

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

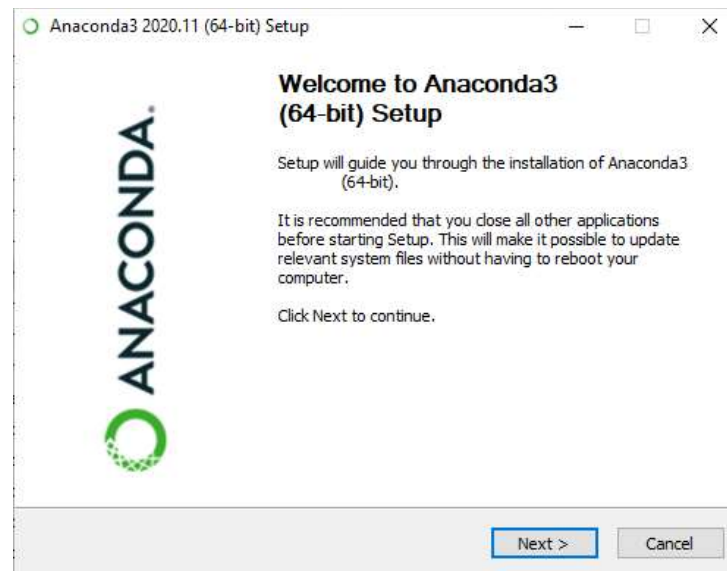
- Go to <https://www.anaconda.com/products/individual>, scroll down a little bit and download appropriate installer for your computer (Windows 64-Bit? Mac?)

Anaconda Installers

Windows 	MacOS 	Linux 
Python 	Python 	Python 
64-Bit Graphical Installer (466 MB)	64-Bit Graphical Installer (462 MB)	64-Bit (x86) Installer (550 MB)
32-Bit Graphical Installer (397 MB)	64-Bit Command Line Installer (454 MB)	64-Bit (Power8 and Power9) Installer (290 MB)

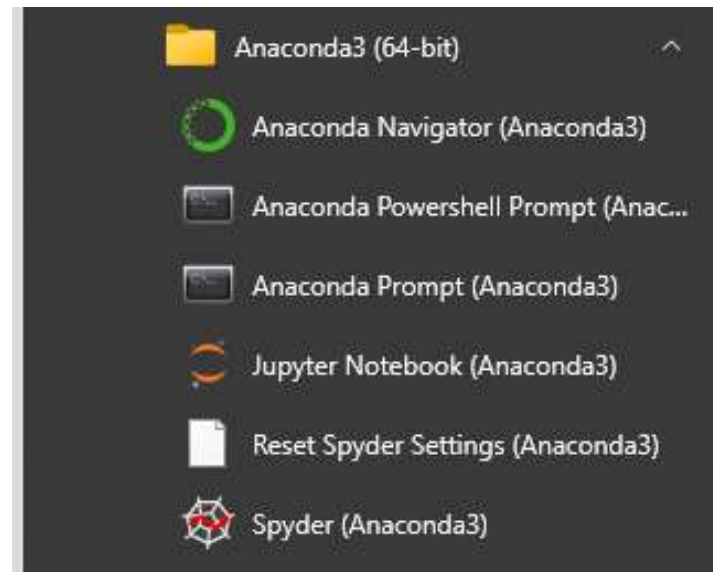
Anaconda: Download, install and set up

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



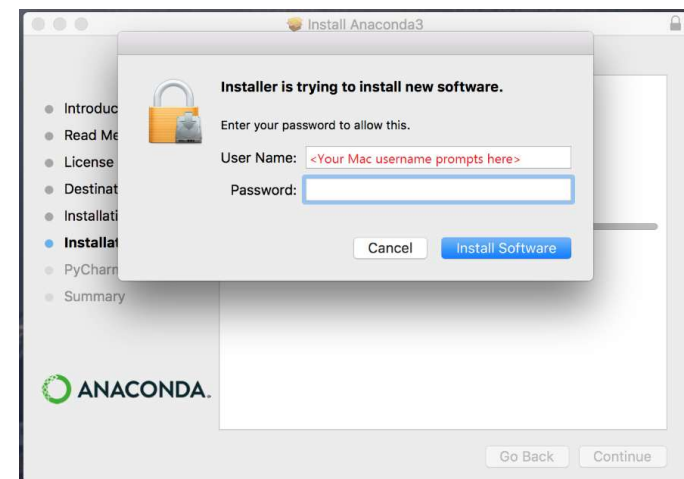
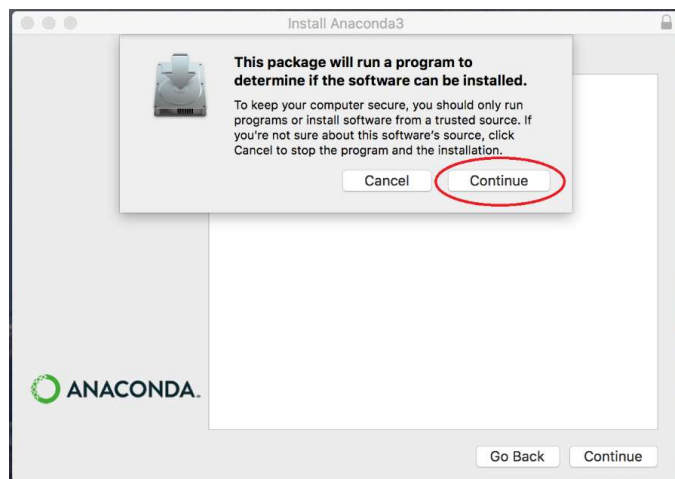
Anaconda: Download, install and set up

