

# 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

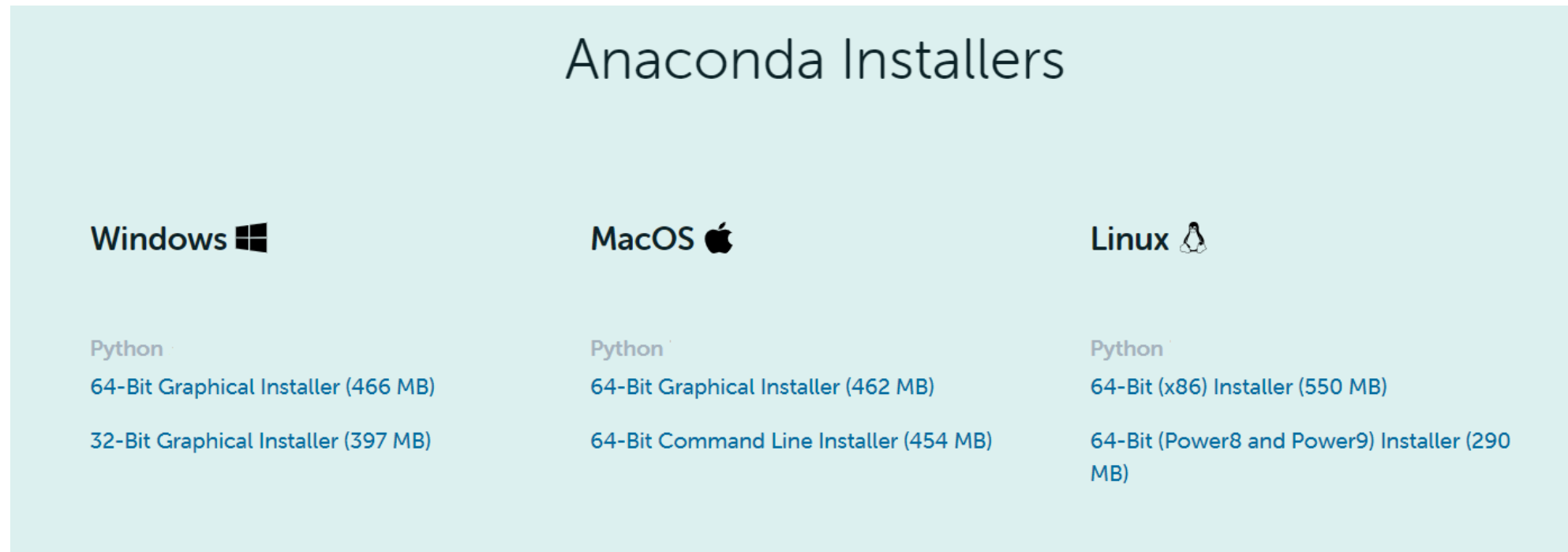
# Agenda

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

# Anaconda: Download, install and set up

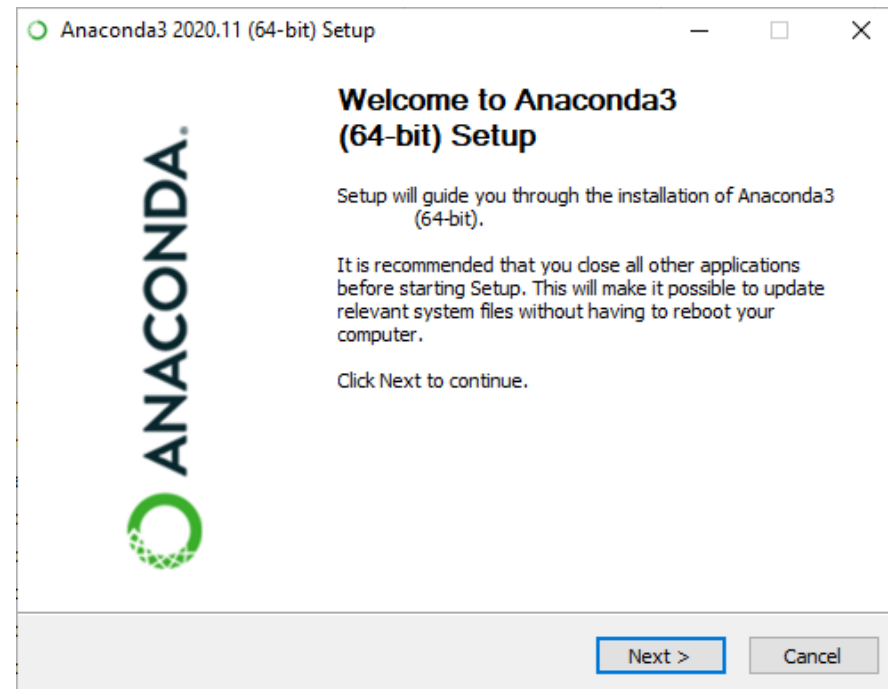
# Anaconda: Download, install and set up

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



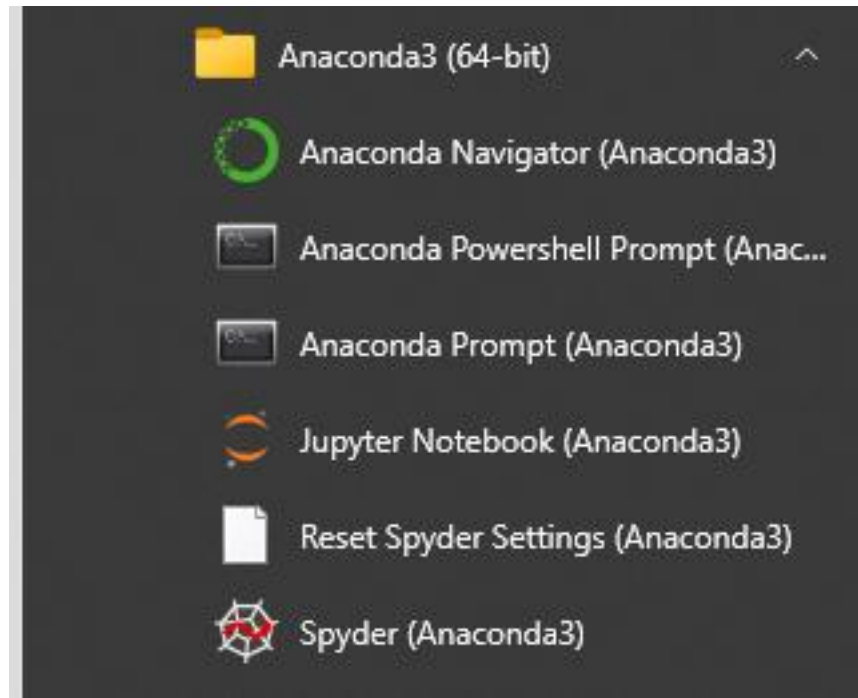
# Anaconda: Download, install and set up

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



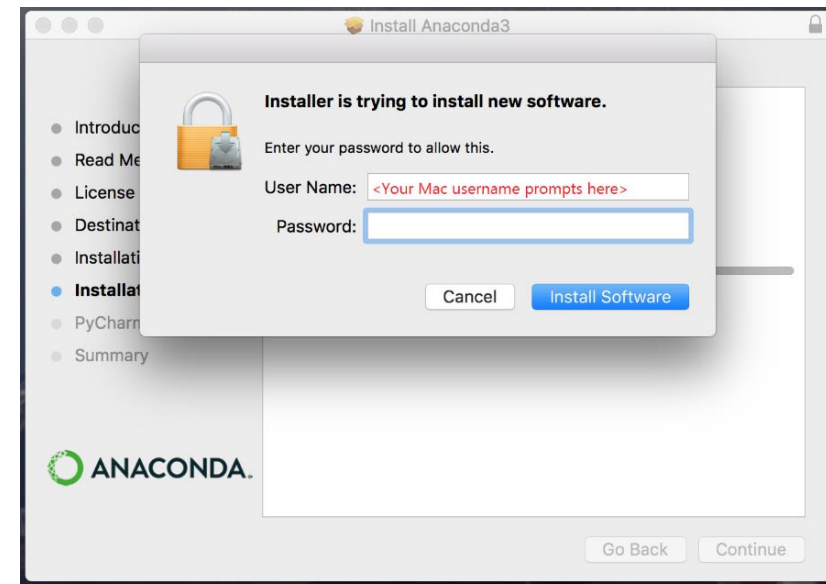
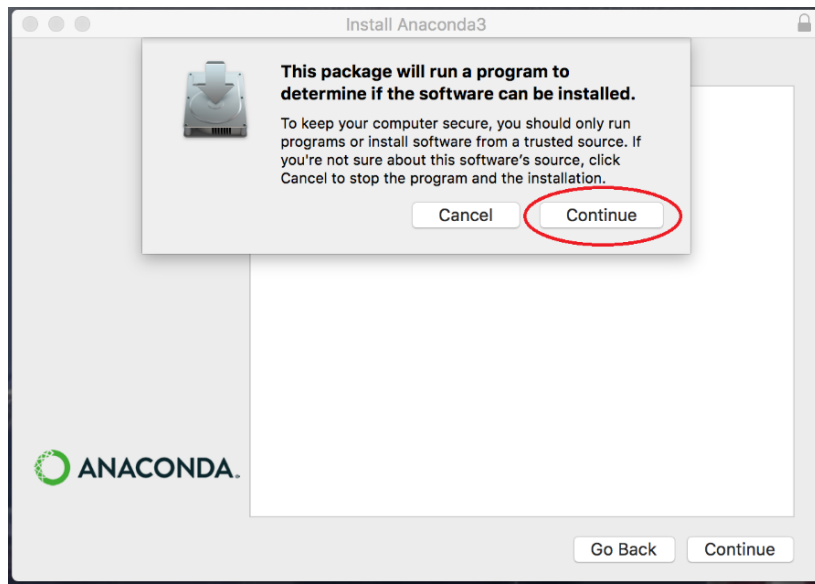
# Anaconda: Download, install and set up

