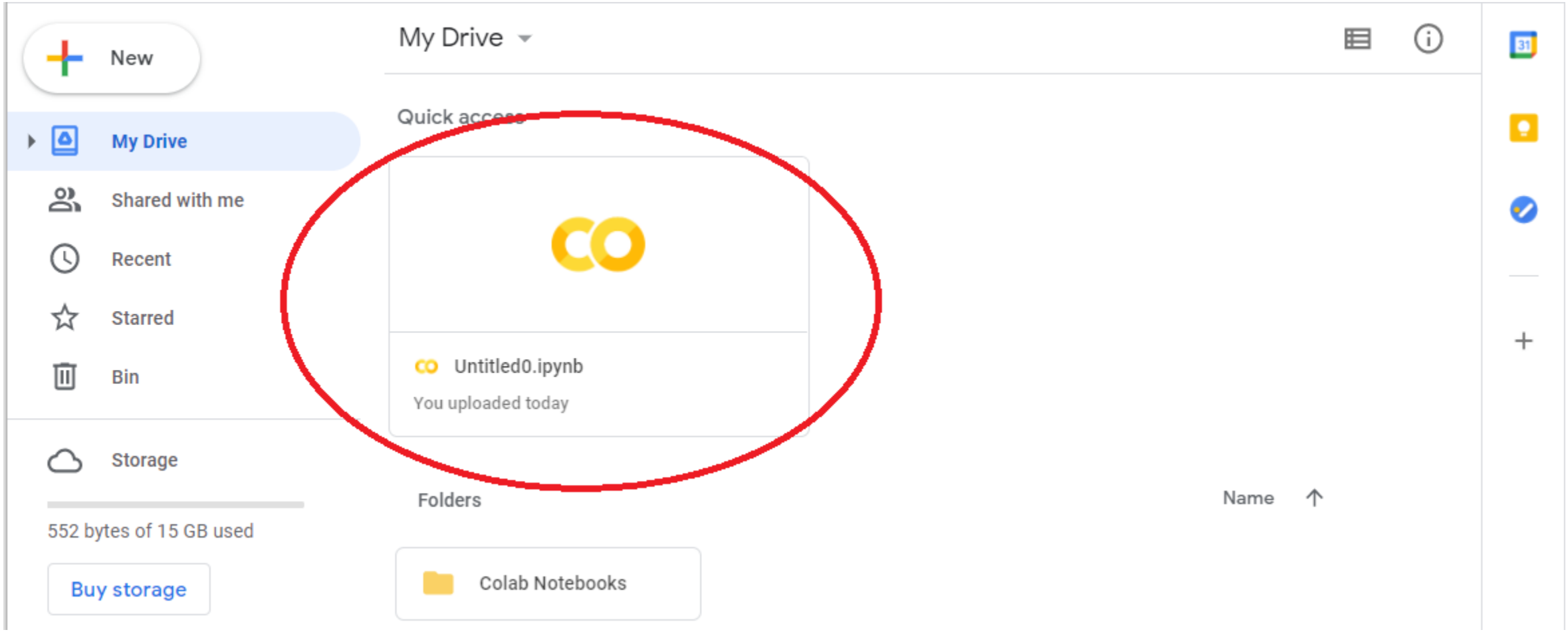


Installing Google Colab to Google Drive

- A new notebook will be created for you
- You now can open, save and edit files using Colab in your Google Drive