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



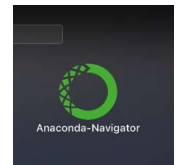
Anaconda: Download, install and set up

- **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



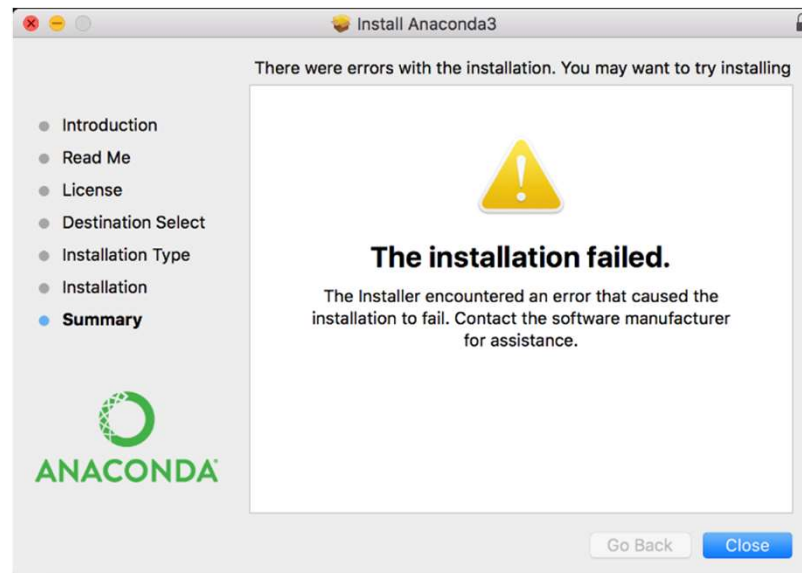
Anaconda: Download, install and set up

- **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**



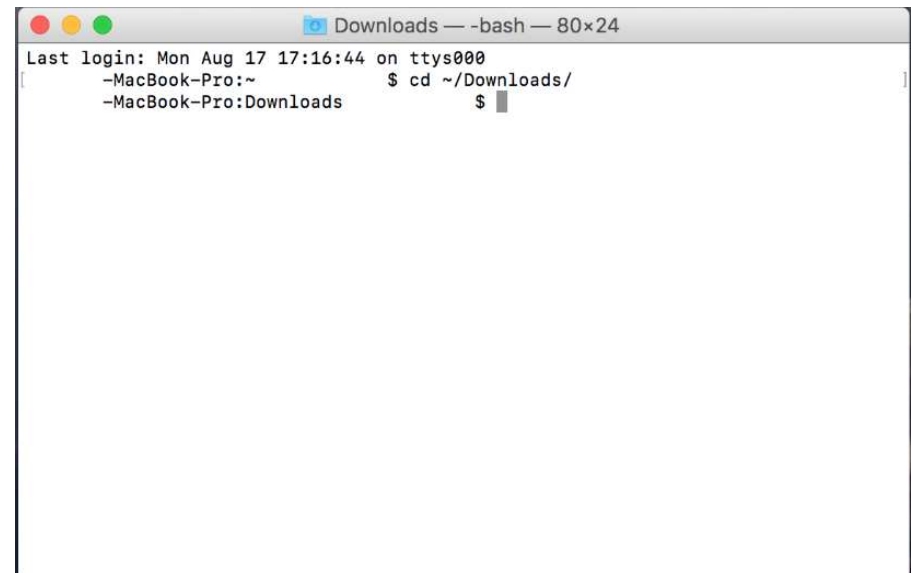
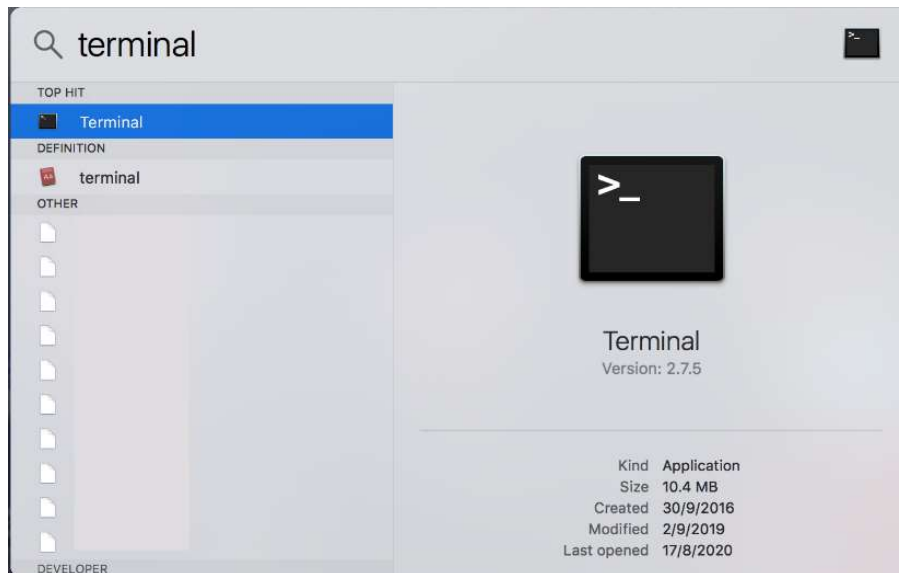
Anaconda: Download, install and set up

- **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

```
Downloads — -bash — 80x24
Last login: Mon Aug 17 17:16:44 on ttys000
-MacBook-Pro:~ $ cd ~/Downloads/
-MacBook-Pro:Downloads $ ls

Anaconda3-2020.07-MacOSX-x86_64.sh
-MacBook-Pro:Downloads $
```

```
Downloads — sh Anaconda3-2020.07-MacOSX-x86_64.sh — 80x24
Last login: Mon Aug 17 17:16:44 on ttys000
-MacBook-Pro:~ $ cd ~/Downloads/
-MacBook-Pro:Downloads $ ls

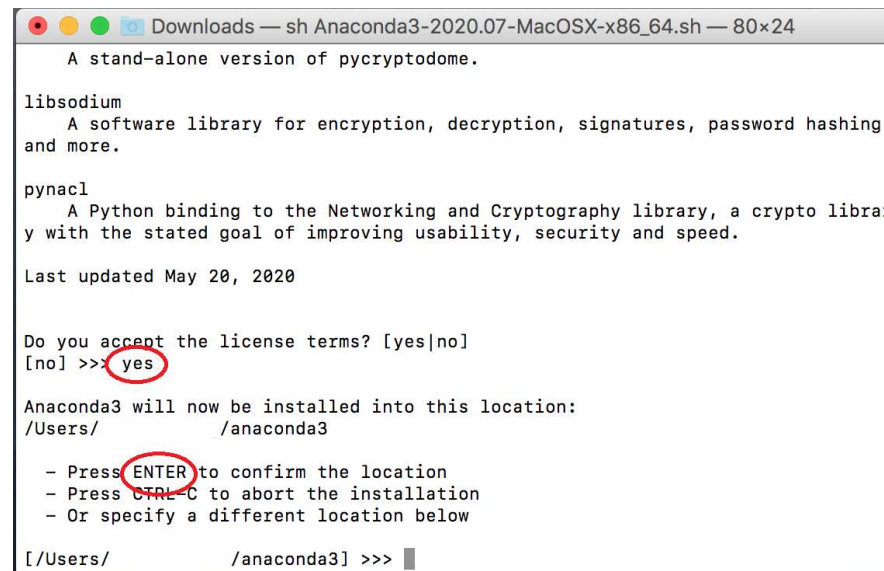
Anaconda3-2020.07-MacOSX-x86_64.sh
-MacBook-Pro:Downloads $ sh Anaconda3-2020.07-MacOSX-x86_64.sh

Welcome to Anaconda3 2020.07

In order to continue the installation process, please review the license
agreement.
Please, press ENTER to continue
>>>
```