- **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

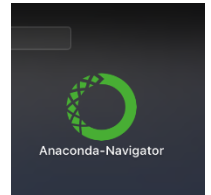
- **Mac User:** Open the installer, click **Continue**, you can simply use default option and install it
- As this installer is downloaded from the Internet, you will be prompted to enter password to allow installation. A most updated Python interpreter will be installed accordingly





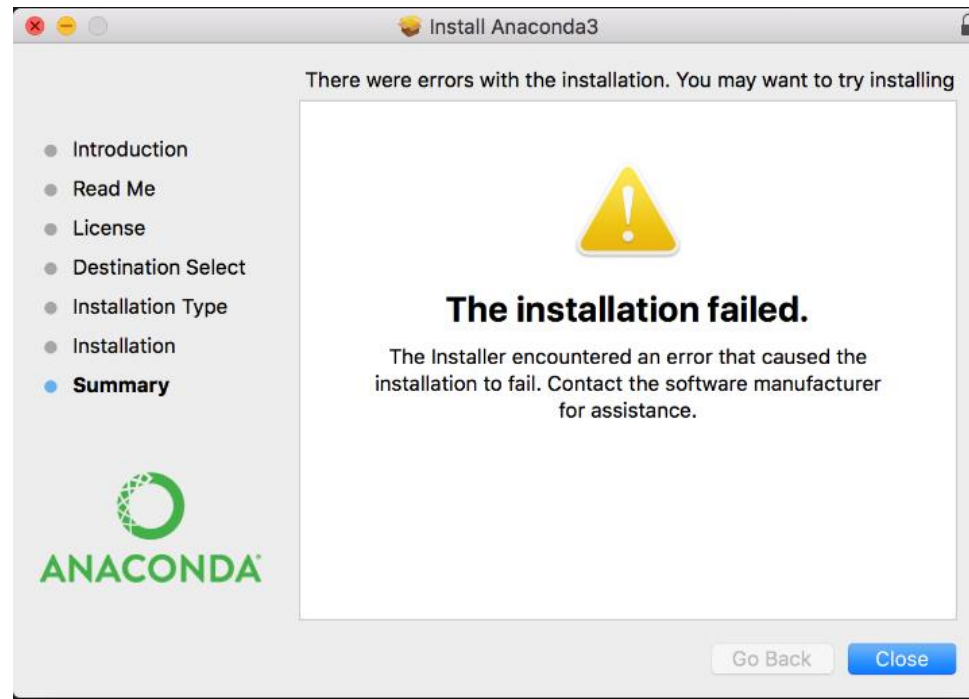
# Anaconda: Download, install and set up

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



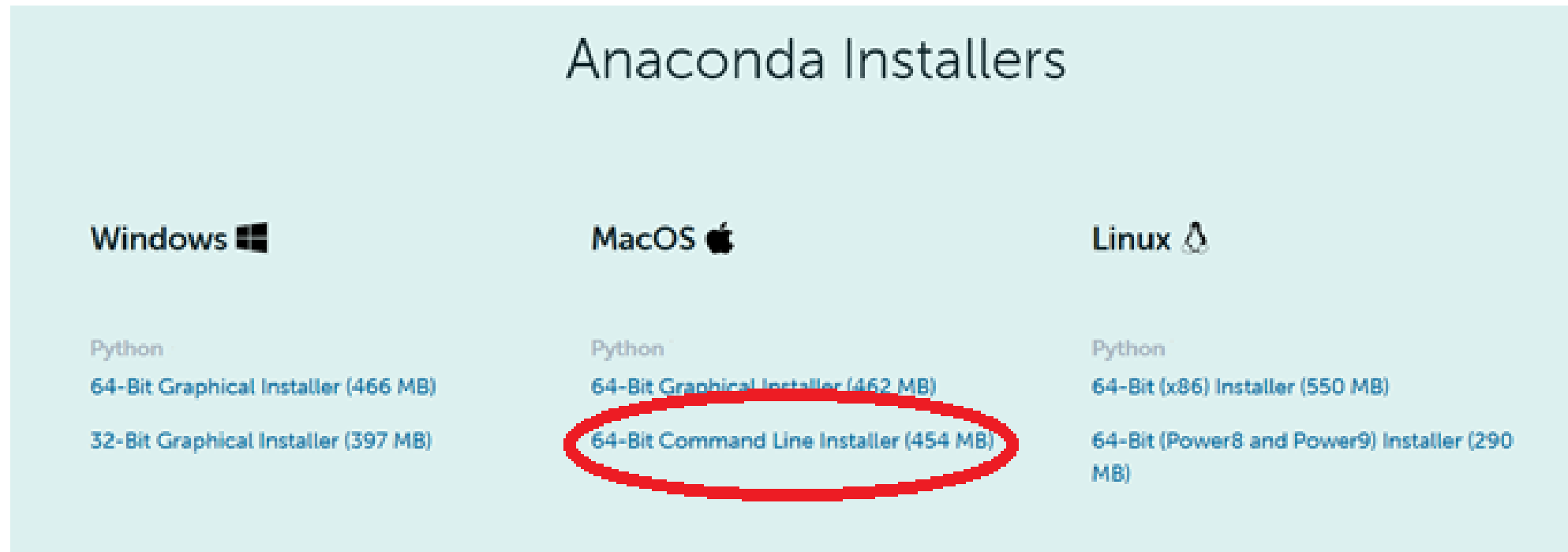
# Anaconda: Download, install and set up

- **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**



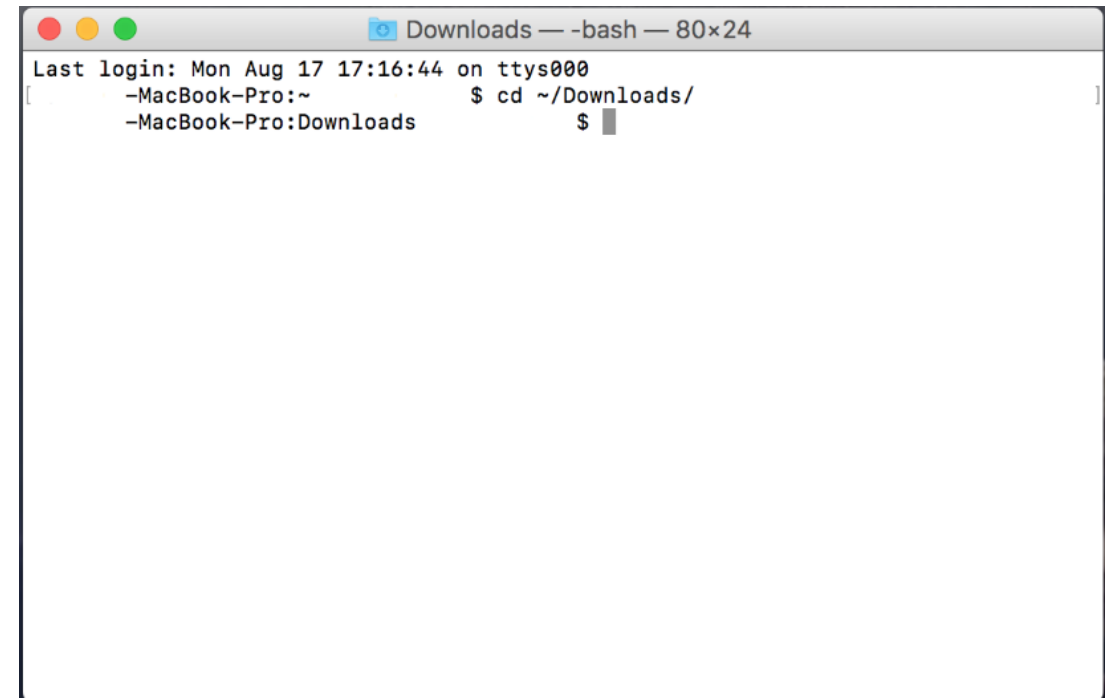
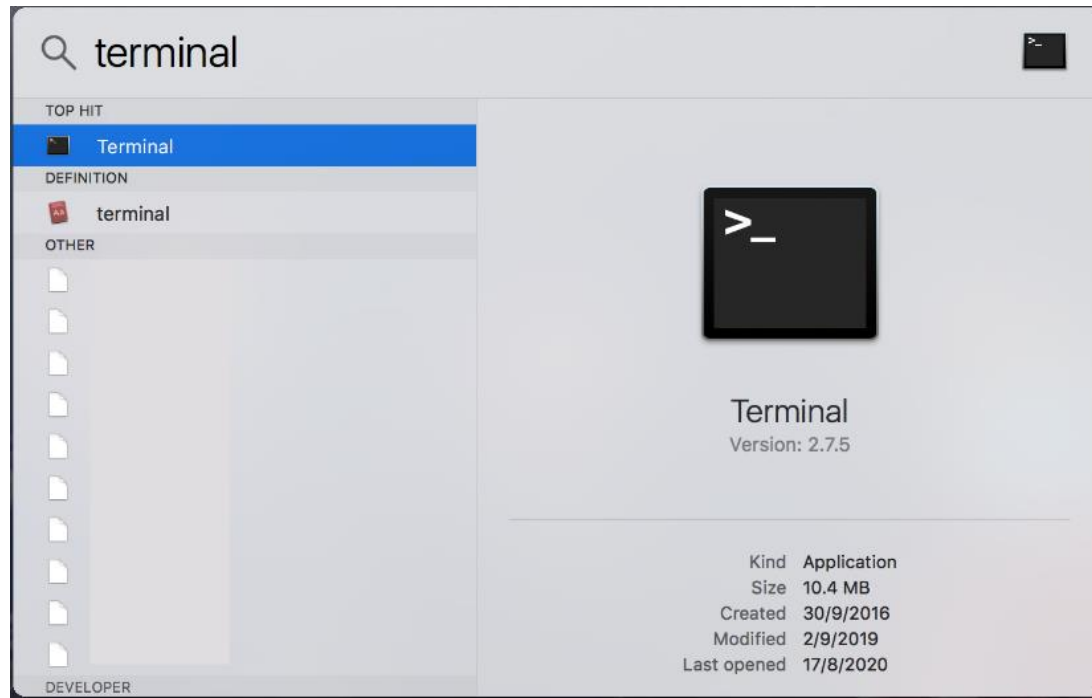
# Anaconda: Download, install and set up