Installing Google Colab to Google Drive



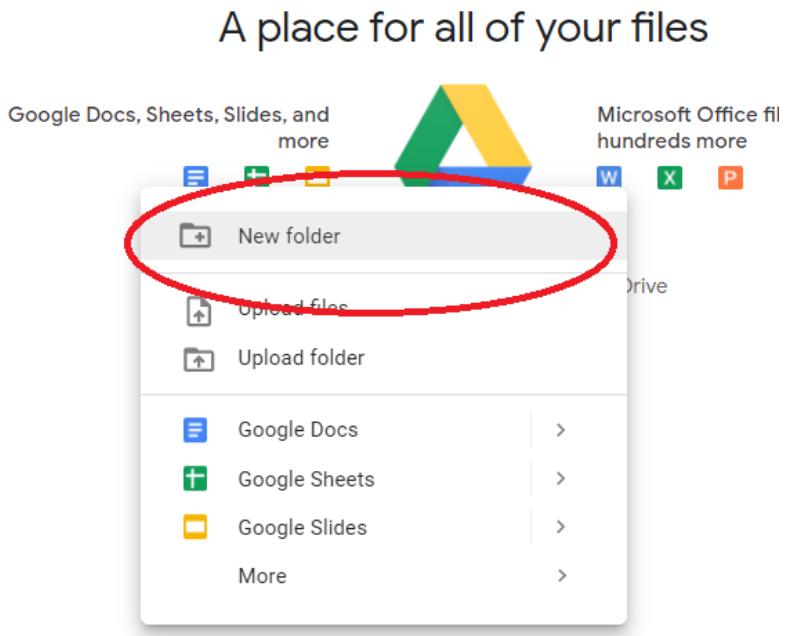
Working with Google Colab

Working with Google Colab - Prerequisite

- Install **Google Colab** to your Google Drive

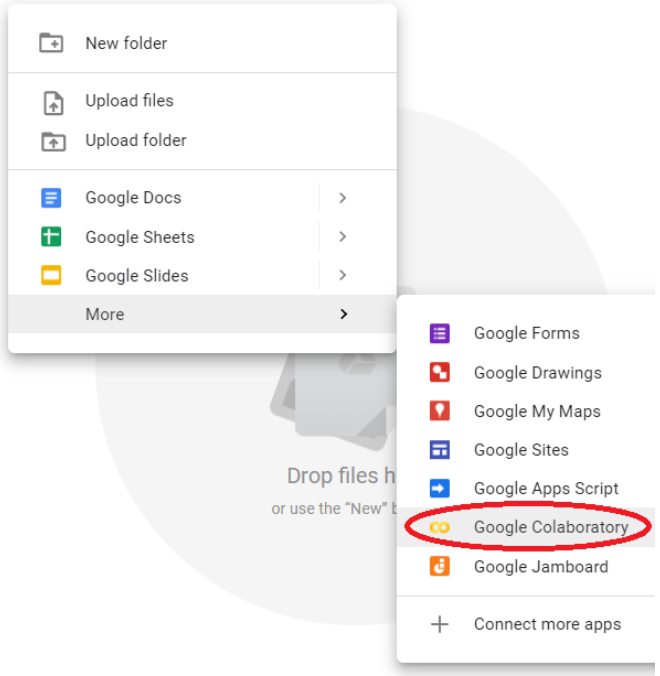
Working with Google Colab

- (Depending on your need) **Right-click** and choose **New Folder** to create a folder for this course. I will name it **ISOM3400**.



