Introducción a Python

Agosto/8/2022

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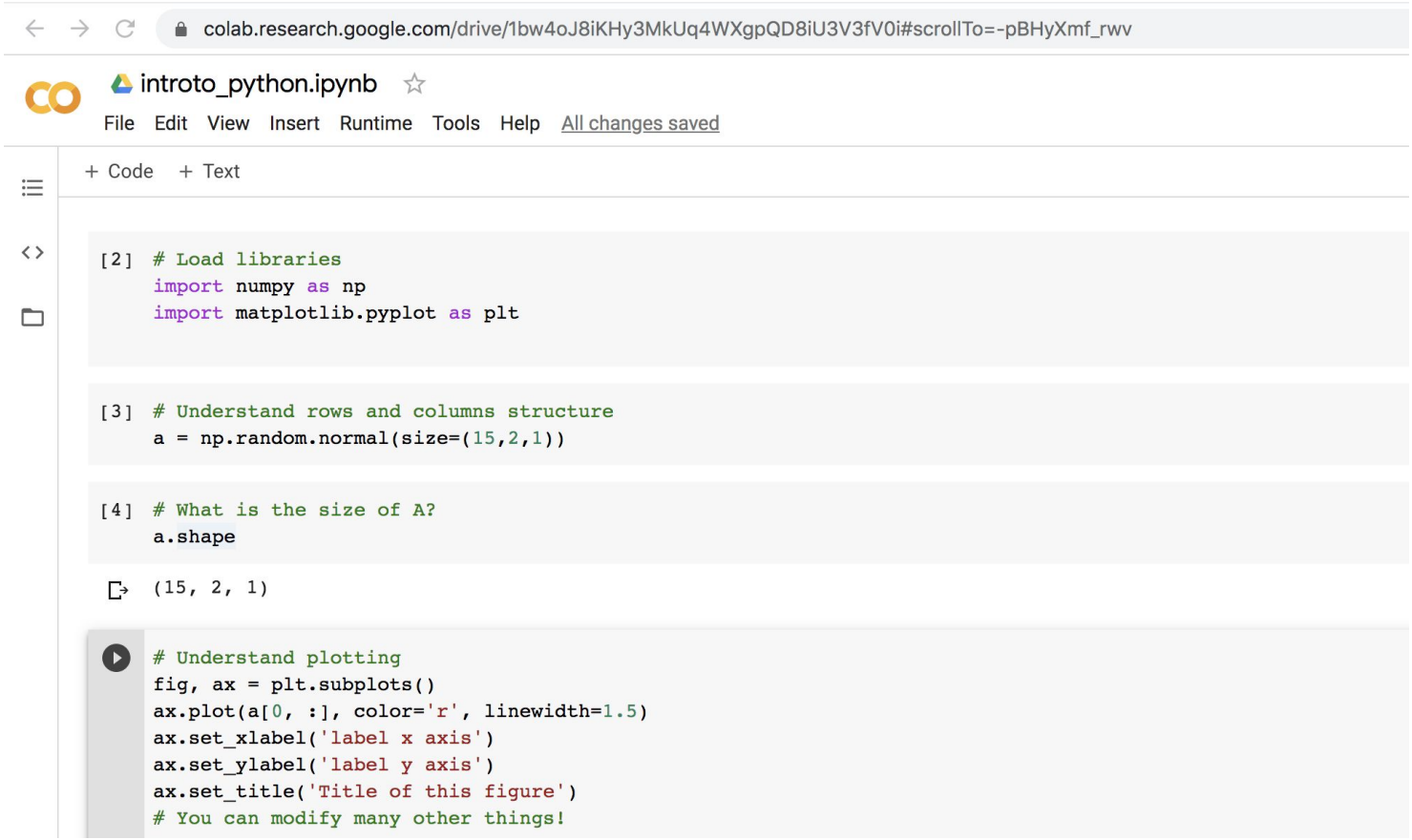
Empezando ...

