

Course	
Term	
Week	
Date	
Chapter. Topic	NA

Introduction to Google Colab

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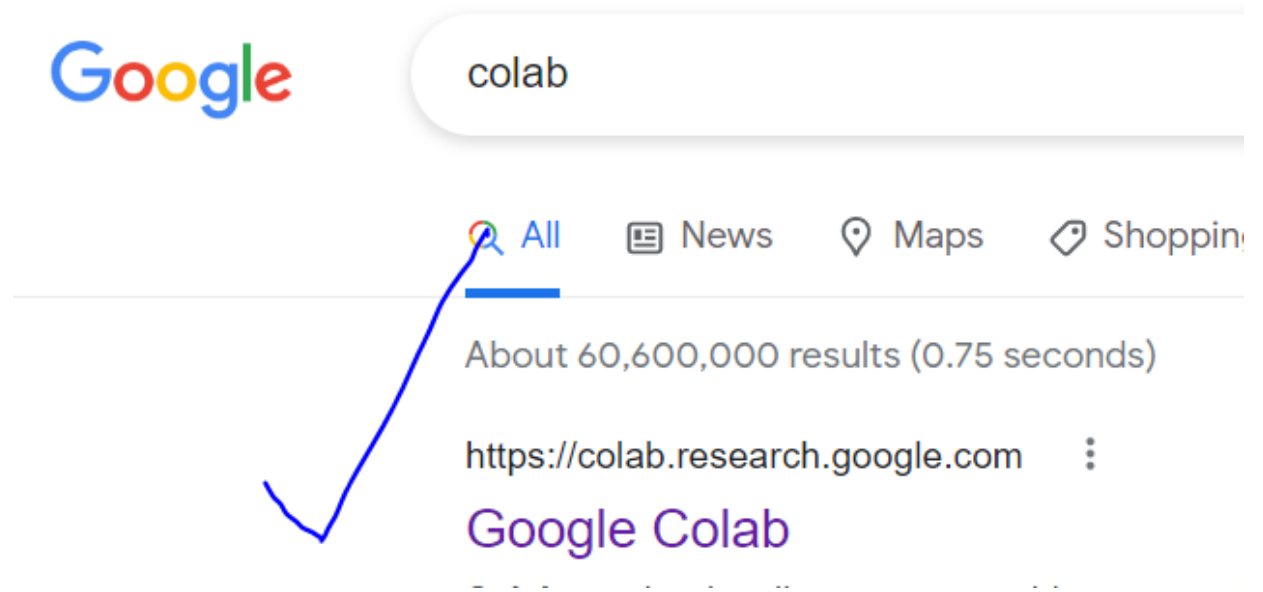
Google colab

Google the word 'colab'

You can open the first link you find in the search results.

You need a to have google account to create 'colab' notebooks.

- Documentation, Notes, Comments, Sections, Headings, etc.
- Python Code
- Sharing the code with others
- Hostin the code on github