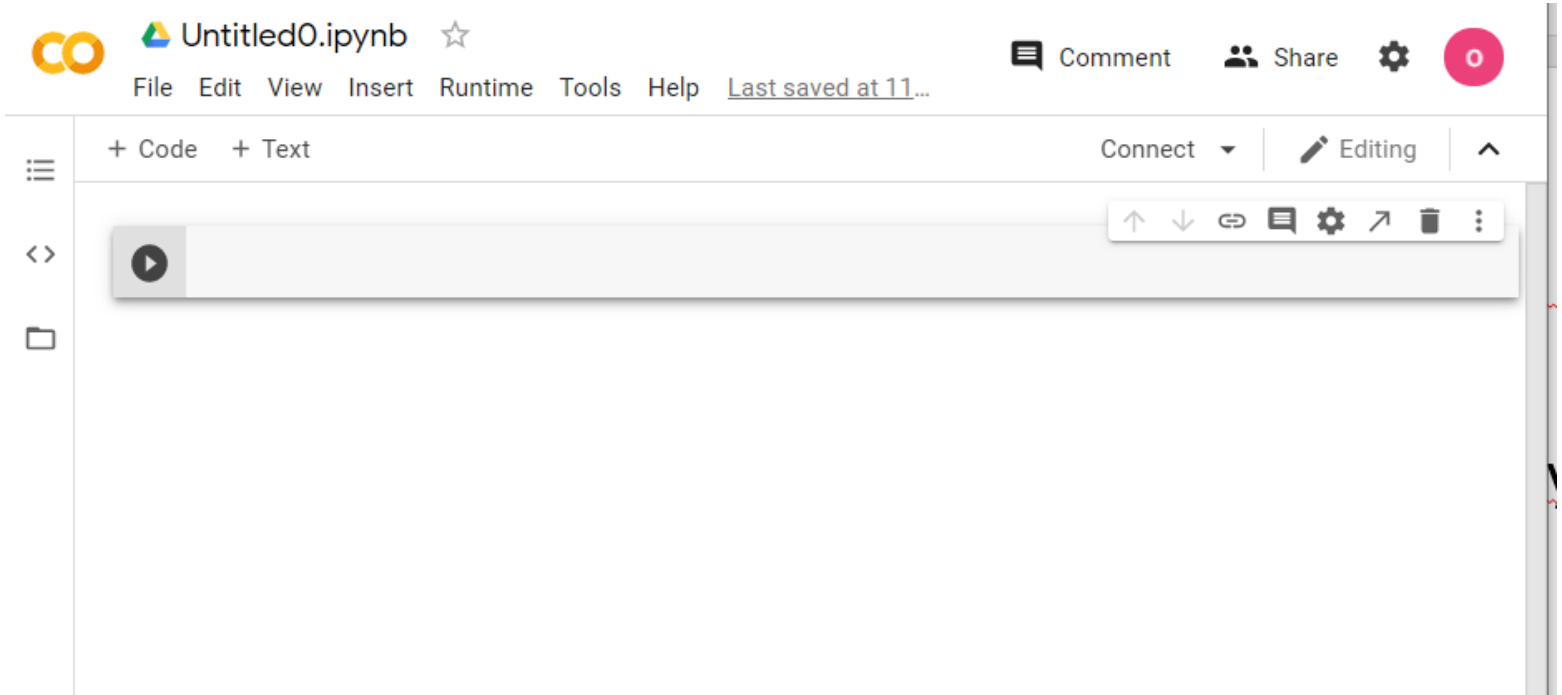
Working with Google Colab

- **Double-click** the folder and **right-click** again, choose **More** and click on **Google Colaboratory**