Usaremos Jupyter Notebook/ Jupyter Lab

JupyterLab es parte de una non-profit Proyecto Jupyter que promueve análisis de datos a través de varios lenguajes de programación



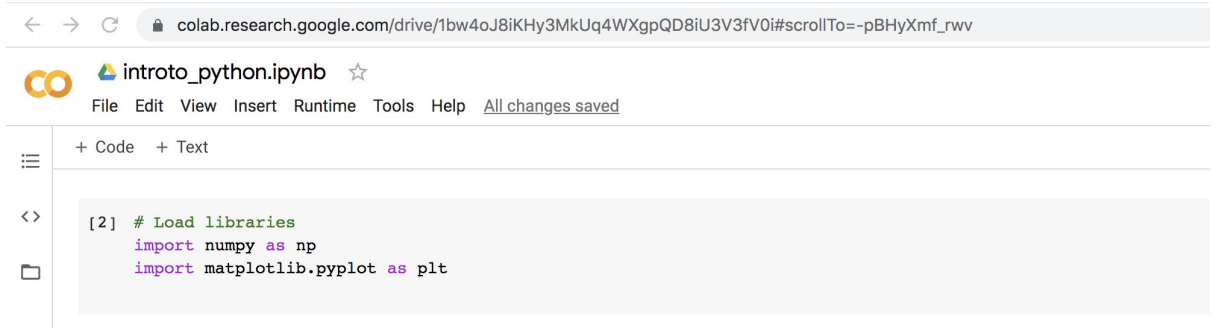
La clave para programar es descomponer problemas complejos en muchos problemitas sencillos

Questions

- Cómo procesar “tablas/matrices/datos”en Python?

Objetivos

- ¿Qué es una librería y para qué sirven?
- Importar una Librería en Python y utilizar sus funciones.
- Lear tablas en Python.
- Asignar valores a variables
- Seleccionar partes de una matriz/tabla/datos “GRANDES”.
- Realizar operaciones “matemáticas” en matrices.
- Graficar datos..



Python en la cocina:

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introto_python.ipynb

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```
[2]  # Load libraries
     import numpy as np
     import matplotlib.pyplot as plt
```

Python en tu computadora

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Libreria

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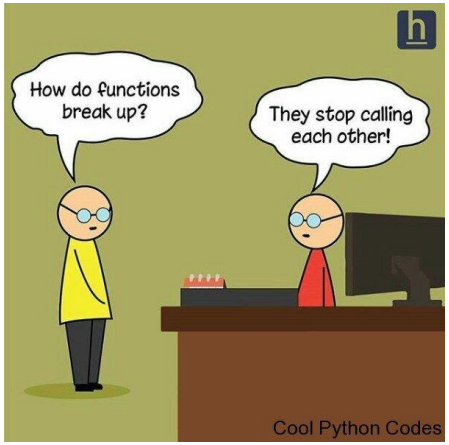
Libreria

Funciones



Pop quiz:

What does *print(third, fourth)* shows after you run:

```
first, second = 'temperature', 'salinity'
third, fourth = second, first
```

Zoom Poll

Empezando ...

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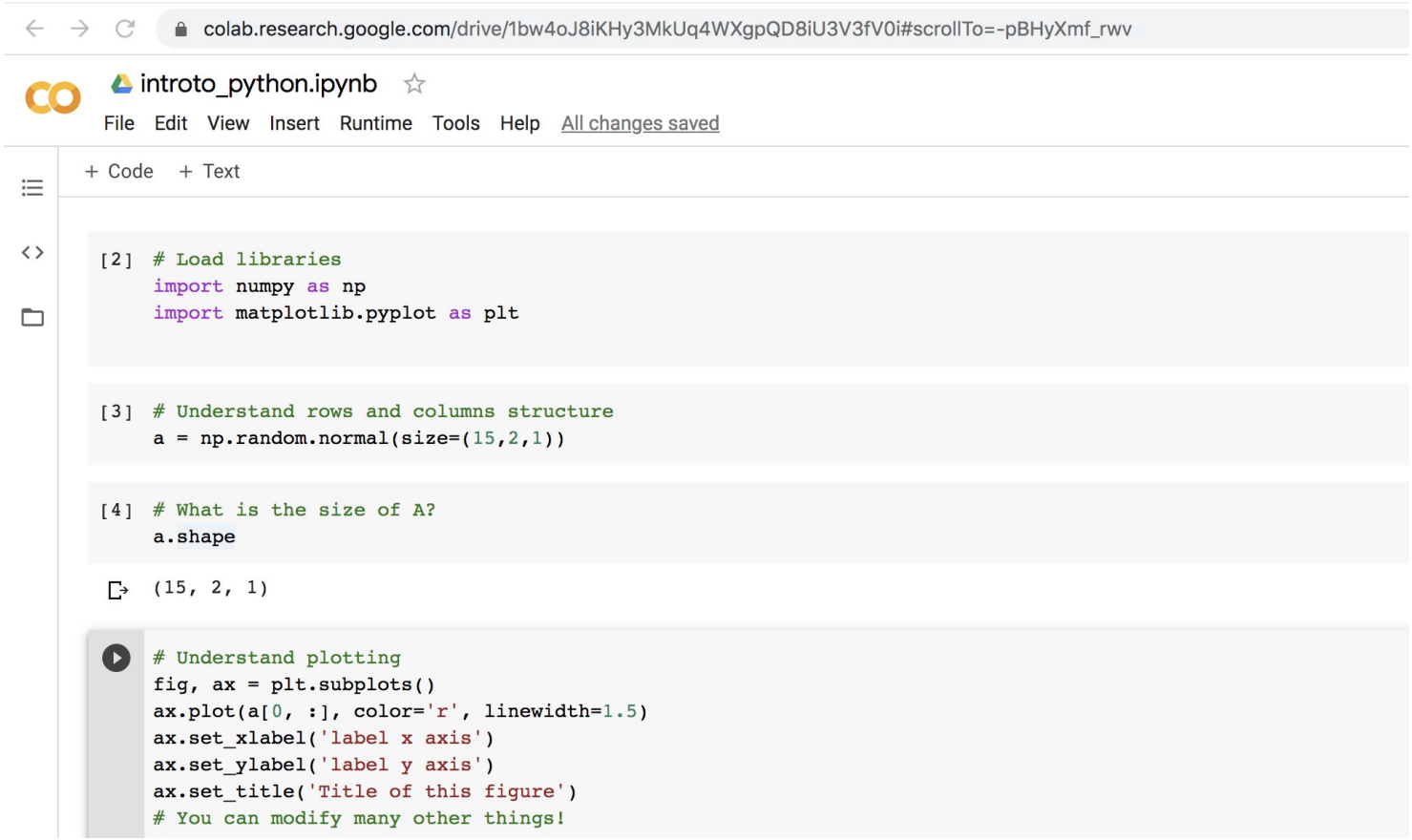


Jupyter Lab/Notebook

The Notebook has Command and Edit modes.

- If you press `Esc` and `Return` alternately, the outer border of your code cell will change from gray to blue.
- These are the **Command** (gray) and **Edit** (blue) modes of your notebook.
- Command mode allows you to edit notebook-level features, and Edit mode changes the content of cells.
- When in Command mode (esc/gray),
  - The `b` key will make a new cell below the currently selected cell.
  - The `a` key will make one above.
  - The `x` key will delete the current cell.
  - The `z` key will undo your last cell operation (which could be a deletion, creation, etc).
- All actions can be done using the menus, but there are lots of keyboard shortcuts to speed things up.

Command Vs. Edit

In the Jupyter notebook page are you currently in Command or Edit mode?
Switch between the modes. Use the shortcuts to generate a new cell. Use the shortcuts to delete a cell. Use the shortcuts to undo the last cell operation you performed.

Solution

Command mode has a grey border and Edit mode has a blue border. Use `Esc` and `Return` to switch between modes. You need to be in Command mode (Press `Esc` if your cell is blue). Type `b` or `a`. You need to be in Command mode (Press `Esc` if your cell is blue). Type `x`. You need to be in Command mode (Press `Esc` if your cell is blue). Type `z`.

Ejercicio:

Que valores tendrán las variables `masa` y `edad` después de este programa?