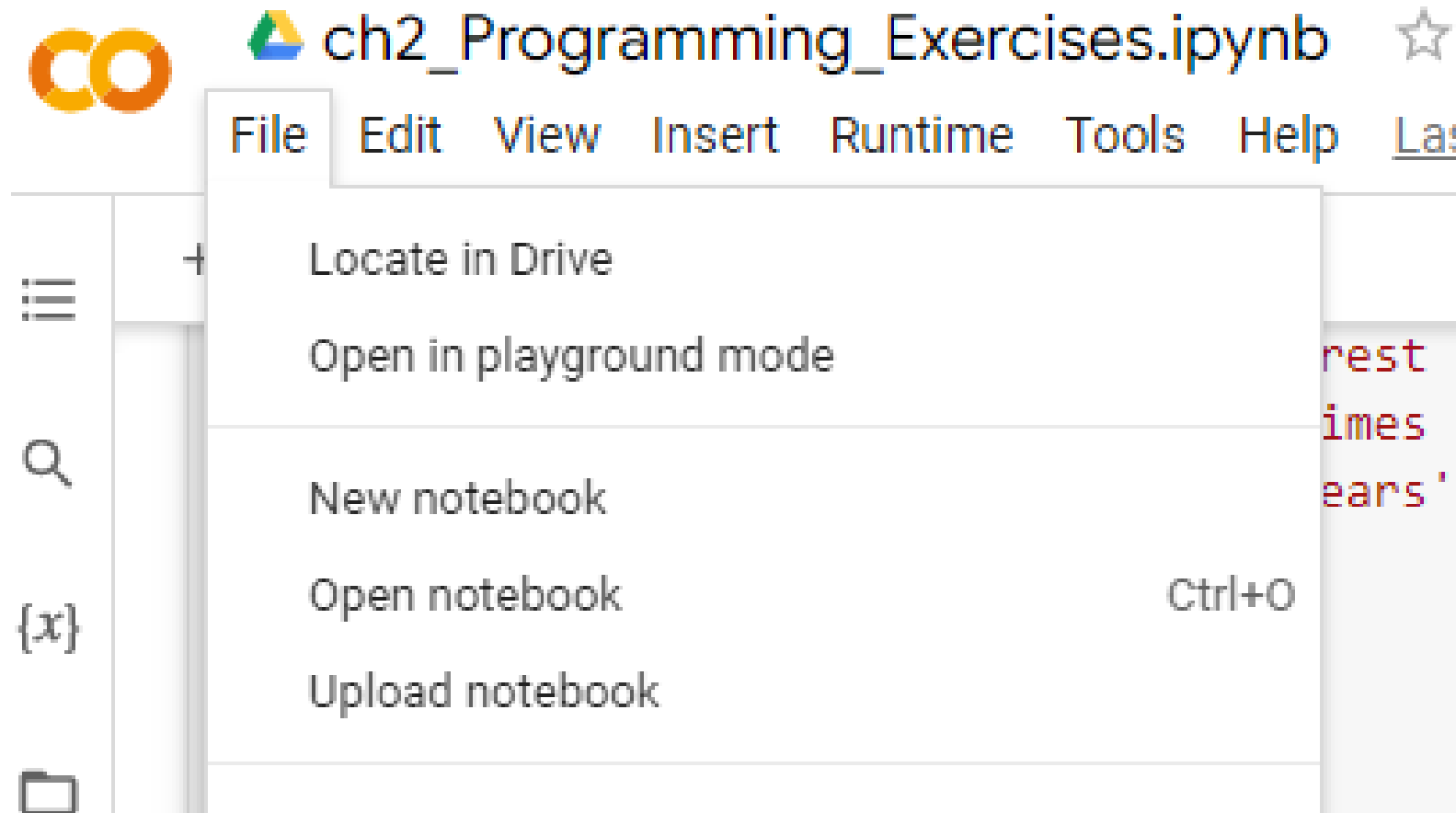


Different ways of opening the colab notebook.

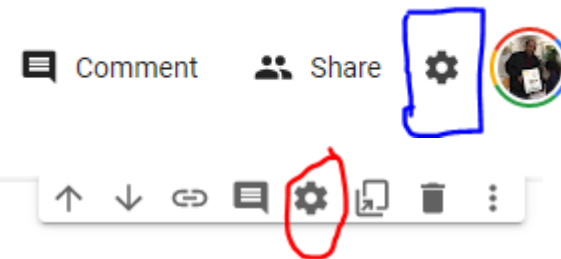
Create a new notebook (File → New notebook)

Open an existing notebook you created earlier (File → Open notebook)

Upload a notebook given to you by others (File → Upload notebook)