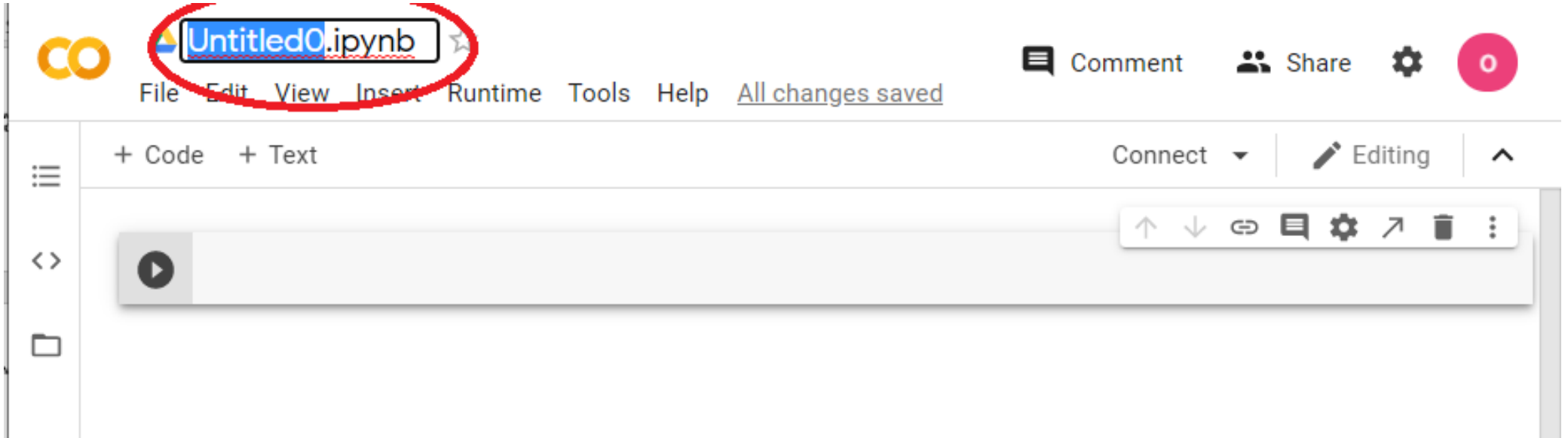
Working with Google Colab

- By default, a Python 3 notebook (.ipynb) will be created. (I prefer to call it Jupyter Notebook)



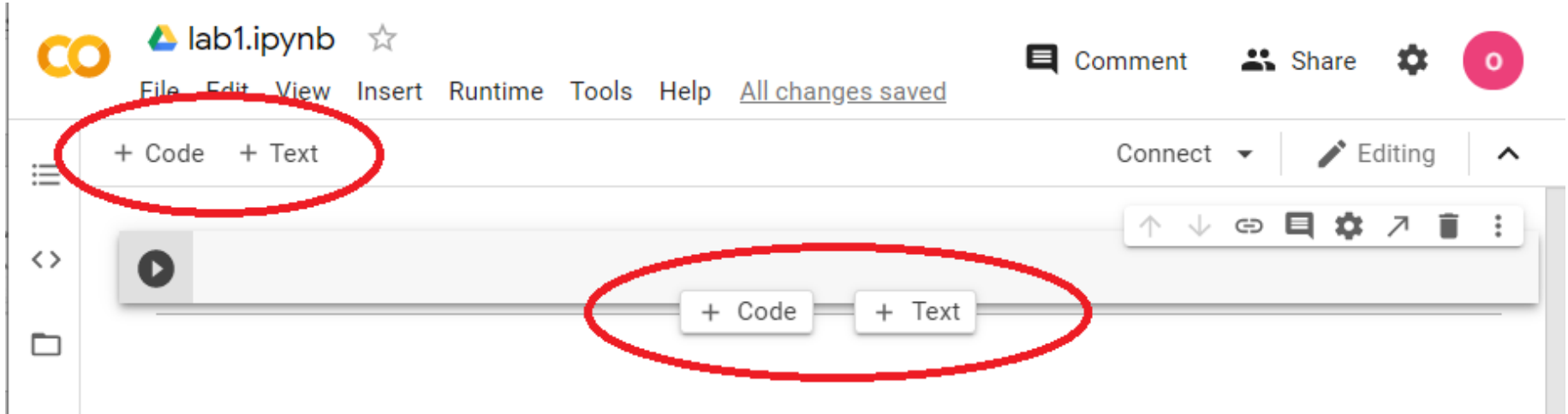
Working with Google Colab

- Click on the file name, change it according to your wish and press **Enter**. I will change it to **lab1**.ipynb as illustration



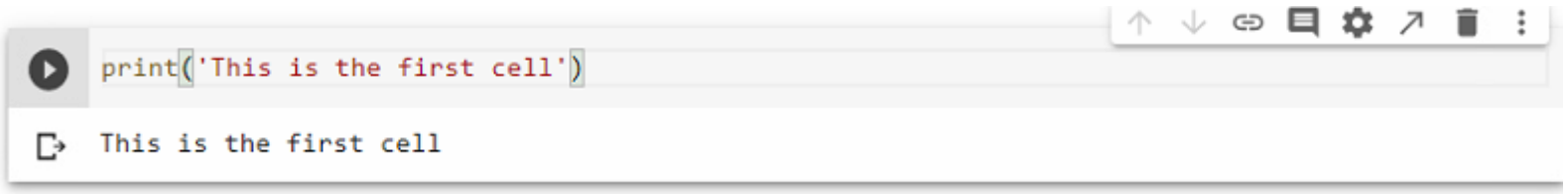
Working with Google Colab

- A notebook is made up of 2 kinds of cell: **Code** cell and **Text** cell
  - Code cell: To code
  - Text cell: To make notes
- By default, a **code** cell is created for you. You can click on **+ Code / + Text** to add a new cell. Alternatively, you can move your cursor to the top or bottom of a cell, then 2 buttons will pop up