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



```
Downloads — sh Anaconda3-2020.07-MacOSX-x86_64.sh — 80x24

A stand-alone version of pycryptodome.

libsodium
  A software library for encryption, decryption, signatures, password hashing
  and more.

pynacl
  A Python binding to the Networking and Cryptography library, a crypto librar
  y with the stated goal of improving usability, security and speed.

Last updated May 20, 2020

Do you accept the license terms? [yes|no]
[no] >>> yes

Anaconda3 will now be installed into this location:
/Users/          /anaconda3

- Press ENTER to confirm the location
- Press CTRL-C to abort the installation
- Or specify a different location below

[/Users/          /anaconda3] >>> █
```

Anaconda: Download, install and set up

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

```
Downloads — -bash — 80x24
no change    /Users/          /anaconda3/shell/condabin/conda-hook.ps1
no change    /Users/          /anaconda3/lib/python3.8/site-packages/xontrib/c
onda.xsh
no change    /Users/          /anaconda3/etc/profile.d/conda.csh
modified     /Users/          /.bash_profile

==> For changes to take effect, close and re-open your current shell. <==

If you'd prefer that conda's base environment not be activated on startup,
    set the auto_activate_base parameter to false:

conda config --set auto_activate_base false

Thank you for installing Anaconda3!

=====

Working with Python and Jupyter notebooks is a breeze with PyCharm
Professional! Code completion, Notebook debugger, VCS support, SSH, Docker,
Databases, and more!

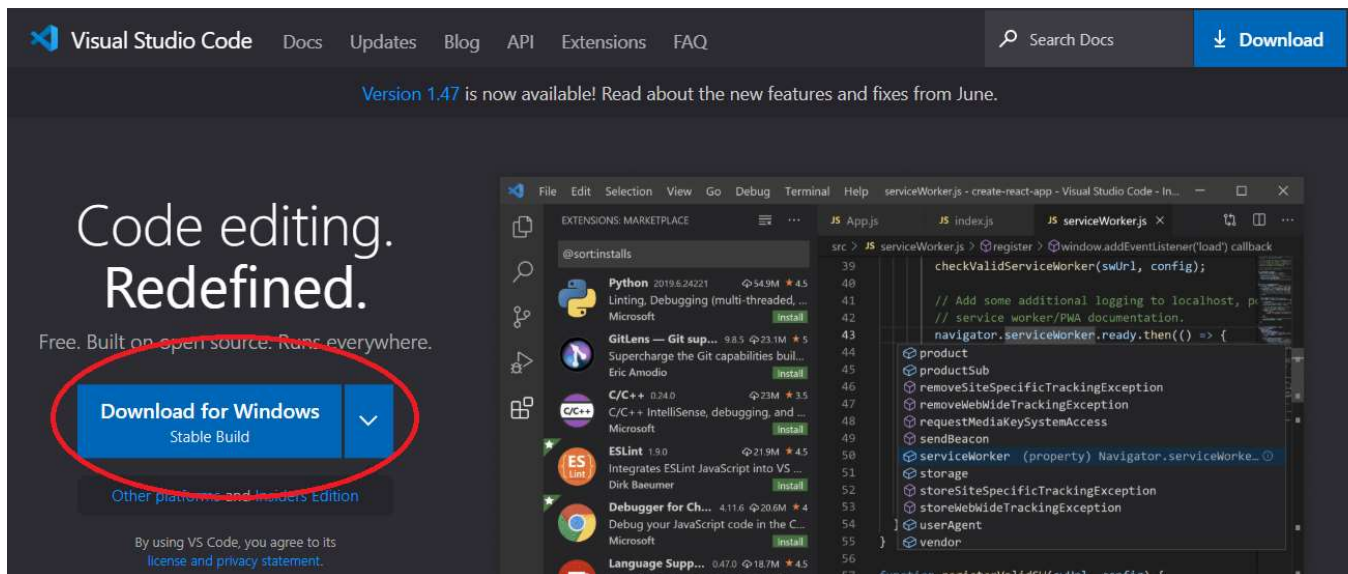
Get a free trial at: https://www.anaconda.com/pycharm

-MacBook-Pro:Downloads          $
```

VSCode: Download, install and setup

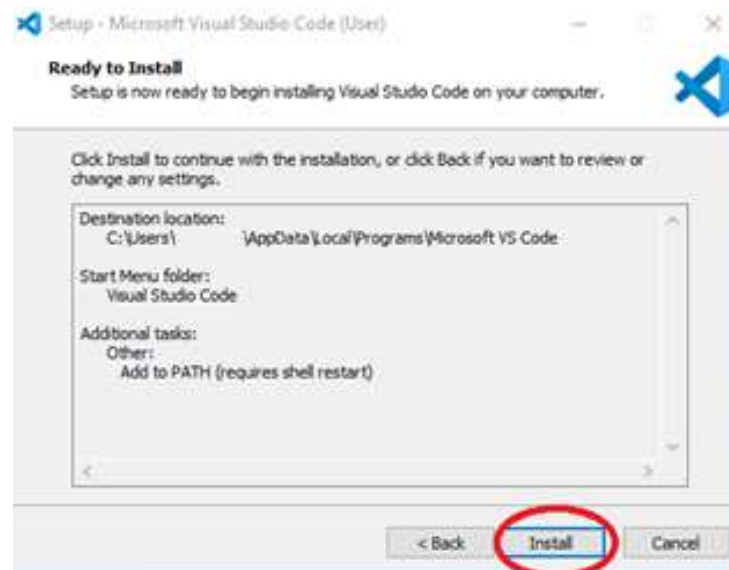
VSCode: Download, install and setup

- **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**)

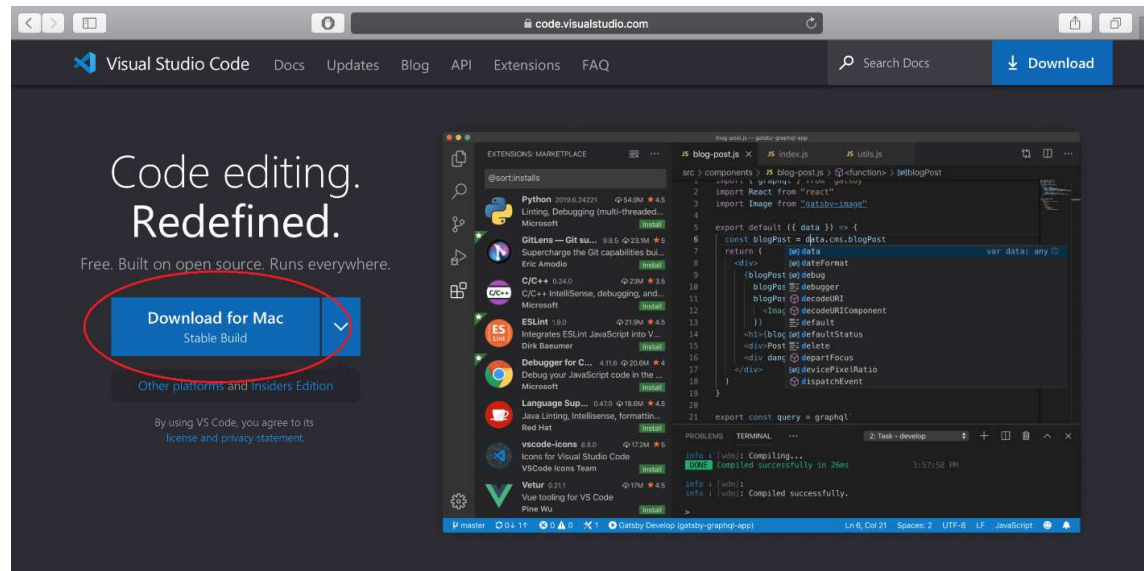
VSCode: Download, install and setup

- **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)