Showing line numbers in the code



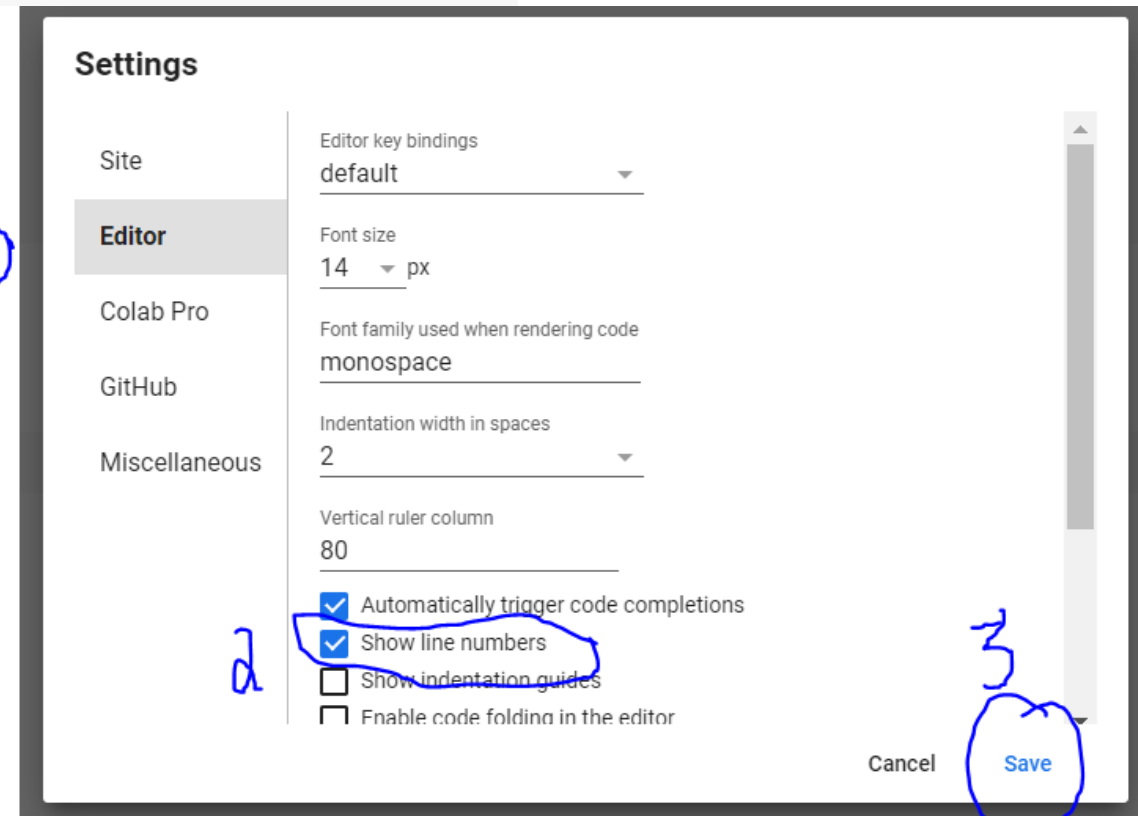
How to know the data types? type()

```
1 #@title How to know the data types? type()
2
3 x = 10    #integer  (int)
4 y = 5.6   # float   (float)
5 z = "Java" # String  (str)
6 p = True  # boolean (bool)
7
```

1

Please make sure that you enable this setting.
It helps me to point the line numbers while reviewing your code

Settings → Editor → [x] Show Line Numbers → Save



Running the code

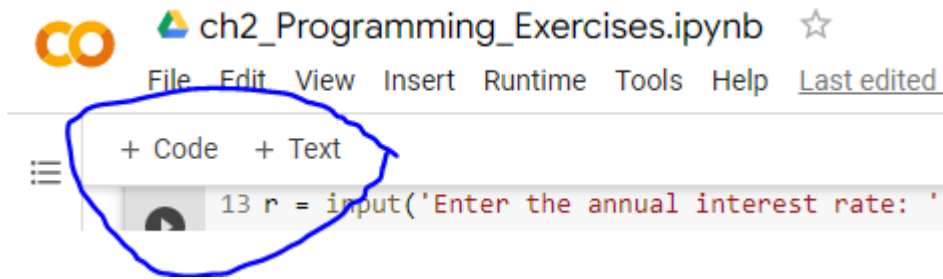


```
1 print("Welcome to Google Colab")
```

You can click the play button.

SHIFT + ENTER short cut will also run the code.

Inserting the code or text cells

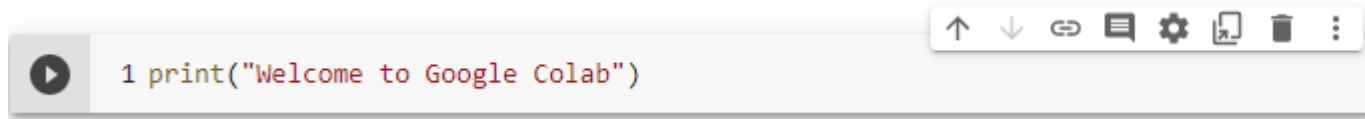


+code will add a CODE CELL

+Text will add a TEXT CELL

The new cells are added just below the current cell

Actions available on each cell



- Move up
- Move down
- Create a link to the cell
- Comment
- Settings (font, size)
- Delete (trash can)