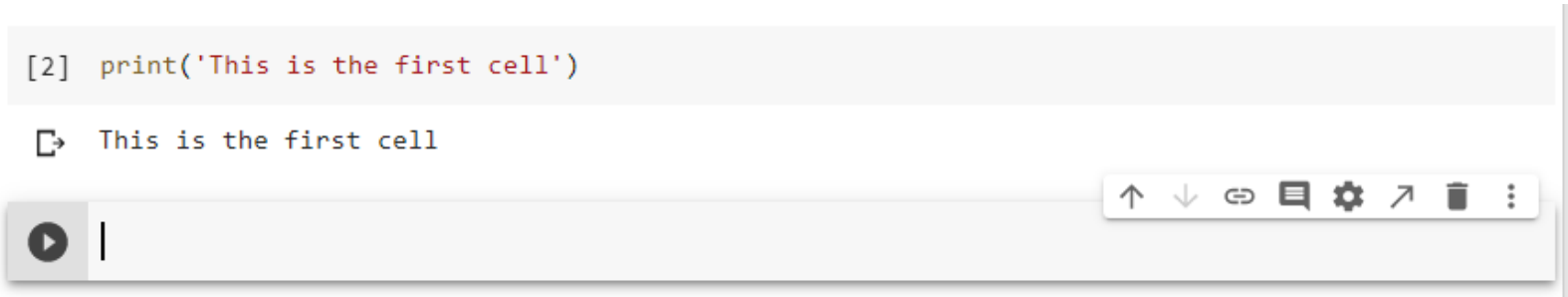


Working with Google Colab

- Type print('This is the first cell') into the code cell (note that it is single quote), click ▶ to run the cell. Alternatively, you can press **Ctrl + Enter** (**Command + Enter** in Mac)