- **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

```
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

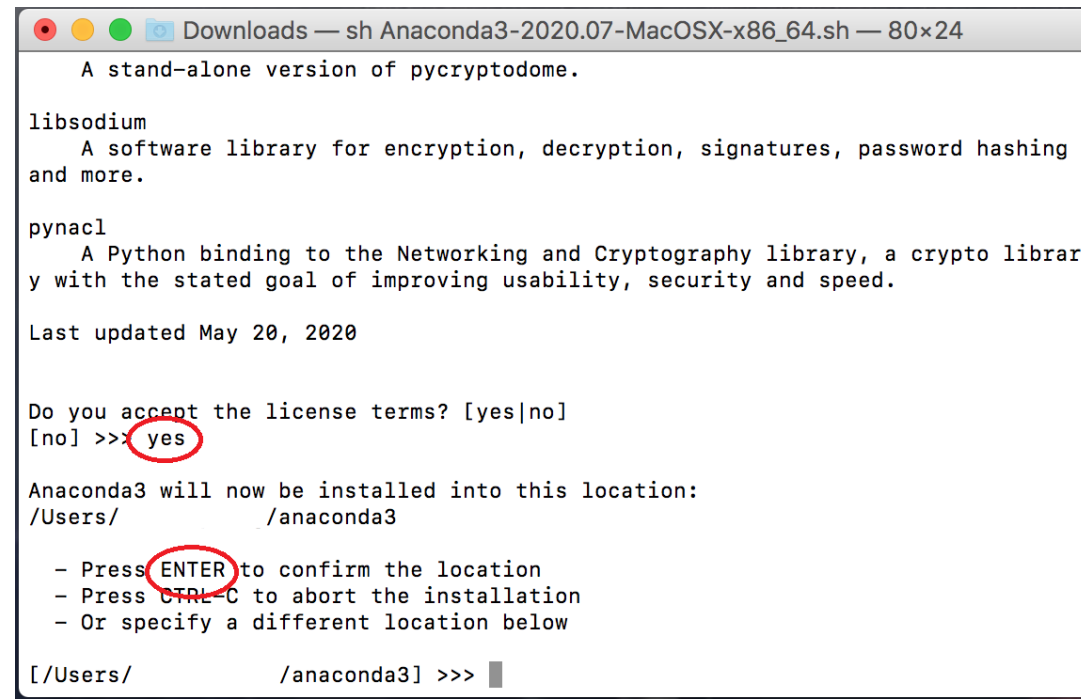
-MacBook-Pro:Downloads $ sh Anaconda3-2020.07-MacOSX-x86_64.sh

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

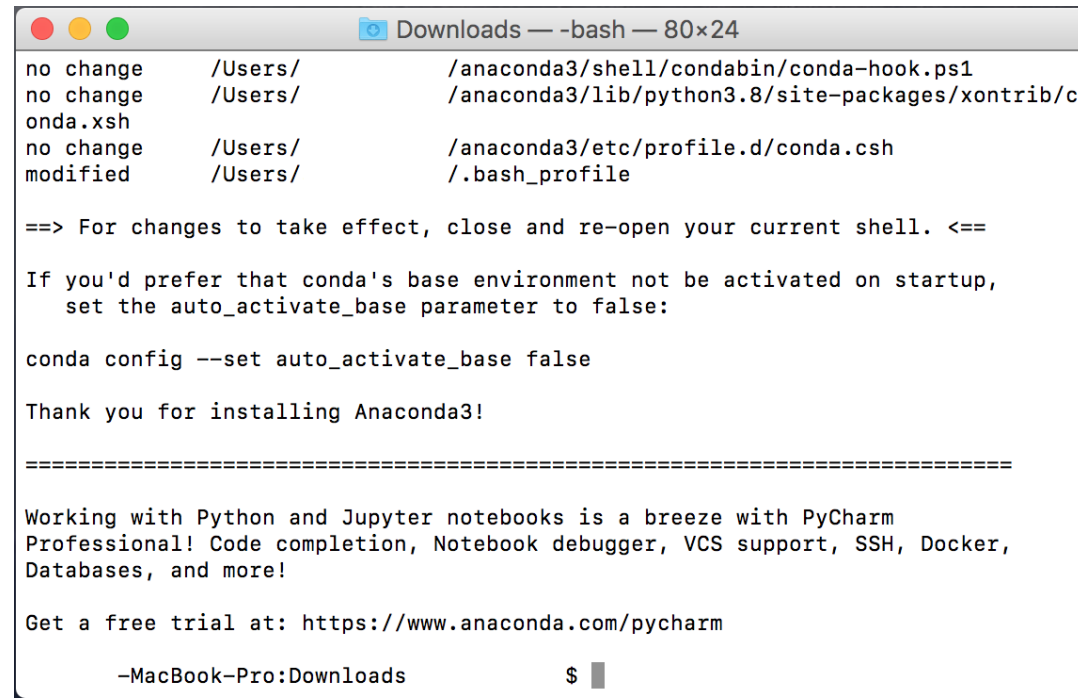
Anaconda3 will now be installed into this location:
/Users/ /anaconda3

- 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

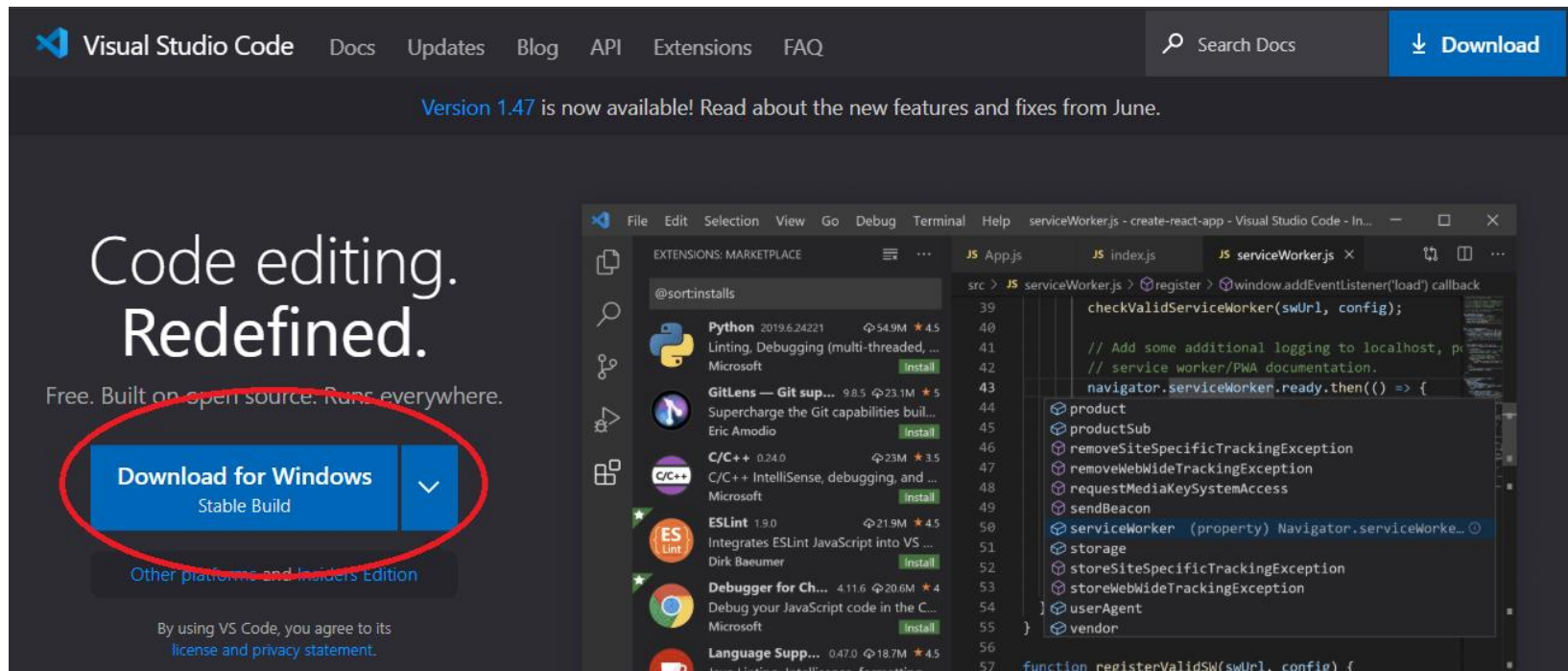
-MacBook-Pro:Downloads $
```