Short-Cuts to Actions available on each cell

<https://www.analyticsvidhya.com/blog/2020/04/5-amazing-google-colab-hacks-you-should-try-today/>

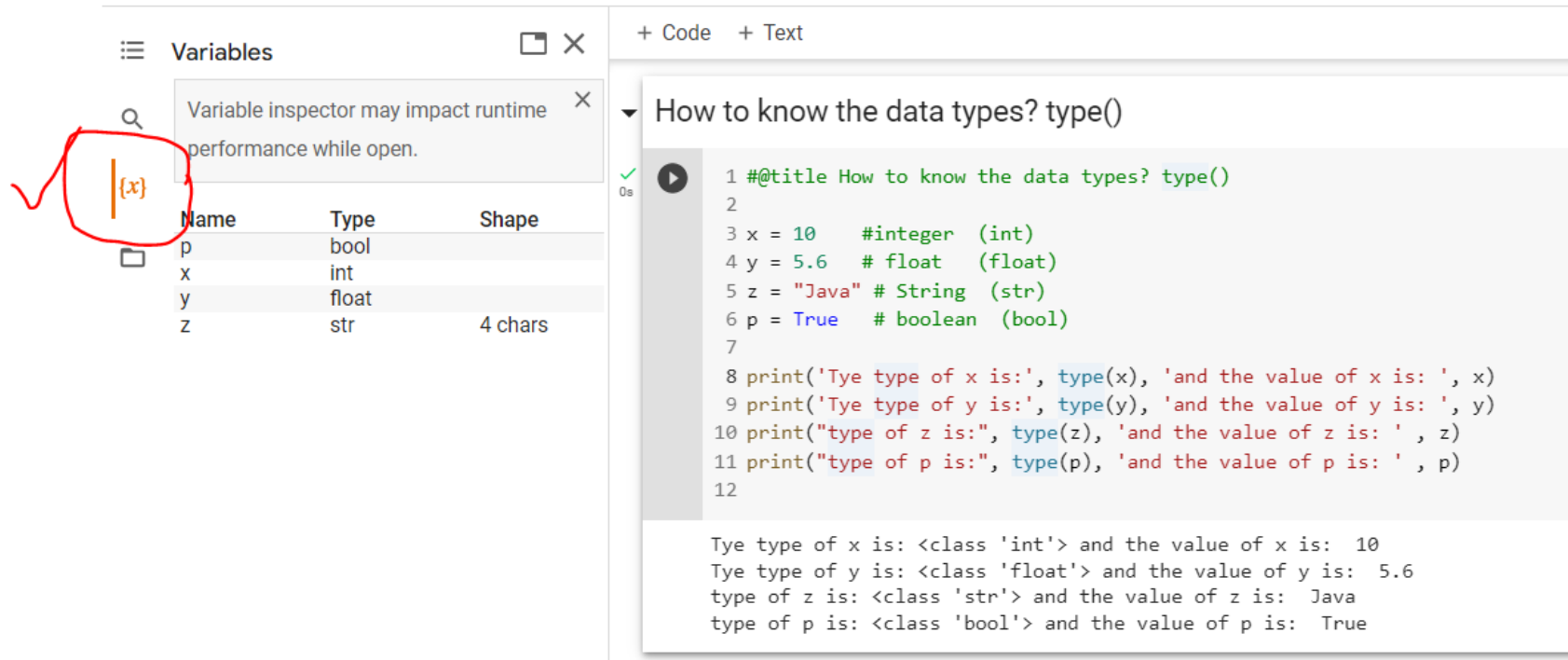
And some other cool commands

```
!ls
!pwd
!mkdir

!pip list
!pip install
```

Shortcut Function	Key Combination
Mount Drive	Ctrl + D
Unmount Drive	Ctrl + U
Convert to Text Cell	Ctrl + M M
Convert to Code Cell	Ctrl + M Y
Move Cell Up	Ctrl + M K
Move Cell Down	Ctrl + M J
Insert Code Cell Above	Ctrl + M A
Insert Code Cell Below	Ctrl + M B
Show Keyboard Shortcuts	Ctrl + M H
Split Cell at the Cursor	Ctrl + M -
Undo Cell Level Action	Ctrl + M Z
Run Selected Code	Ctrl + Shift + Enter
Clear Selected Output	Ctrl + M C

Seeing the variables and their data types



The screenshot shows a Python IDE interface. On the left, a 'Variables' panel is open, displaying a table of variables. A red circle highlights the search icon and the '{x}' text in the search bar. The table lists variables p, x, y, and z with their respective types and shapes. On the right, a code editor shows a script titled 'How to know the data types? type()'. The script defines variables x, y, z, and p with various data types and uses the type() function to print their types and values. The output of the script is displayed below the code.