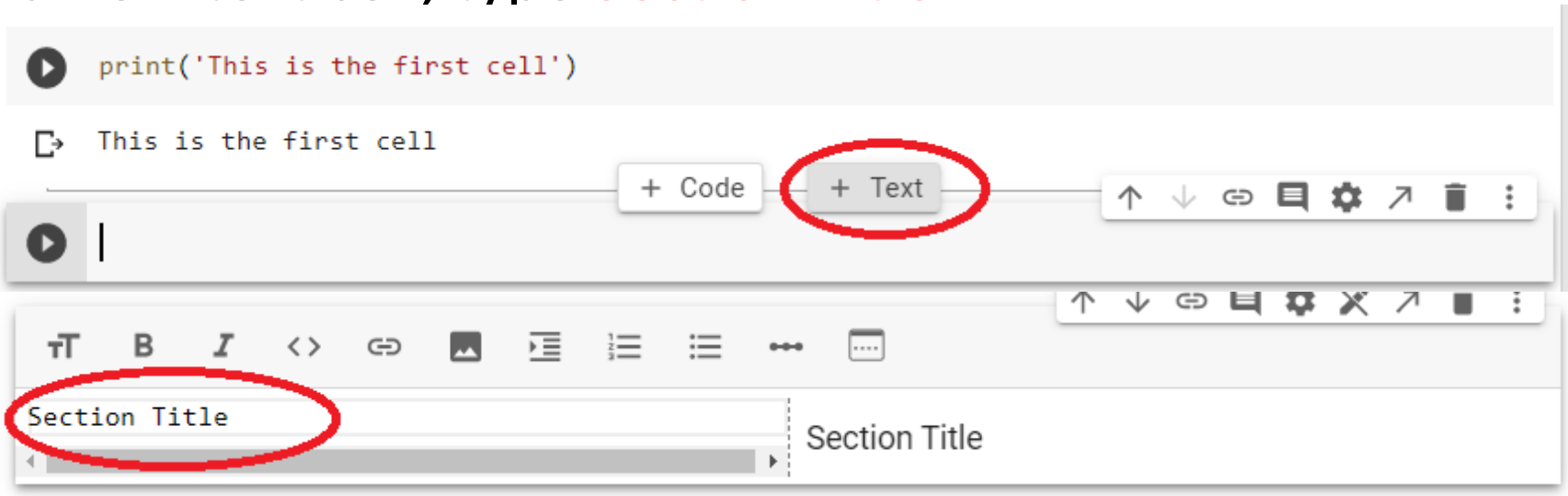


- By pressing **Shift + Enter**, it will jump to the next cell after running the cell. As a result, it creates an additional code cell for you



Working with Google Colab

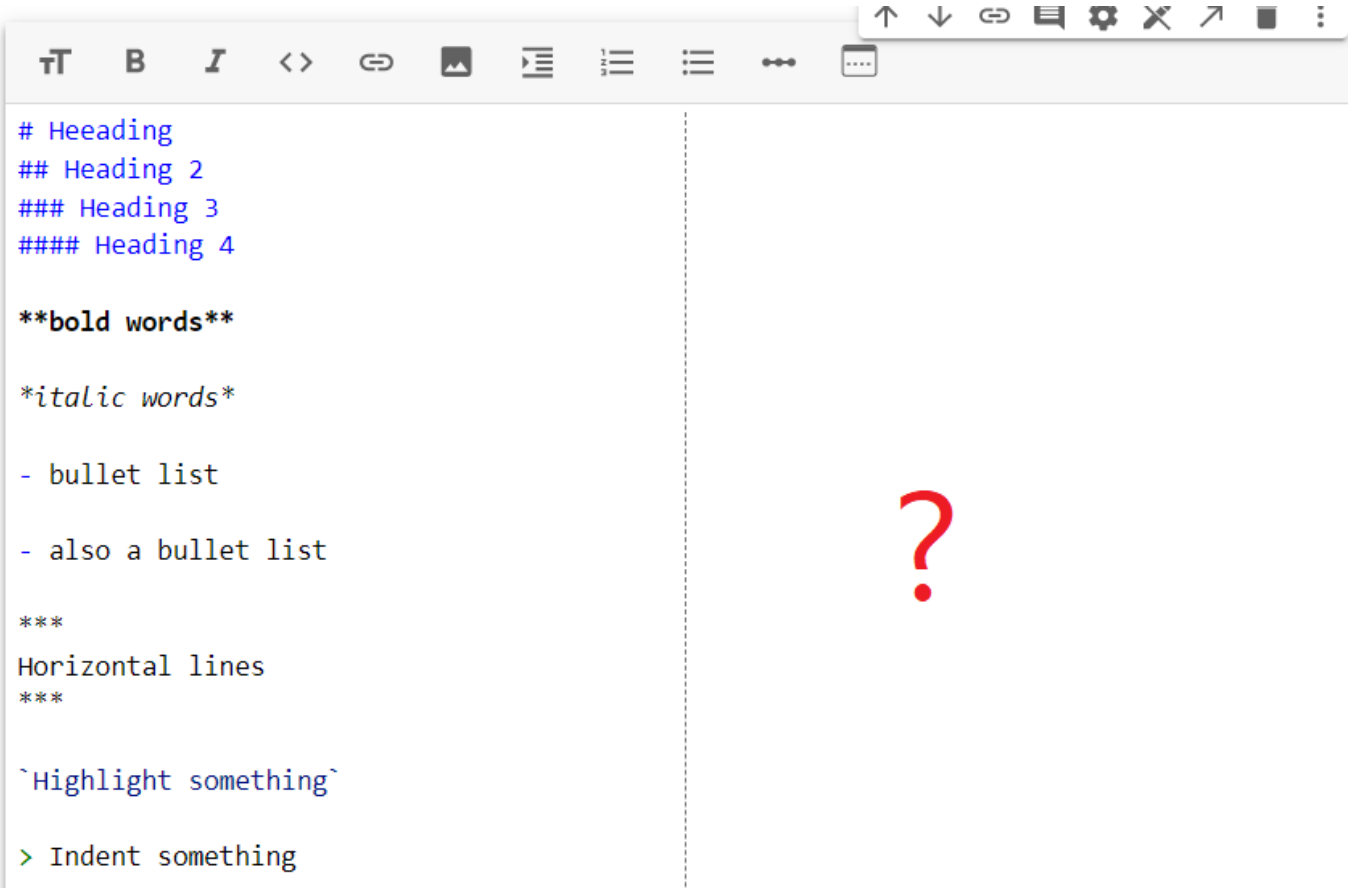
- Move your cursor to the top of the **second** code cell, click on **+ Text** to create a new text cell, type Section Title