# VSCode: Download, install and setup



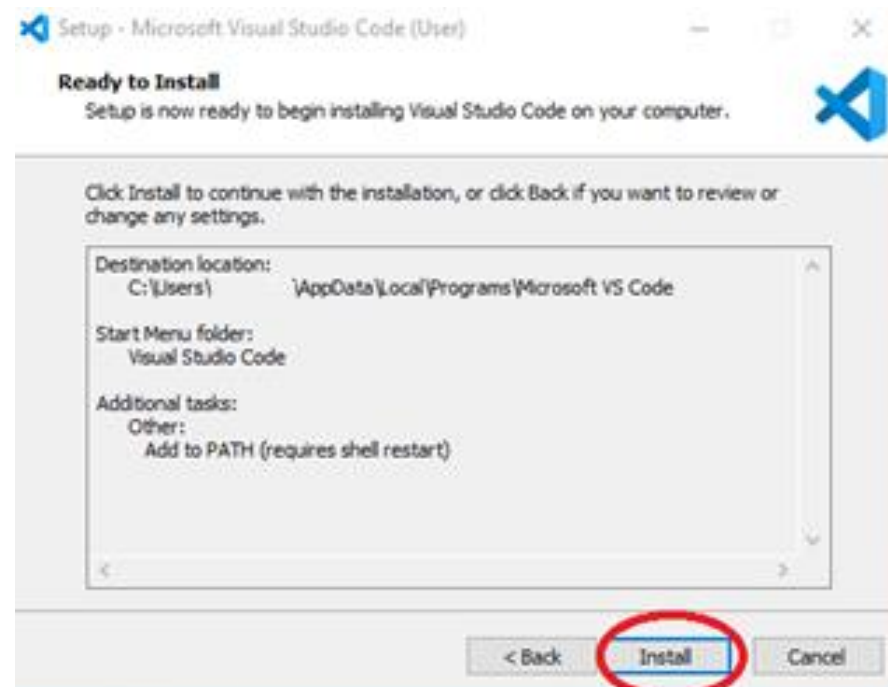
# VSCode: Download, install and setup

- **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**)

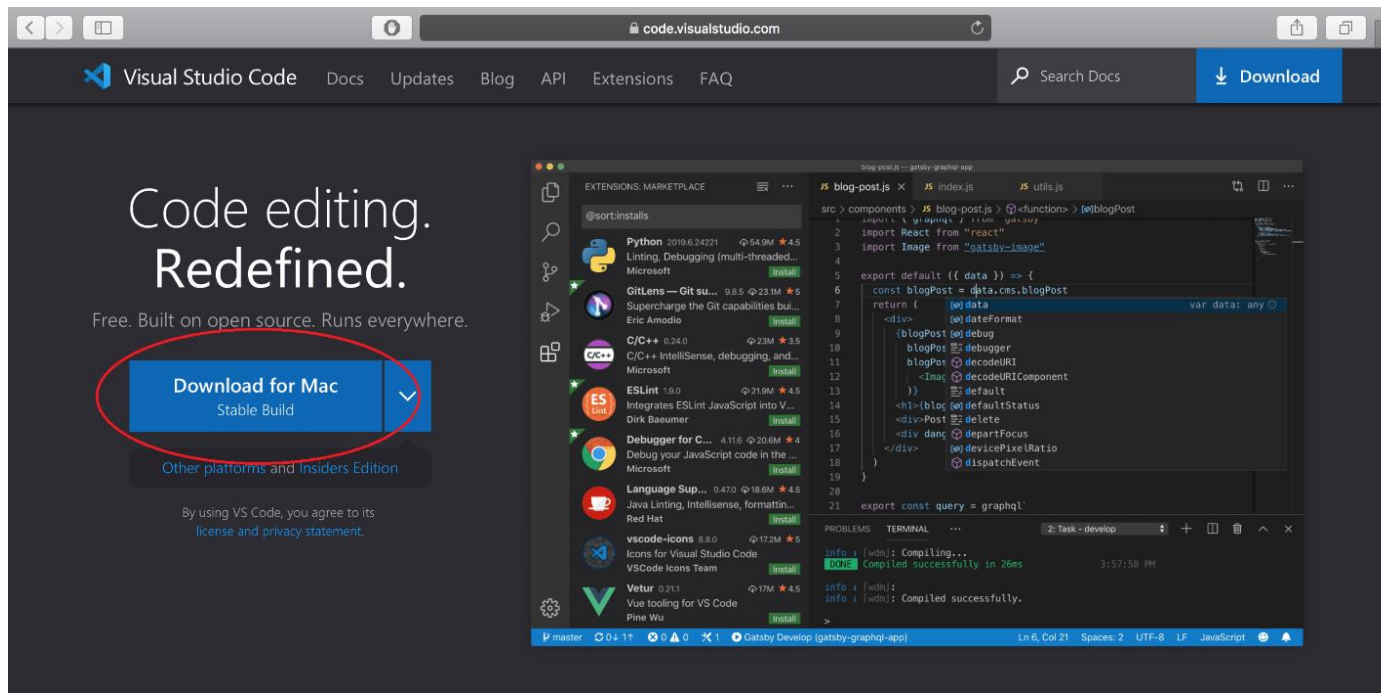
# VSCode: Download, install and setup

- **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)