Variables Panel:

Name	Type	Shape
p	bool	
x	int	
y	float	
z	str	4 chars

Code Editor:

```
1 #@title How to know the data types? type()
2
3 x = 10    #integer  (int)
4 y = 5.6   # float   (float)
5 z = "Java" # String  (str)
6 p = True  # boolean  (bool)
7
8 print('Tye type of x is:', type(x), 'and the value of x is: ', x)
9 print('Tye type of y is:', type(y), 'and the value of y is: ', y)
10 print("type of z is:", type(z), 'and the value of z is: ', z)
11 print("type of p is:", type(p), 'and the value of p is: ', p)
12
```

Output:

```
Tye type of x is: <class 'int'> and the value of x is: 10
Tye type of y is: <class 'float'> and the value of y is: 5.6
type of z is: <class 'str'> and the value of z is: Java
type of p is: <class 'bool'> and the value of p is: True
```

Seeing the variables and their data types

{x}



Name	Type
p	bool
x	int
y	float
z	

x

type:int
value:10

10

If you hover the mouse over the variable, you can also see:

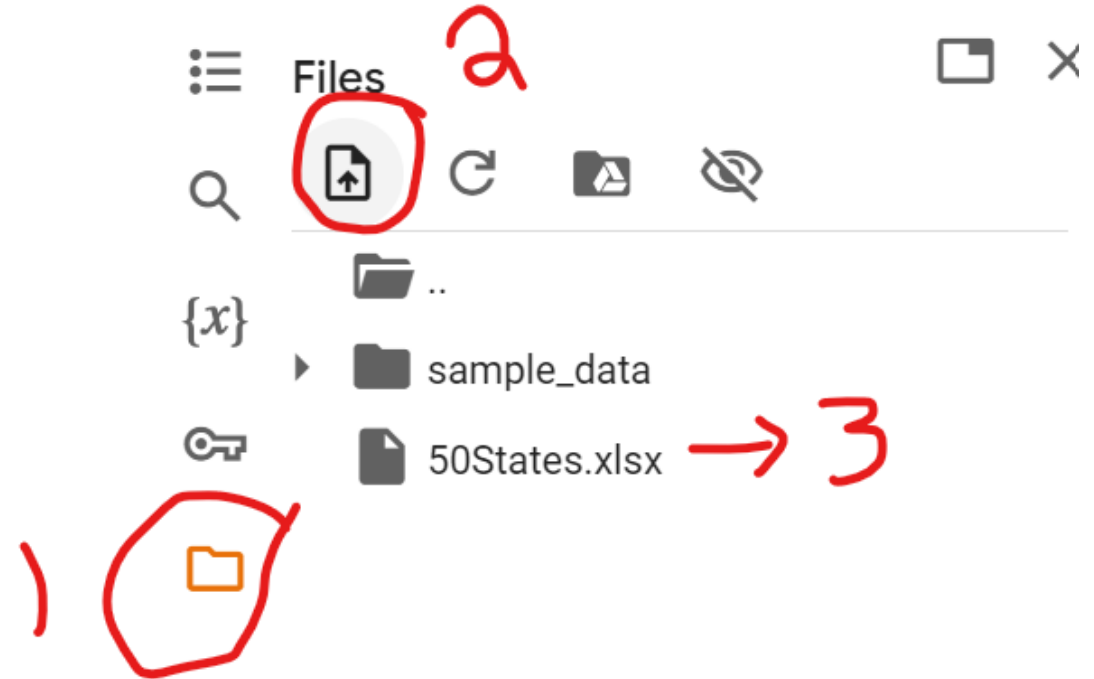
- Its type
- Its value
- Its shape (in the case of strings or lists)

Uploading the files

When you are processing the file (e.g. reading a file), you need to upload the file to the google colab environment.

These files do not persist in google environment.