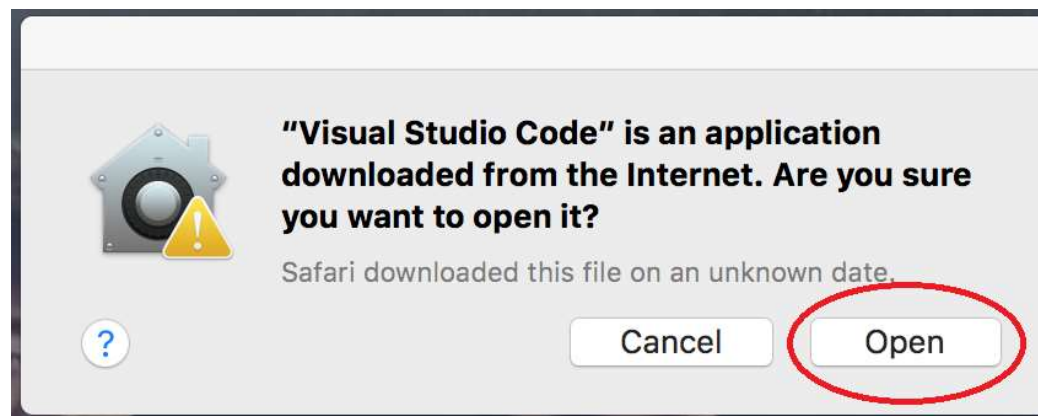
VSCode: Download, install and setup

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



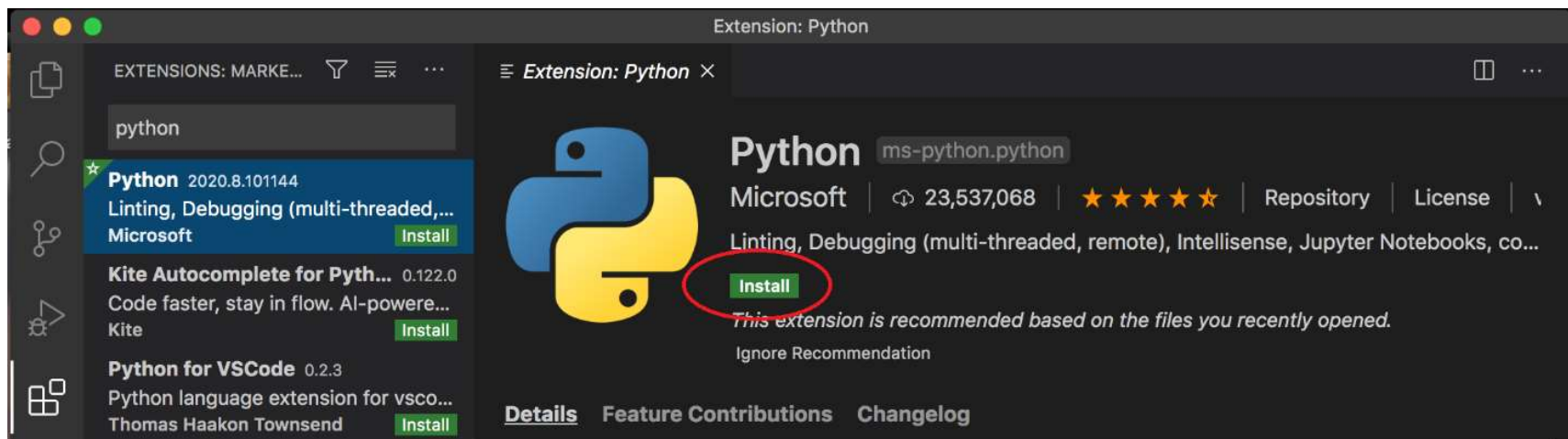
VSCode: Download, install and setup

- **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

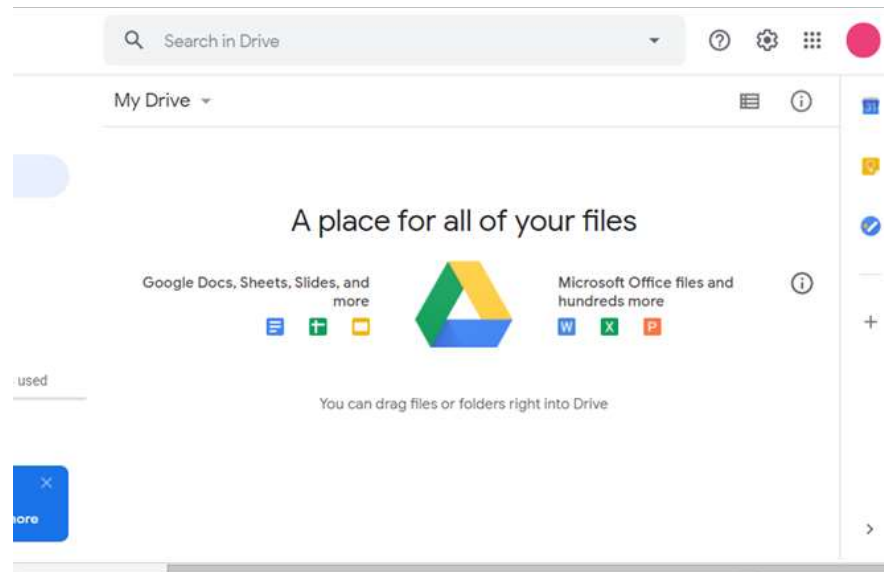
- **Mac User:** By default, an extension named **Python** is installed. If not, type **python** in the search bar, click on the Python extension published by Microsoft and install it
- The setup of VSCode is finished (We will use it next lab)