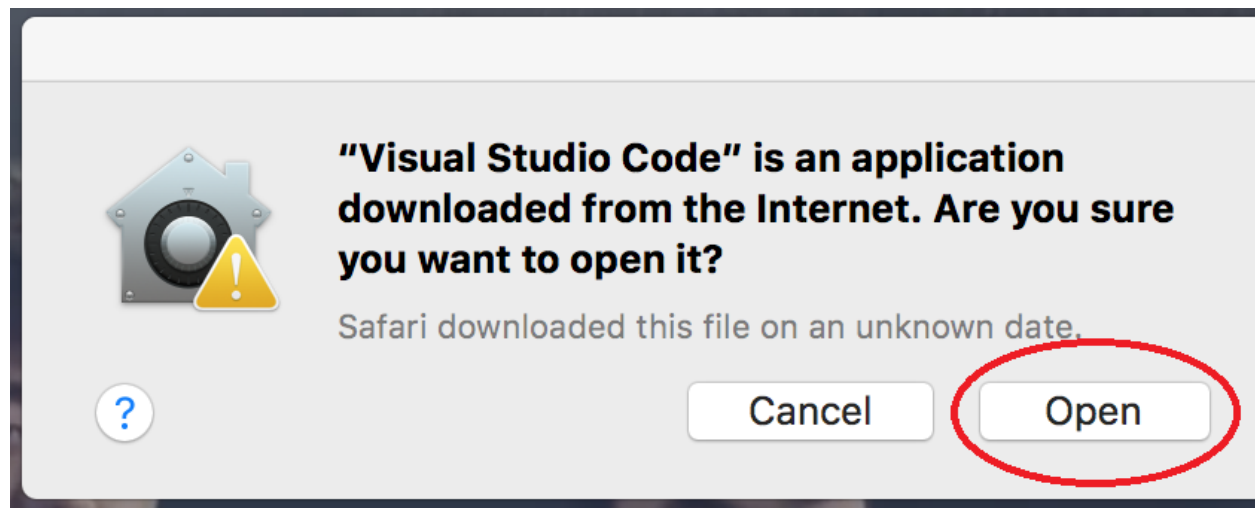
# VSCode: Download, install and setup

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



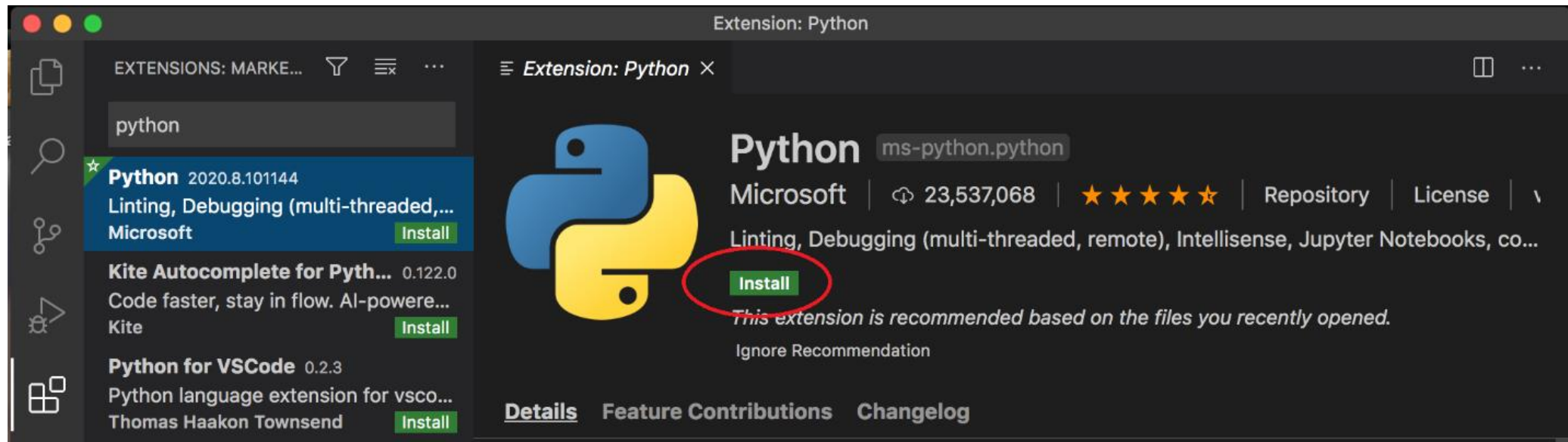
# VSCode: Download, install and setup

- **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)

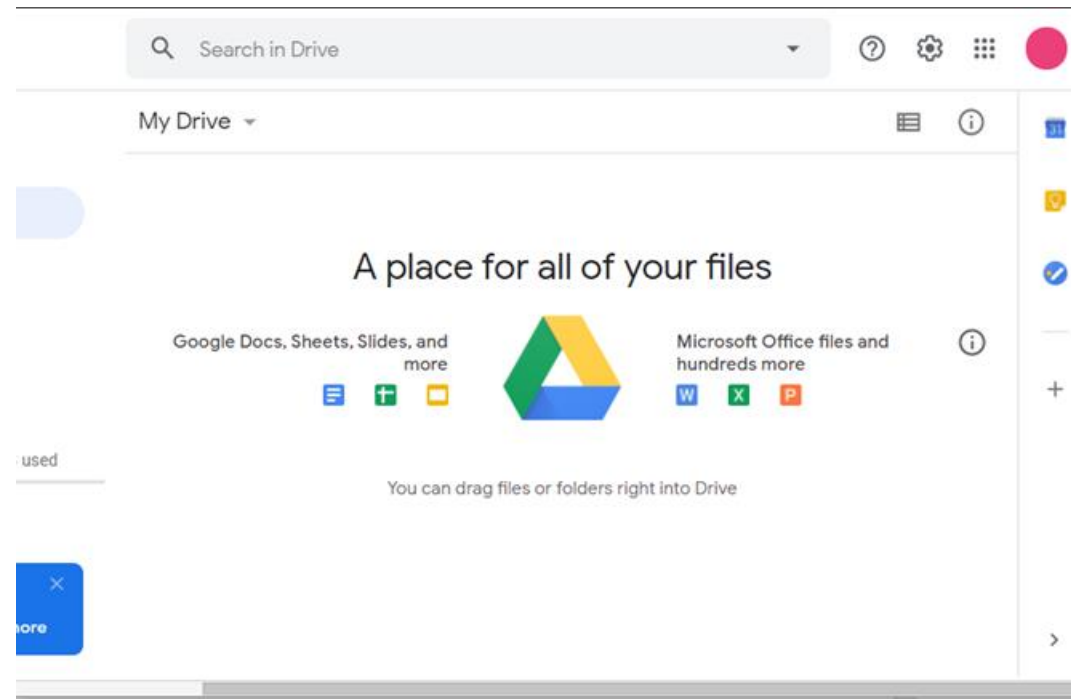


# Installing Google Colab to Google Drive



# Installing Google Colab to Google Drive

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

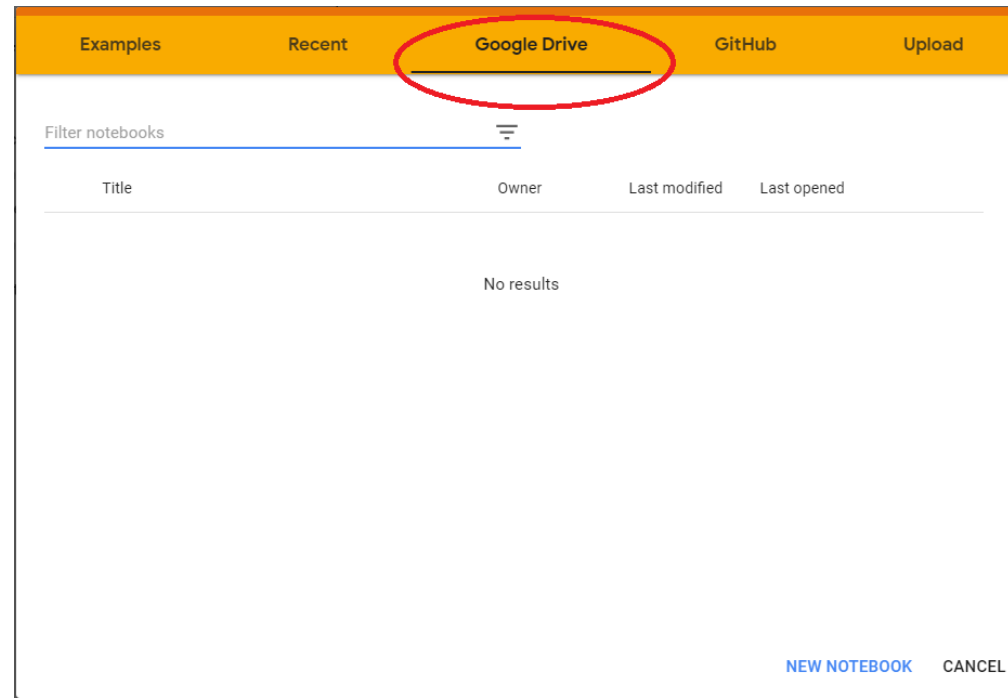


# Installing Google Colab to Google Drive

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

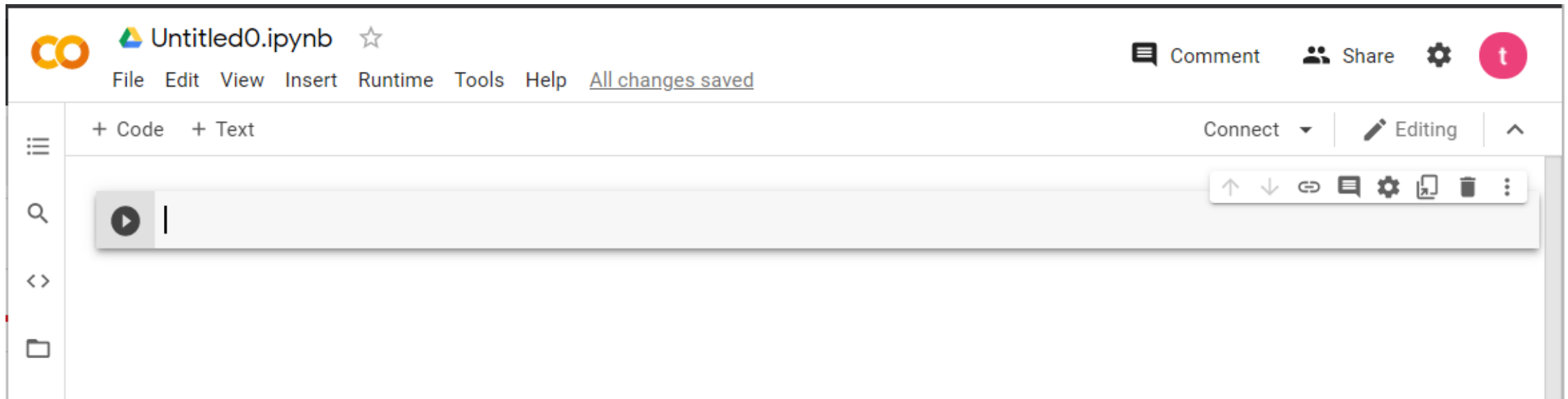
# Installing Google Colab to Google Drive