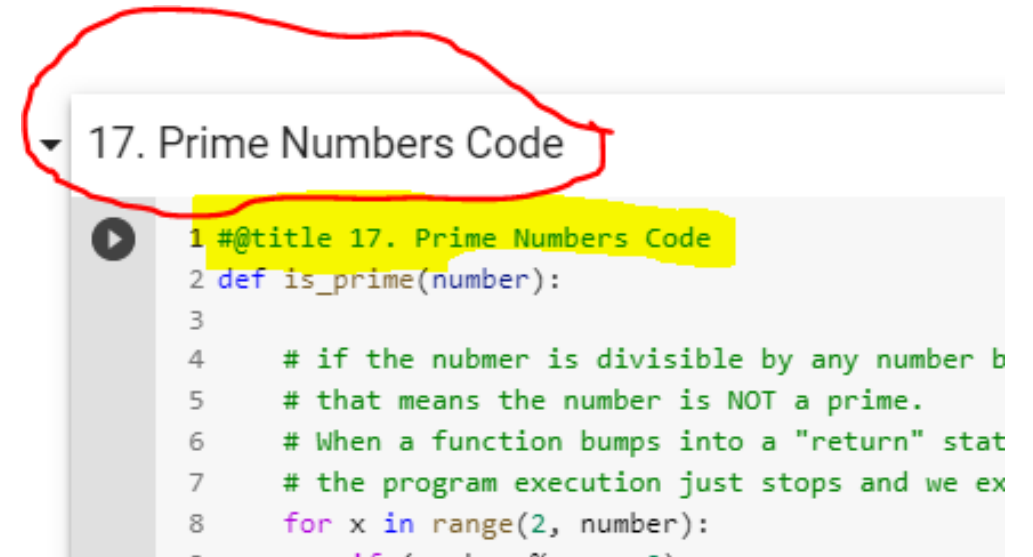
So, you need to upload the file each time you start the google colab.



Collapsing the code cells

#@title my_cool_program

Adding the above comment starting with the string “@title” will create a collapsible section in google colab.