- You cannot “run” a text cell. **Click on other cell** to see the effects

Working with Google Colab – Try it yourself

- Formatting features are available in text cells, you may want to use it for make your notes more organized (it all depends on you)
- Try it yourself after class

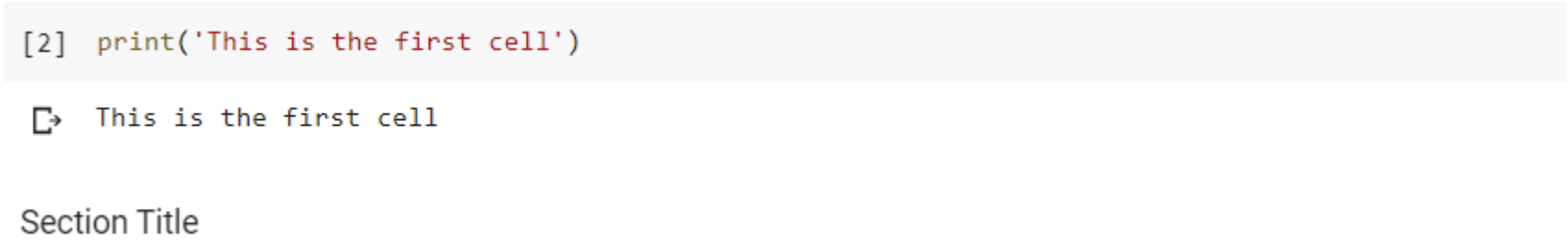


Working with Google Colab

- Go to **second** code cell and type print("This is the second cell"), press **Shift + Enter**
- Computer only executes codes in code cells