Setup Google Colab on Google Drive

Setup Google Colab on Google Drive

- Go to <https://drive.google.com> and sign into your Google Drive

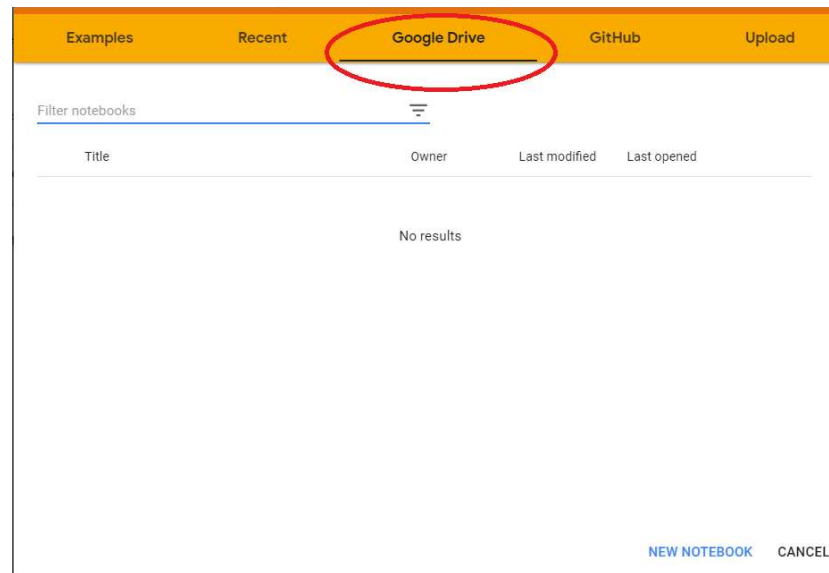


Setup Google Colab on Google Drive

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

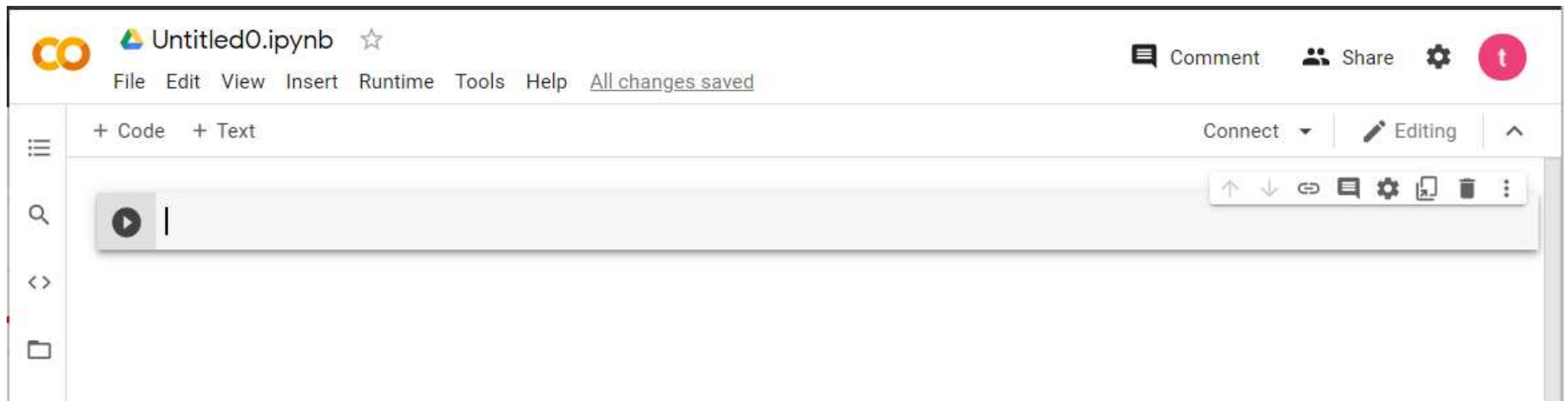
Setup Google Colab on Google Drive

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

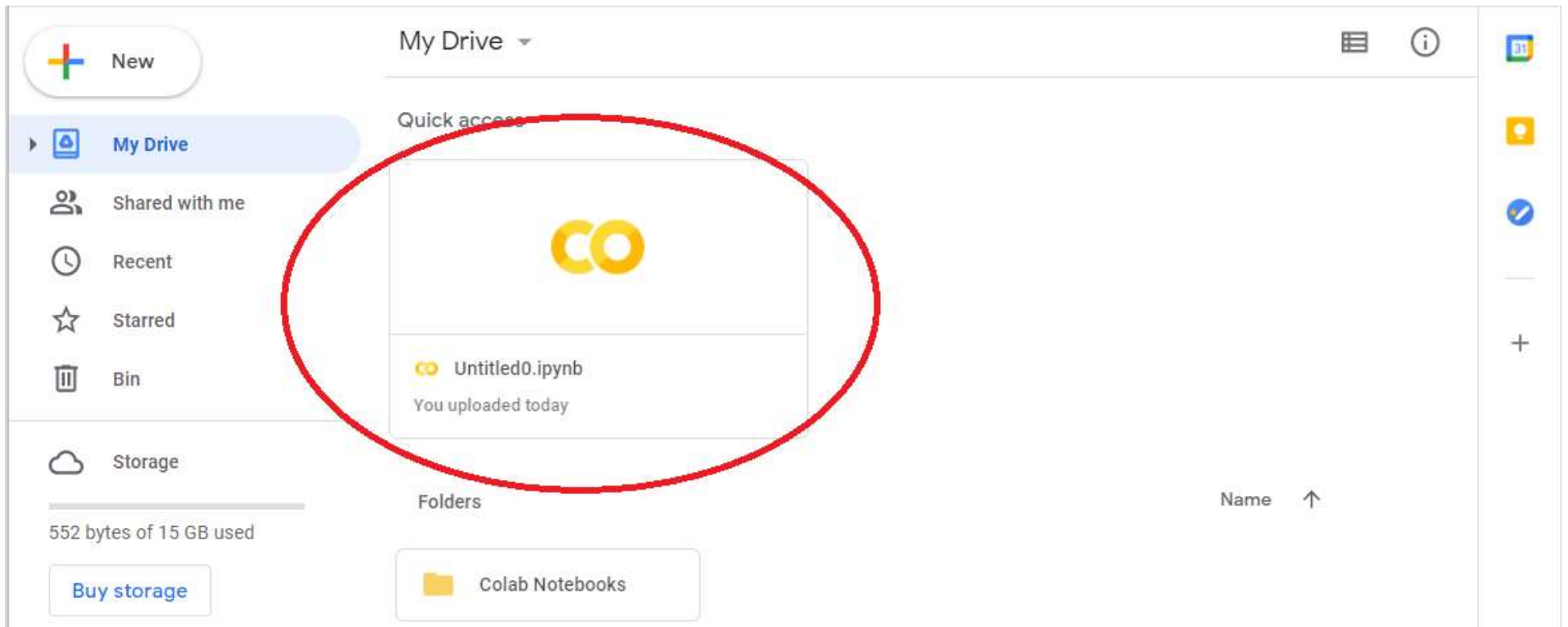


Setup Google Colab on Google Drive

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



Setup Google Colab on Google Drive