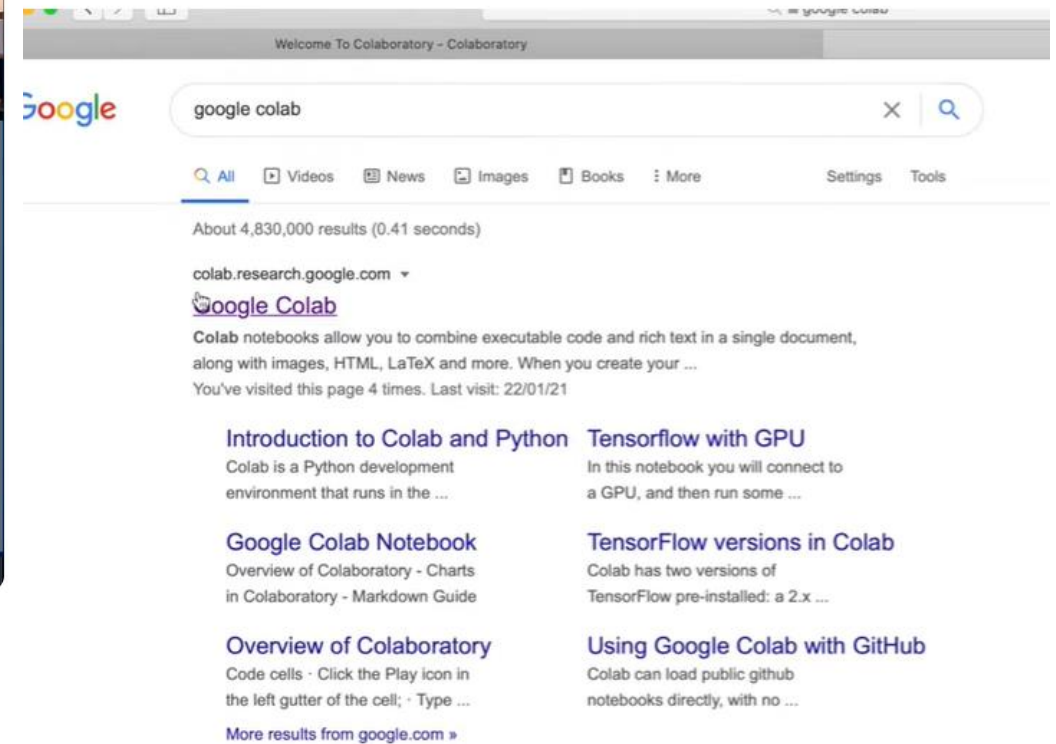
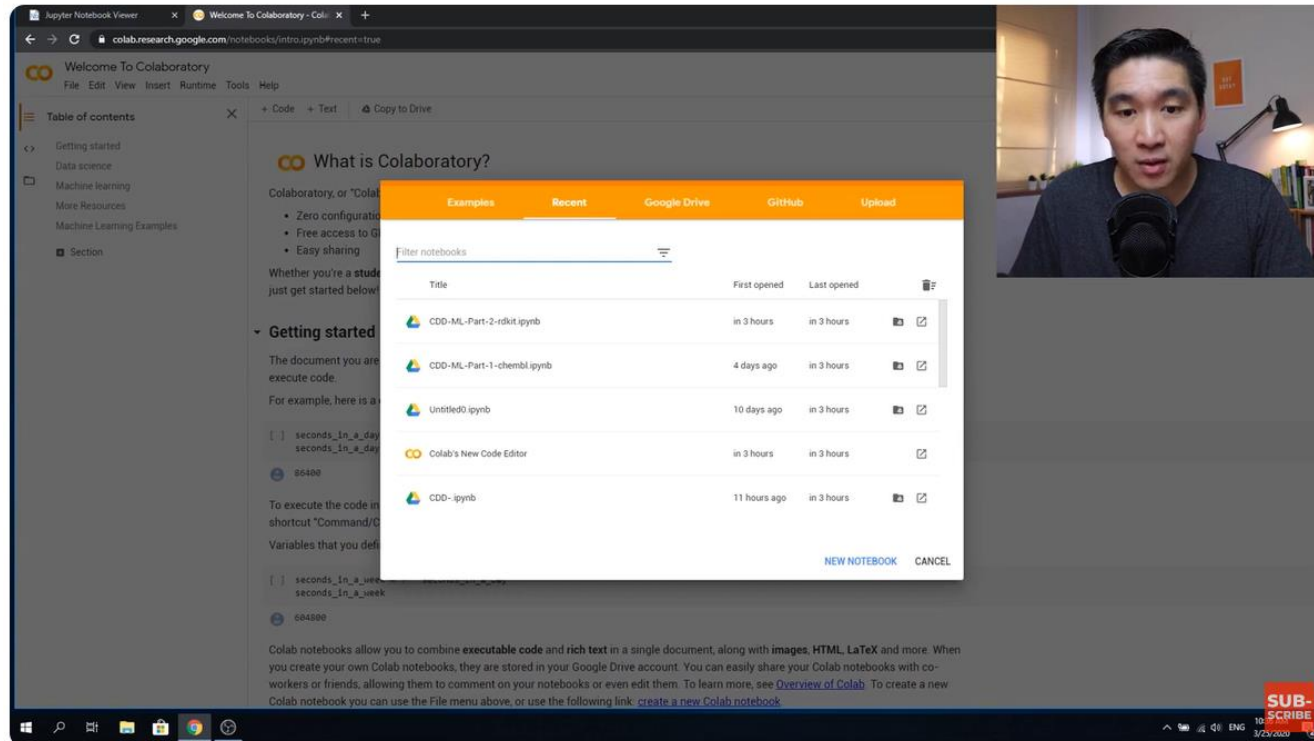


The screenshot shows a code cell in Google Colab. The title bar of the cell is labeled "17. Prime Numbers Code" and is circled in red. The first line of the code is highlighted in yellow and reads: `1 #@title 17. Prime Numbers Code`. The subsequent lines of code are visible below the title bar.