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

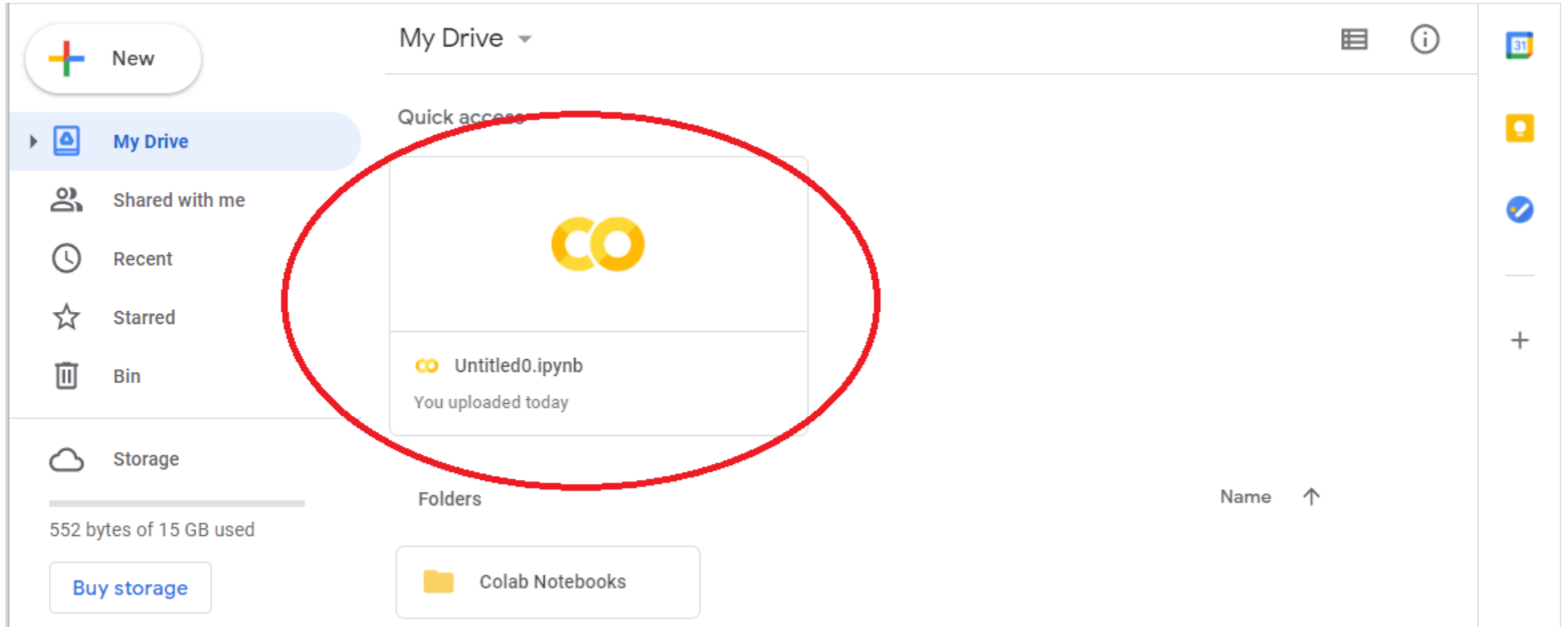


# Installing Google Colab to Google Drive

- 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



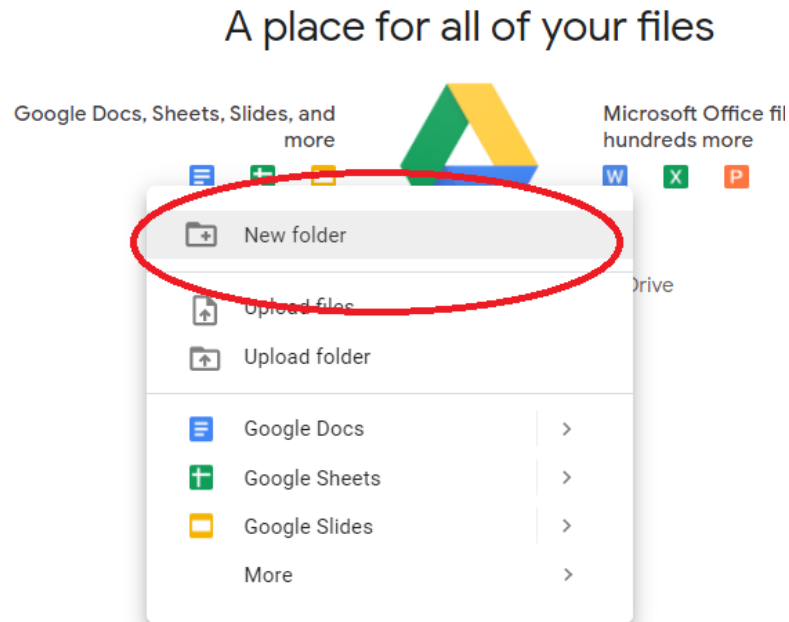
# Working with Google Colab

# Working with Google Colab - Prerequisite

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

# Working with Google Colab

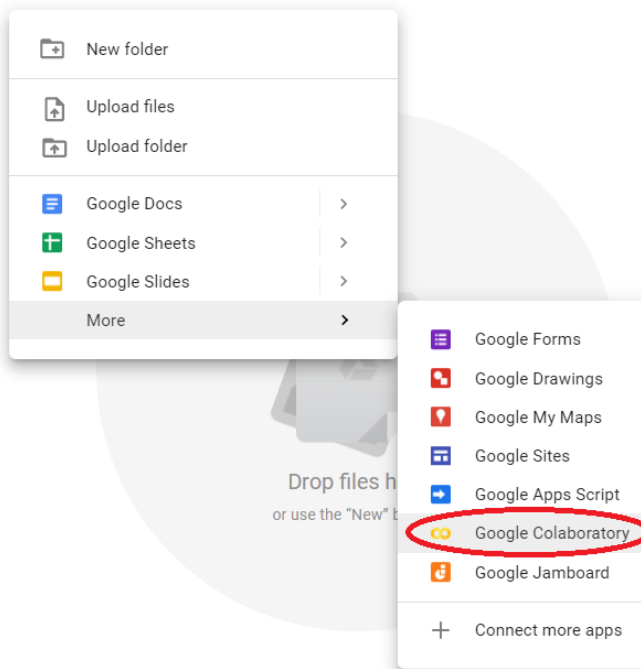
- (Depending on your need) **Right-click** and choose **New Folder** to create a folder for this course. I will name it **ISOM3400**.