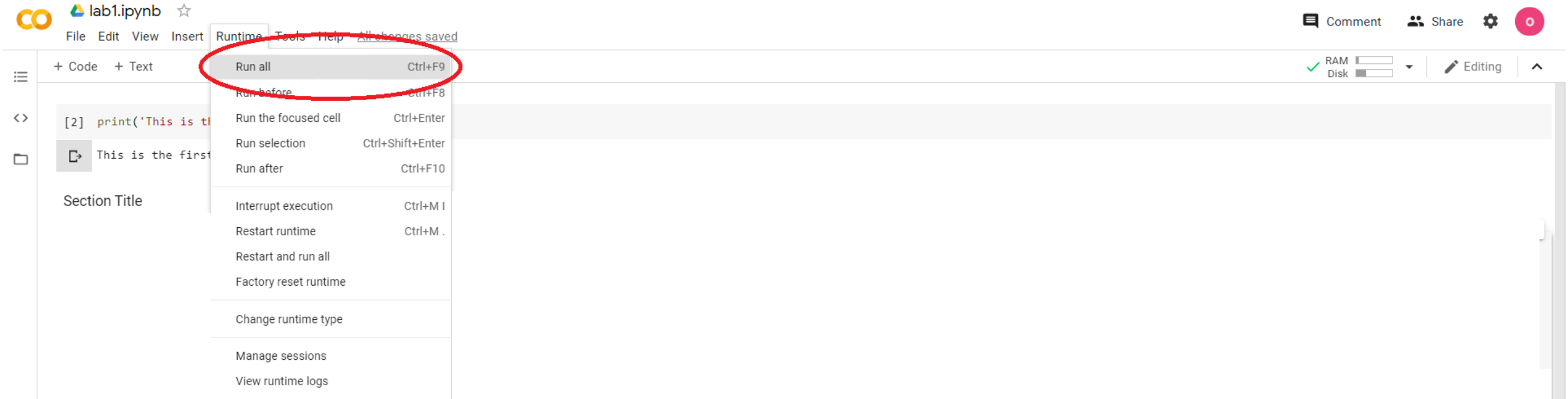
Working with Google Colab

- To delete a cell, click on the **second** code cell, press **Ctrl + M** and then press **D**
- This also works to delete text cells



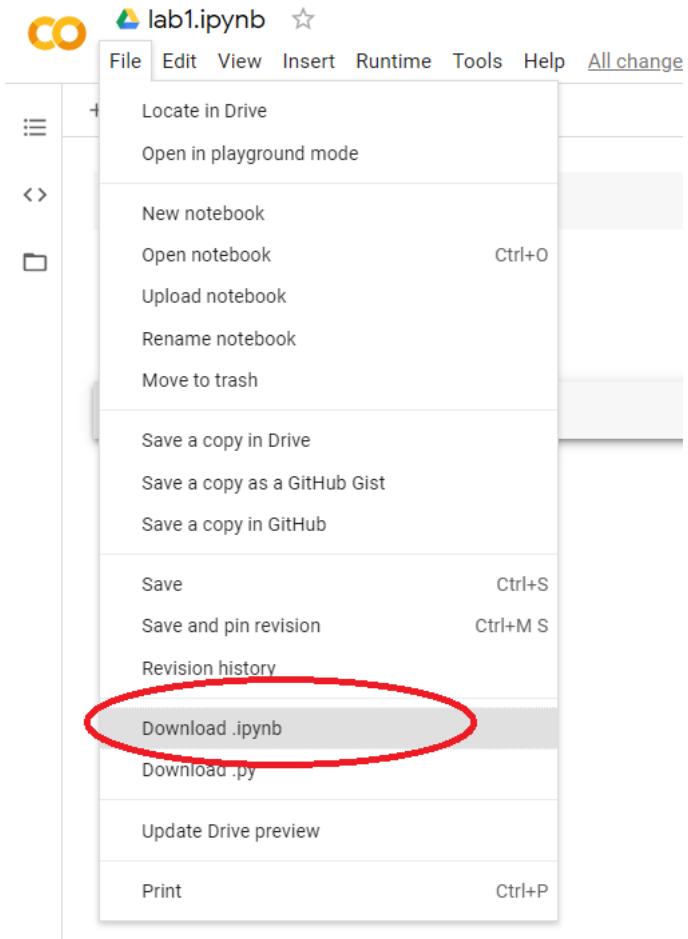
Working with Google Colab

- Choose **Runtime** from the menu, click **Run all** to run all code cells. Alternatively, press **Ctrl + F9** (**Ctrl + fn + F9** in Mac)
- Useful when you work with bunch of code cells



Working with Google Colab

- To download the file, choose **File** and click **Download .ipynb**



Working with Google Colab

- Go back to Google Colab, type the following into the second cell
- Run the cell, and see what happens

```
import numpy as np
import pandas as pd

np.random.seed(1234)
df = pd.DataFrame(np.random.randn(10, 4),
                  columns=['Col1', 'Col2', 'Col3', 'Col4'])
boxplot = df.boxplot(column=['Col1', 'Col2', 'Col3'])
```

Take away

- Anaconda & VSCode: Download, install and setup
- Google Colab: Install and use

End