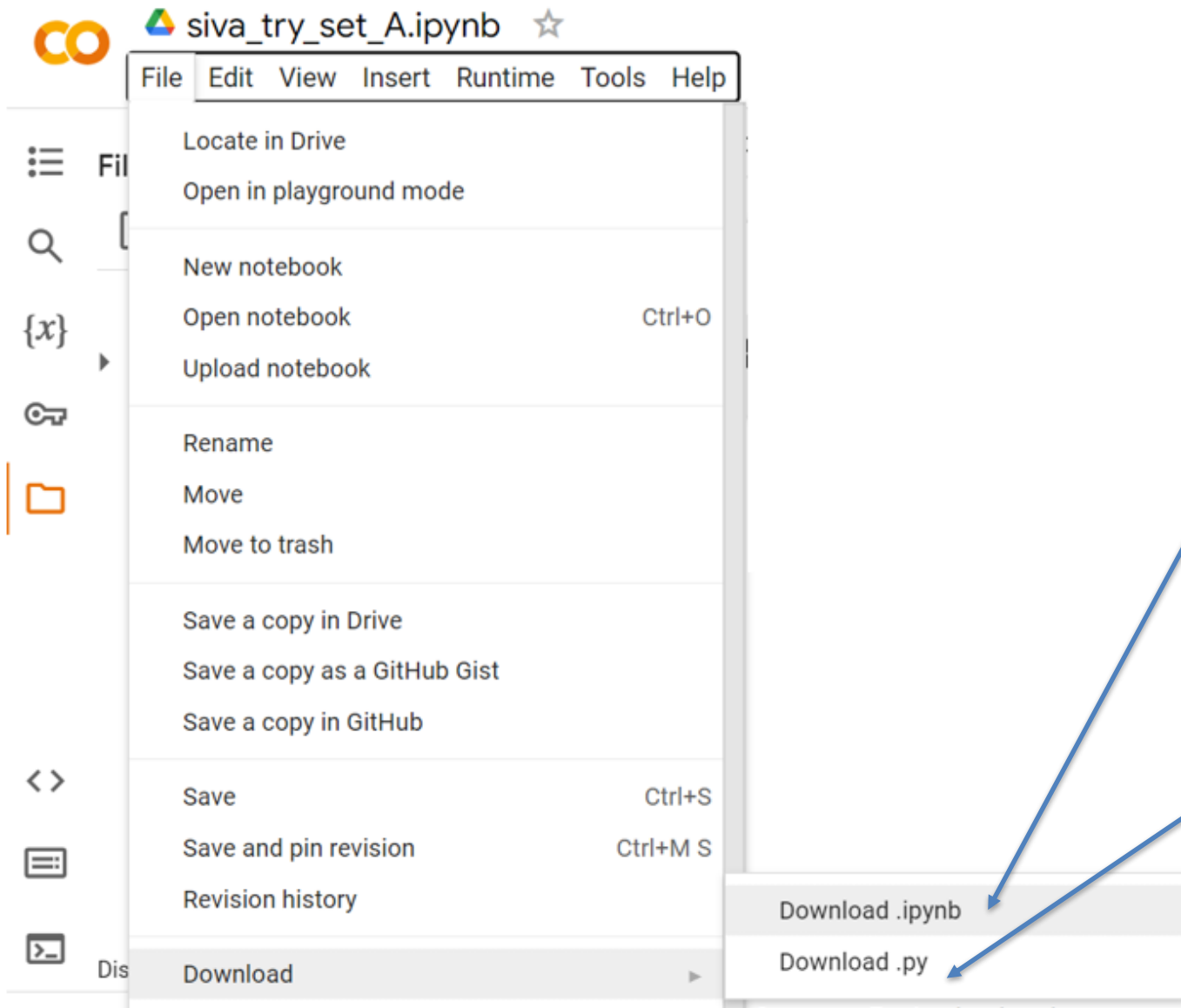
```
1 #@title 17. Prime Numbers Code
2 def is_prime(number):
3
4     # if the nubmer is divisible by any number b
5     # that means the number is NOT a prime.
6     # When a function bumps into a "return" stat
7     # the program execution just stops and we ex
8     for x in range(2, number):
```

Youtube videos on google colab

<https://www.youtube.com/watch?v=oCngVVBsSmA>



Saving the colab notebook as .py or .ipynb file



File → Download → Download *.ipynb

You can also save your notebook as a colab notebook with *.ipynb extension. Others can upload this file into their environment to run the notebook. For example, you will be submitting the *.ipynb file

File → Download → Download *.py

You can save your notebook as a python file with *.py extension. You can then use other IDEs (pycharm, visual code, etc.) to run this *.py file.

Printing the colab notebook as pdf

File → print

You can rely on the “print” functionality to save the colab notebook as a PDF file.

For “Try it yourself” sets from w3schools and “Try It Out” sets from the textbook, you will be submitting the *.PDFs to the dropbox.