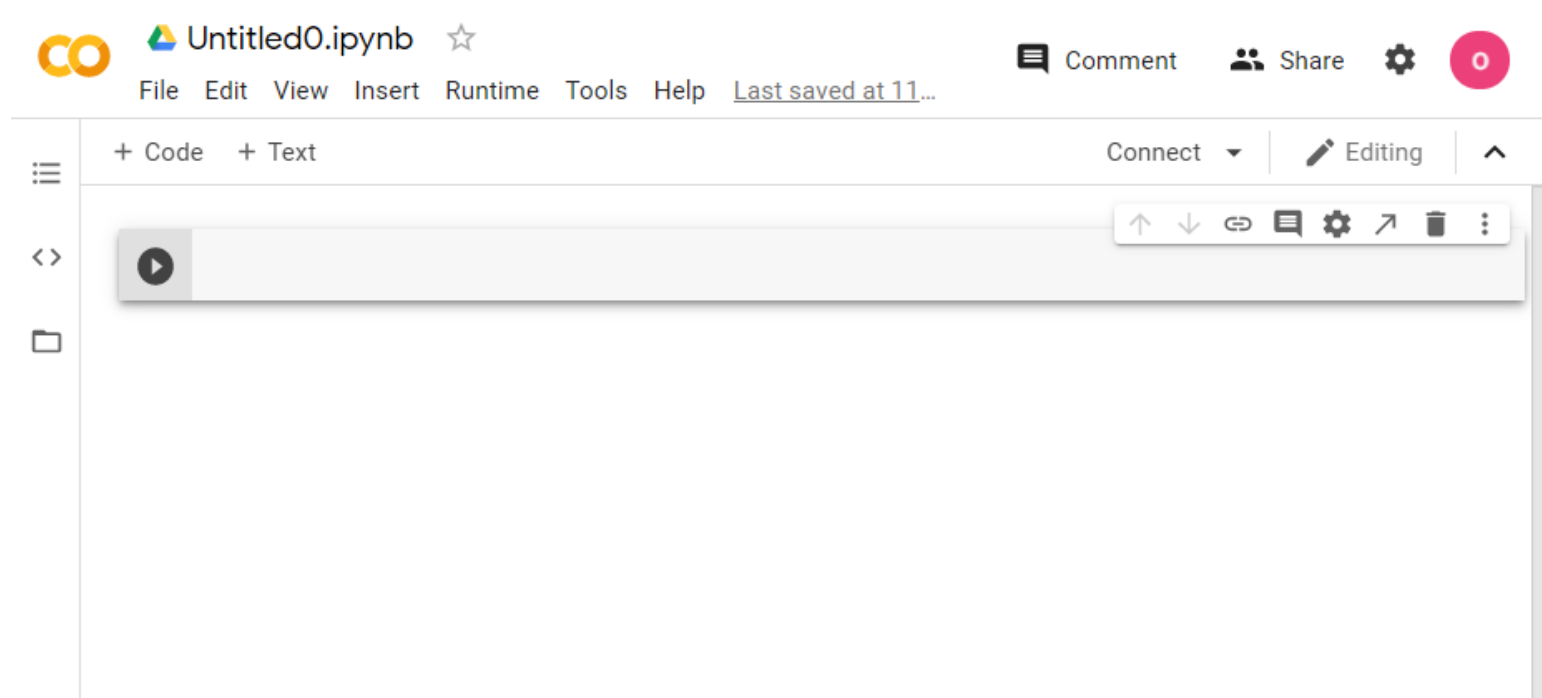
# Working with Google Colab

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



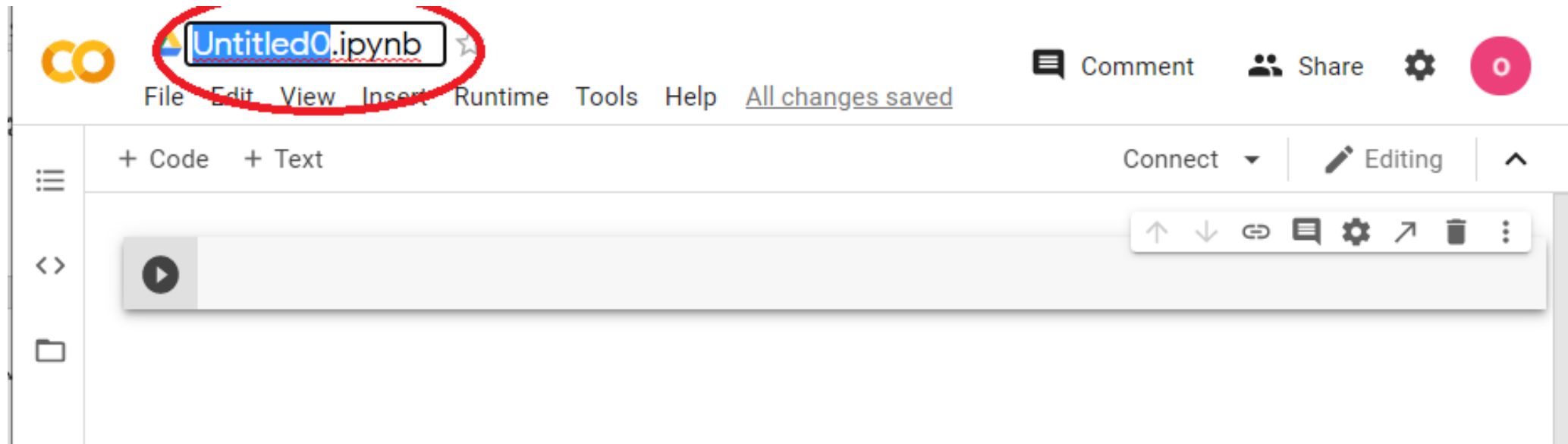
# Working with Google Colab

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



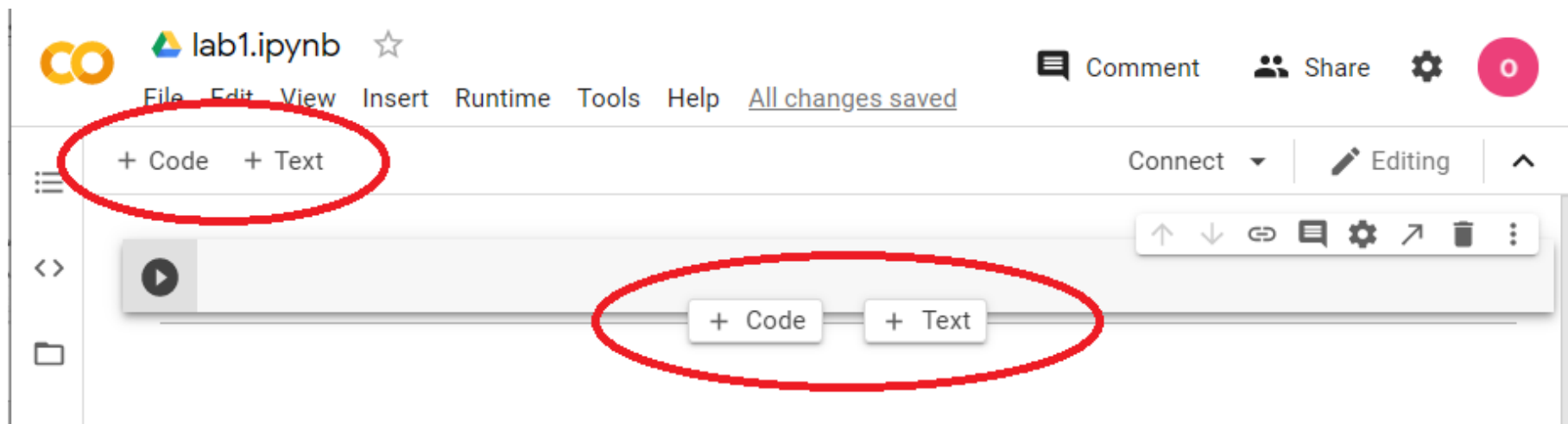
# Working with Google Colab

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




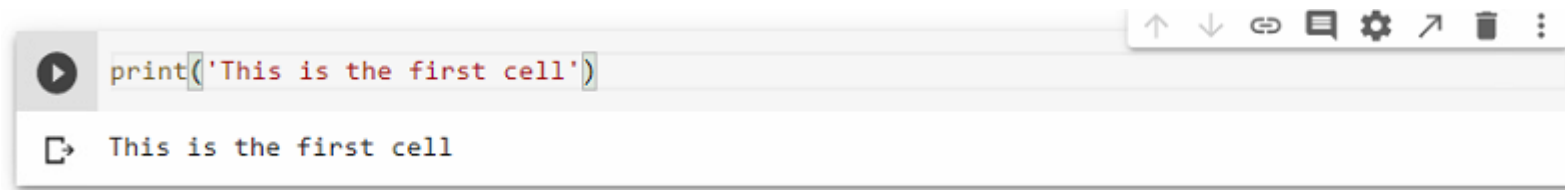
# Working with Google Colab

- 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

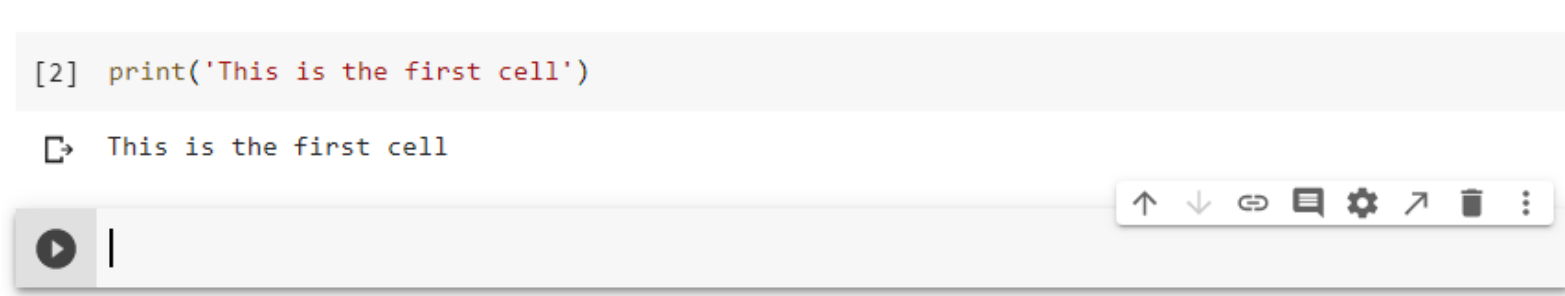
- Type `print('This is the first cell')` into the code cell (note that it is single quote), click  to run the cell. Alternatively, you can press **Ctrl + Enter** (**Command + Enter** in Mac)



```
print('This is the first cell')
```

This is the first cell

- 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



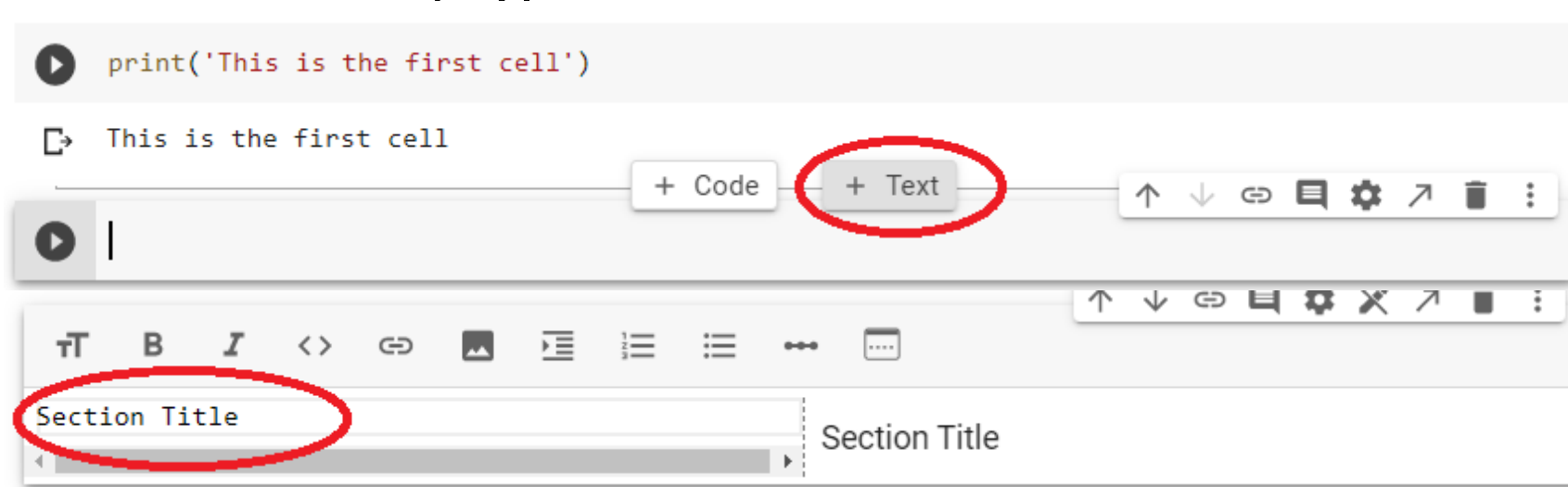
```
[2] print('This is the first cell')
```