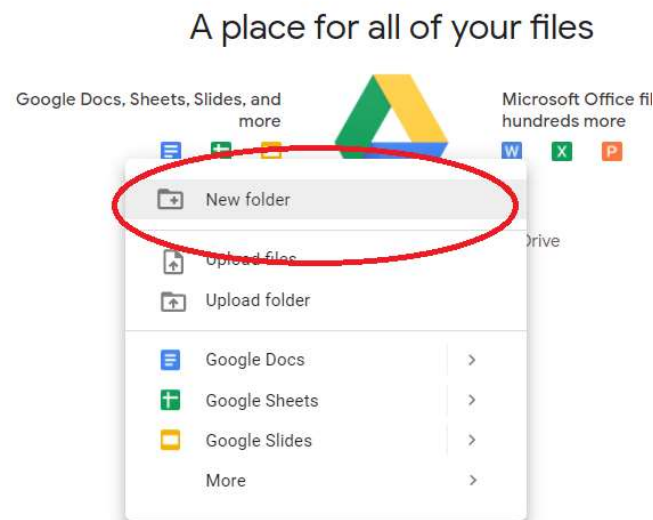
Working with Google Colab

Working with Google Colab - Prerequisite

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

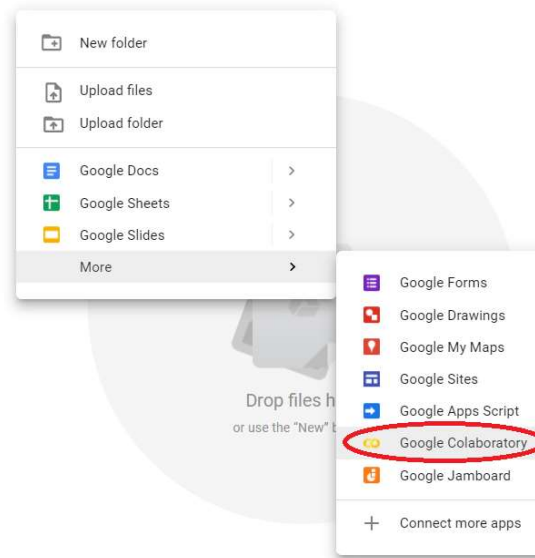
Working with Google Colab

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



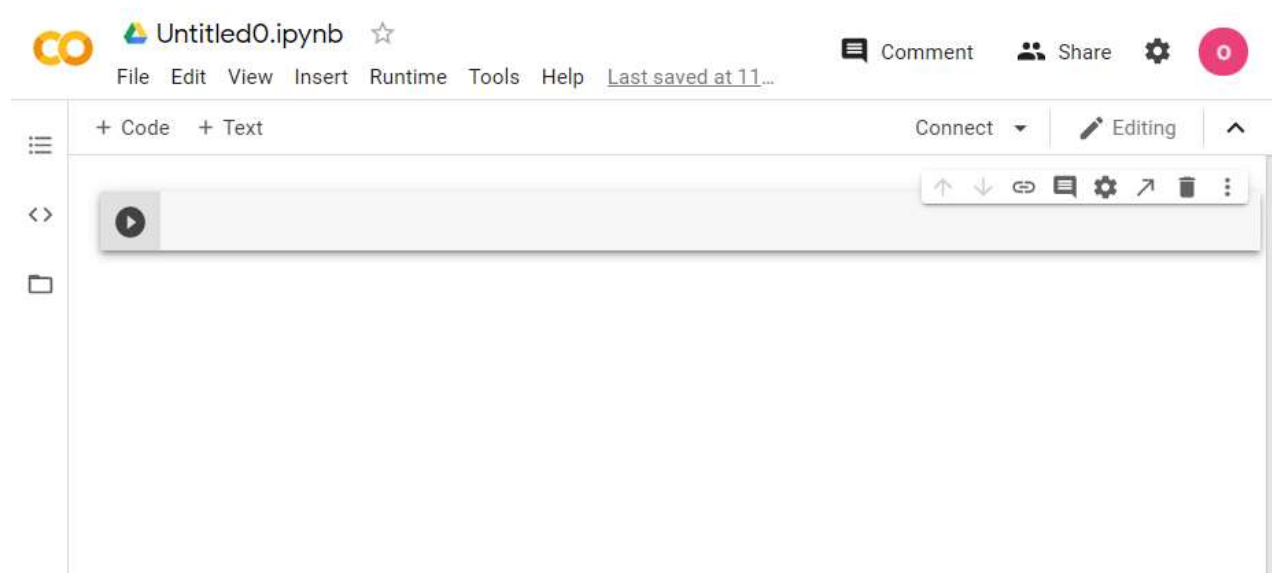
Working with Google Colab

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



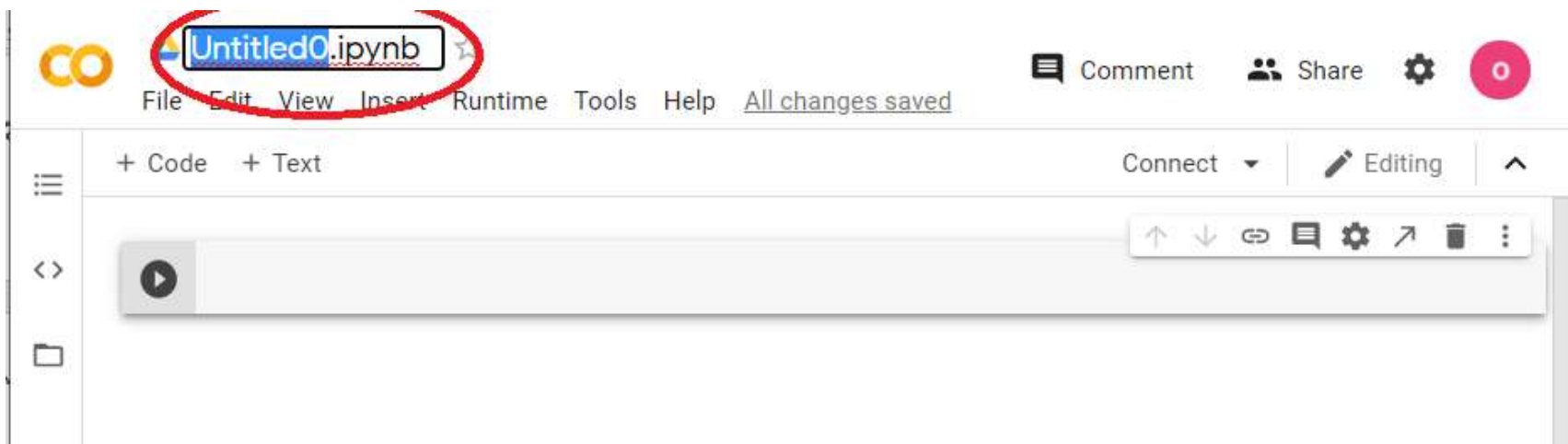
Working with Google Colab

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



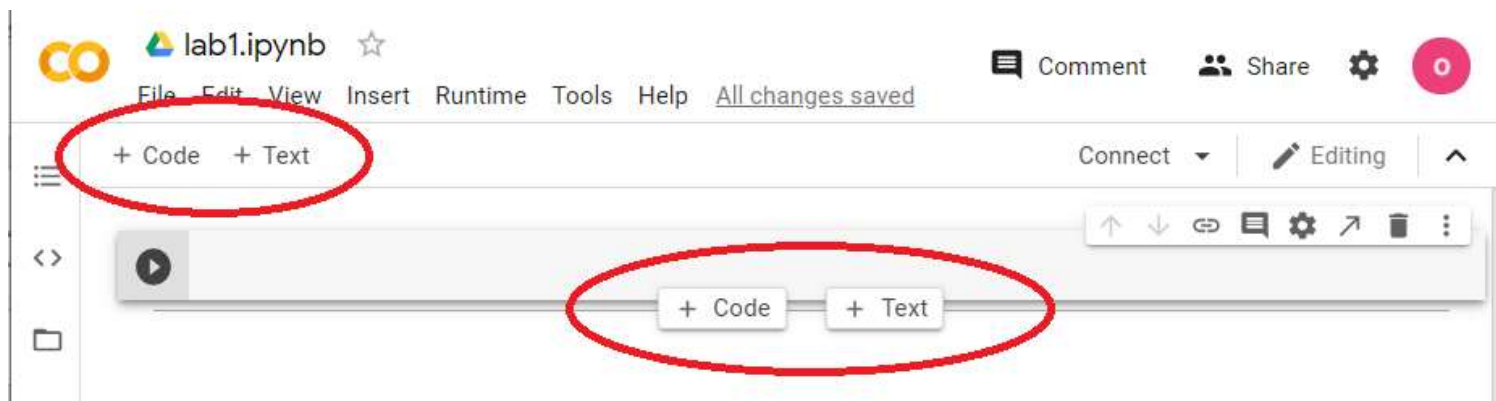
Working with Google Colab

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




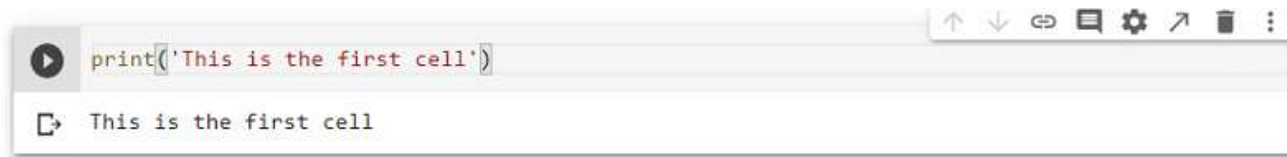
Working with Google Colab

- 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

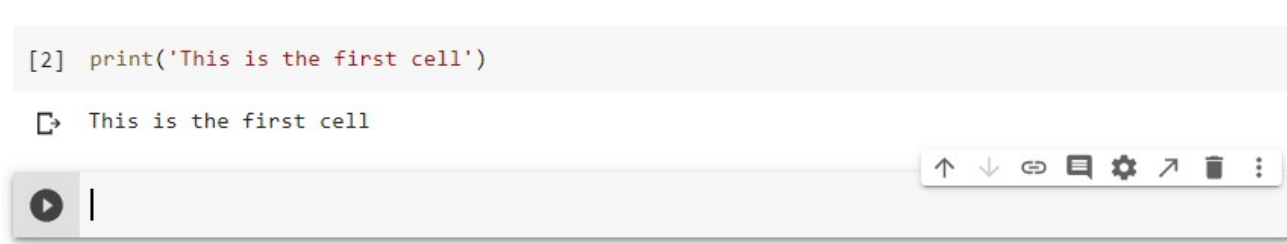


Working with Google Colab

- 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)

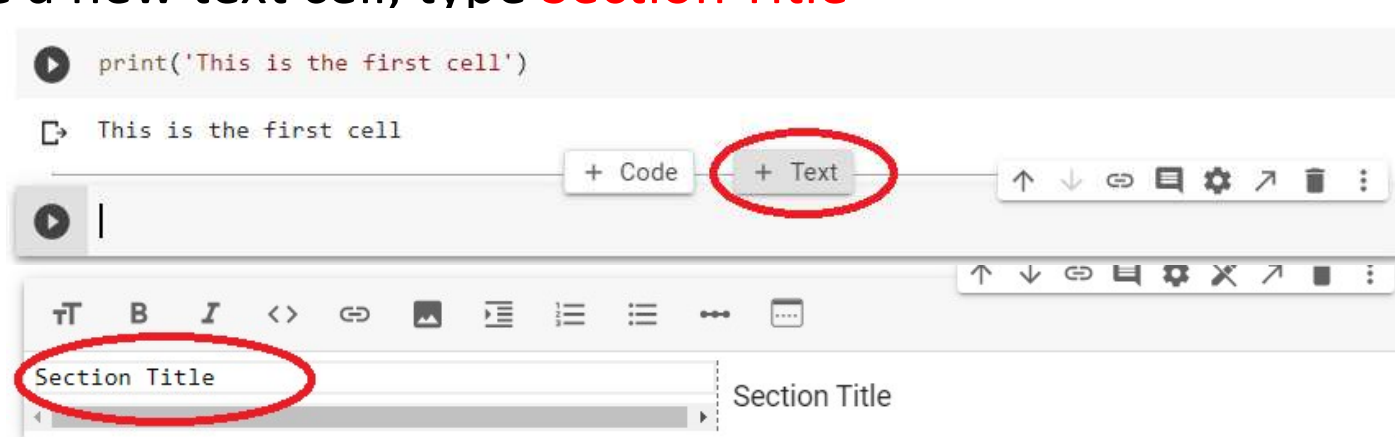


- By pressing **Shift + Enter**, it will jump to the next cell after running the cell. As a result, it creates an additional code cell for you