This is the first cell

```
|
```

# 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**

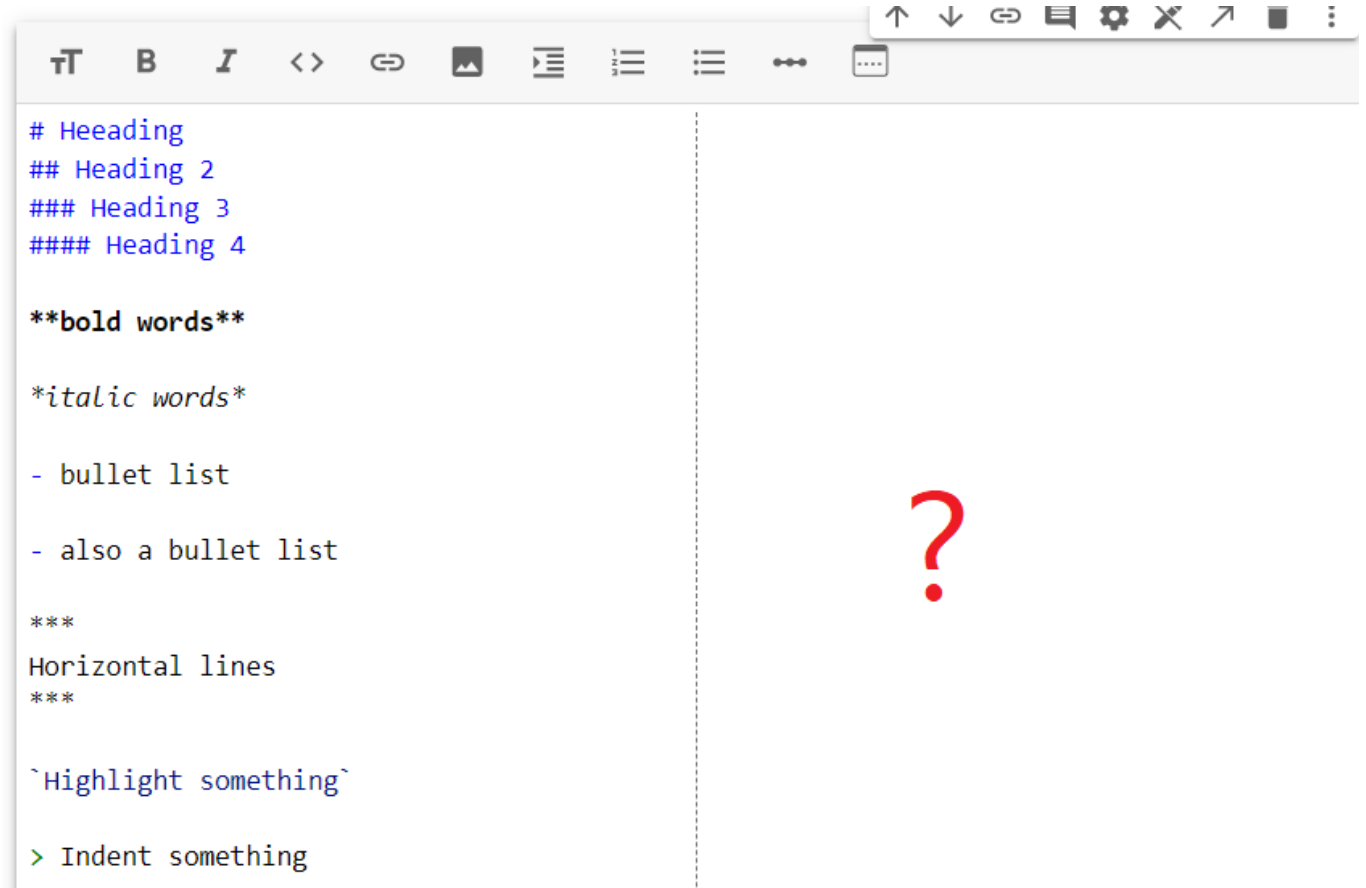


- You cannot “run” a text cell. **Click on other cell** to see the effects



# 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 rich text editor toolbar at the top. The toolbar includes icons for undo, redo, bold, italic, text color, background color, link, unlink, insert image, insert table, insert code block, insert heading, insert list, insert link, and a help icon. The text content of 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
```

A large red question mark is positioned to the right of the code block, indicating a question or a point for reflection.

# 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 Google Colab interface. A code cell is highlighted with a red oval. Inside the cell, the code `[3] print("This is the second cell")` is visible. Below the code, the output `This is the second cell` is displayed. To the right of the code cell, there is a toolbar with icons for undo, redo, link, comment, settings, and other actions.

```
[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

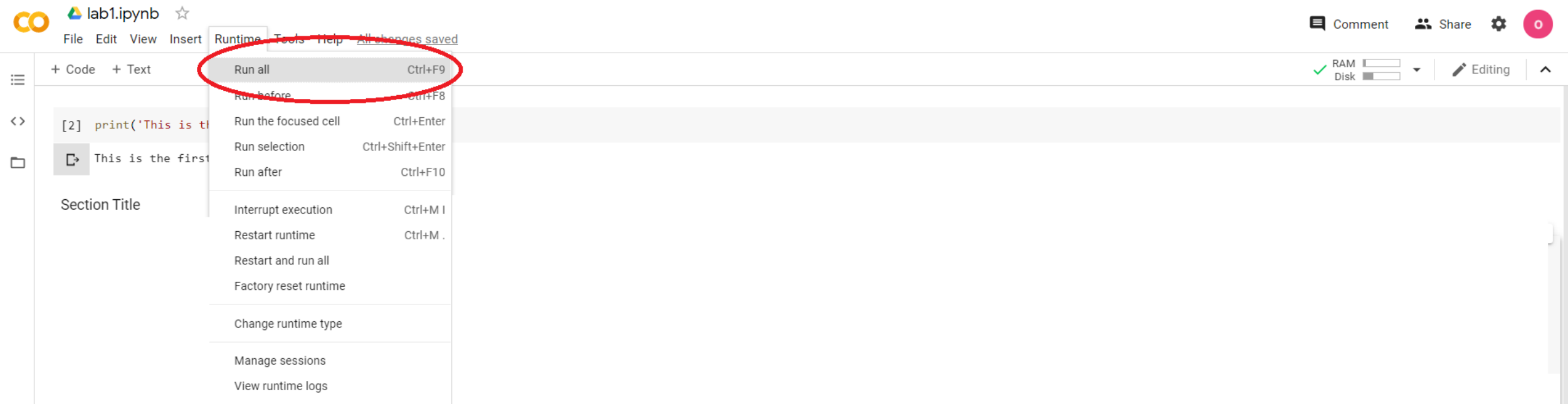
```
[2] print('This is the first cell')
```

☞ This is the first cell

Section Title

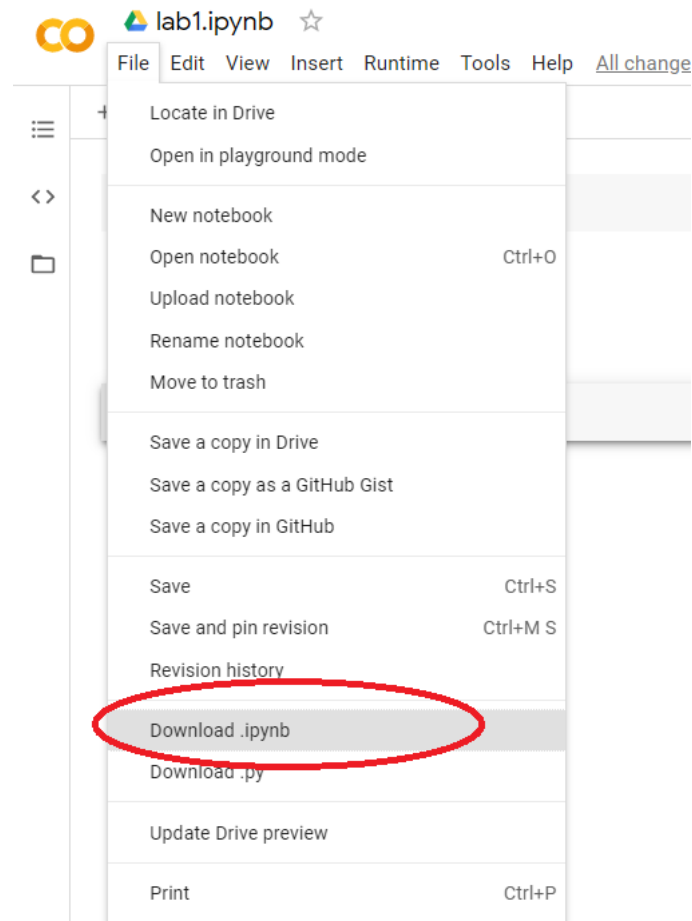
# Working with Google Colab

- 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