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**

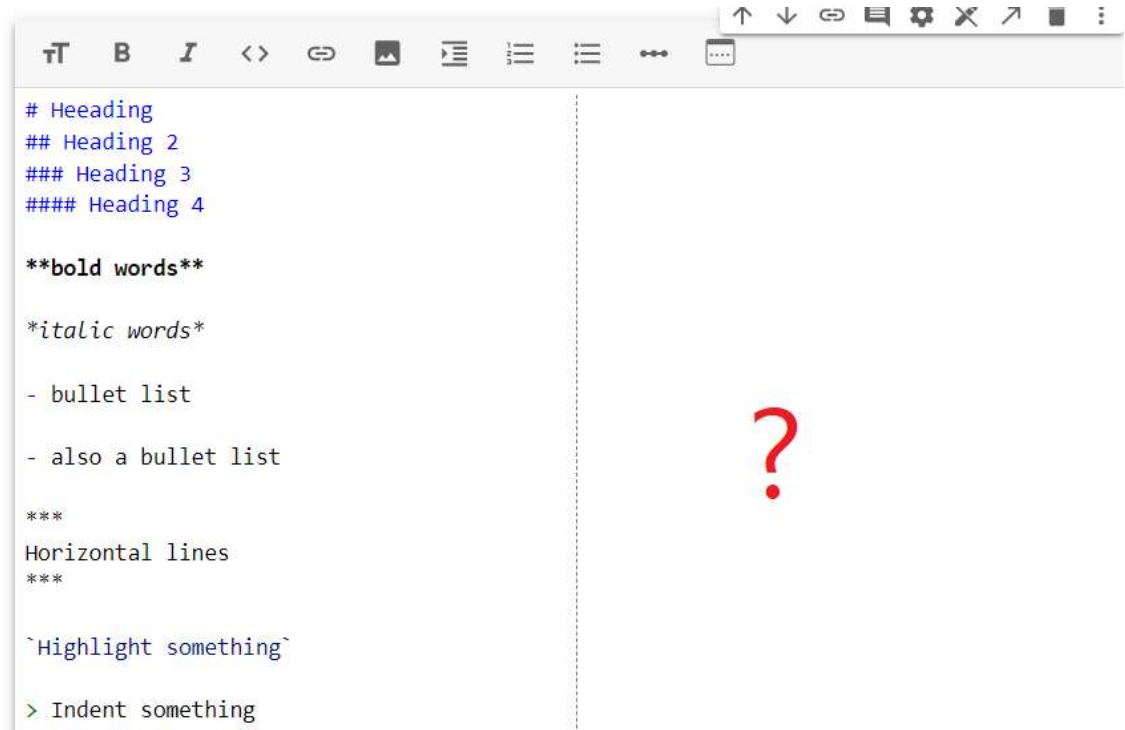


- You cannot “run” a text cell. **Click on other cell** to see the effects



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



The screenshot shows a Google Colab text cell with a toolbar at the top containing icons for text formatting (bold, italic, code), linking, inserting images, lists, tables, and more. The text inside the cell demonstrates various formatting features:

```
# Heeading
## Heading 2
### Heading 3
#### Heading 4

**bold words**

*italic words*

- bullet list
- also a bullet list

***
Horizontal lines
***

`Highlight something`

> Indent something
```

To the right of the code cell, there is a large red question mark.

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



The screenshot shows a single code cell in Google Colab. The code cell contains the Python code `[3] print("This is the second cell")`. Below the code, the output of the execution is displayed as `↳ This is the second cell`. A red oval is drawn around the code and its output. To the right of the code cell, there is a toolbar with icons for undo, redo, insert, run, settings, share, delete, and a menu.

```
[3] print("This is the second cell")
```

↳ This is the second cell

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

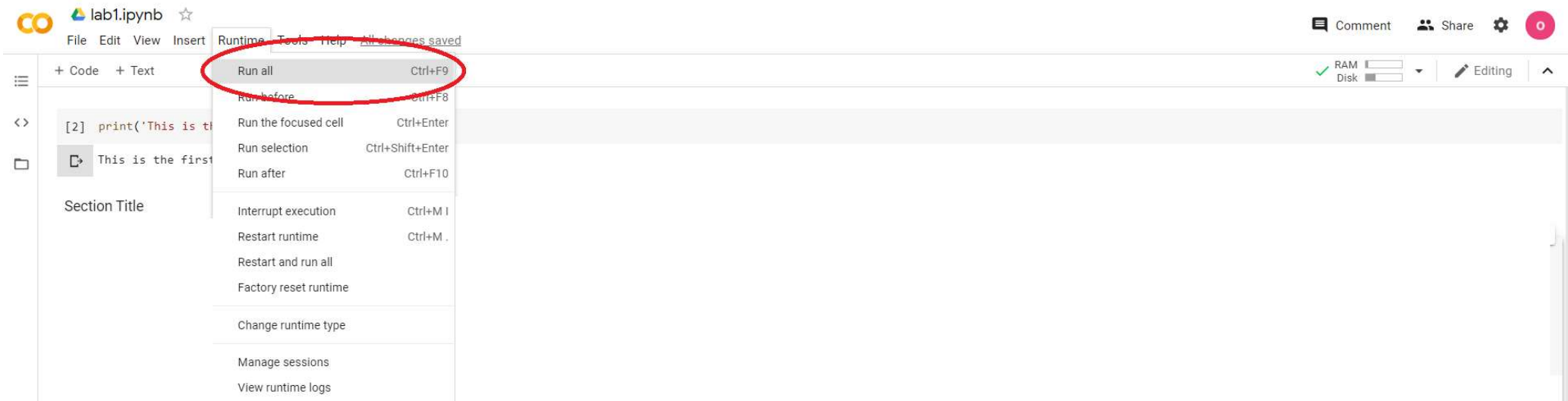
```
[2] print('This is the first cell')
```

☞ This is the first cell

Section Title

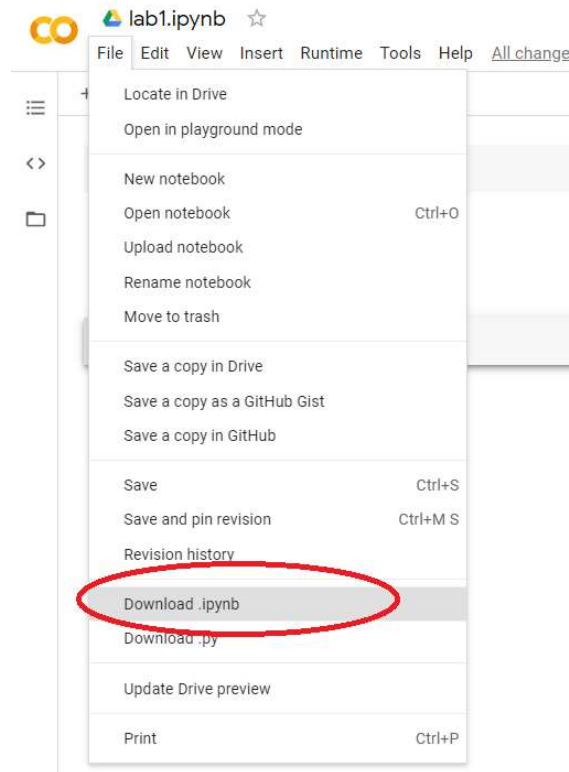
Working with Google Colab

- 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