```
masa = 47.5
edad = 122
masa = masa * 2.0
edad = edad - 20
print(mass, age)
```

Cómo contar en Python?

mi_nombre = 'DouglasAdams''

Python empieza a contar desde 0!!!

Numpy arrays

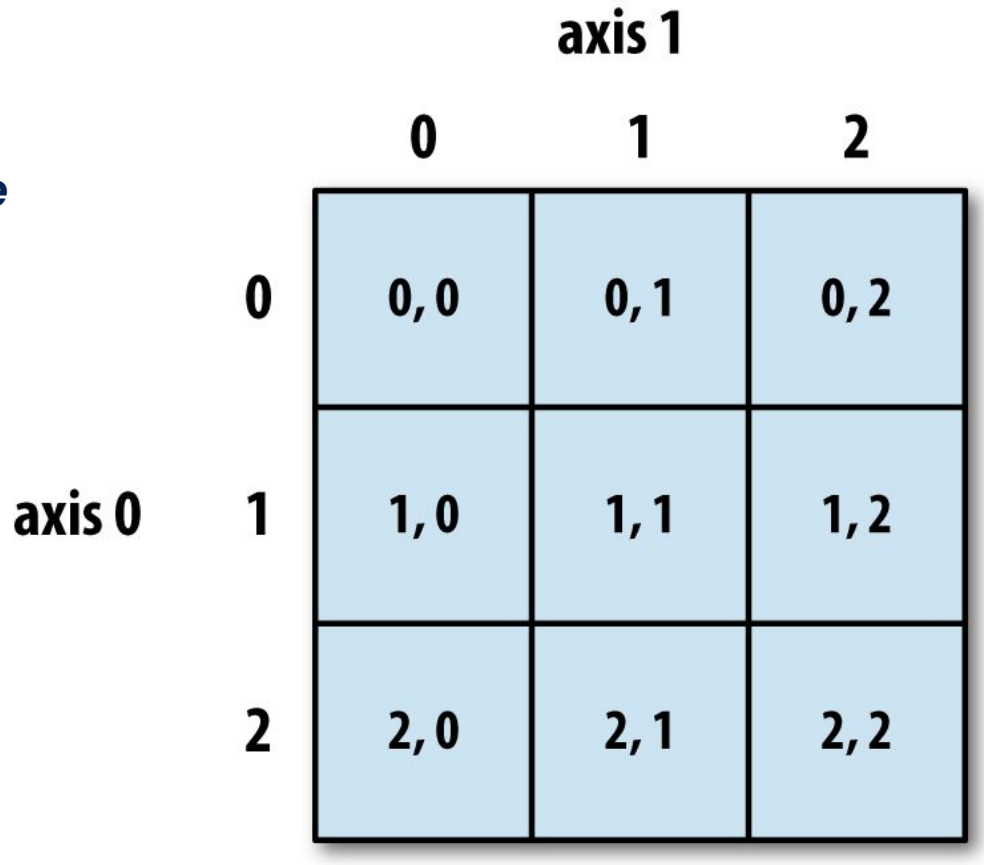
Tienen el atributo “shape”

“Shape” te da las dimensions de ;a matriz/array

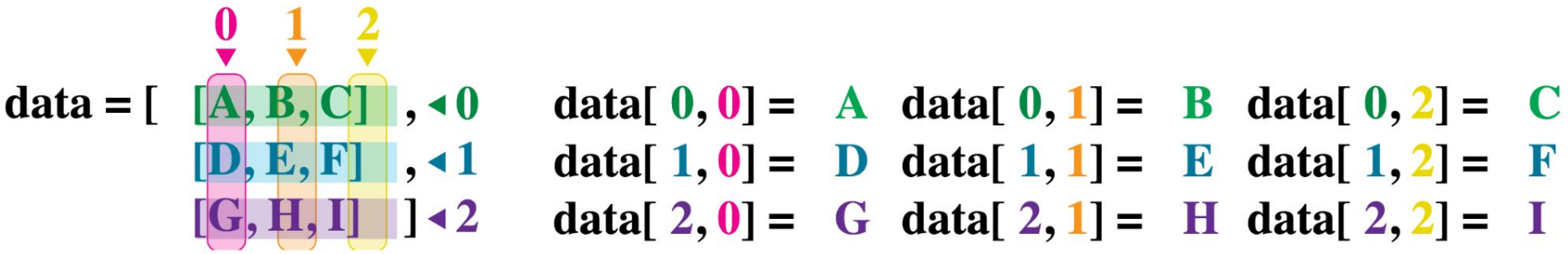
[renglones x columnas

Podemos seleccionar el **valor** de una matriz en una posicón específica::

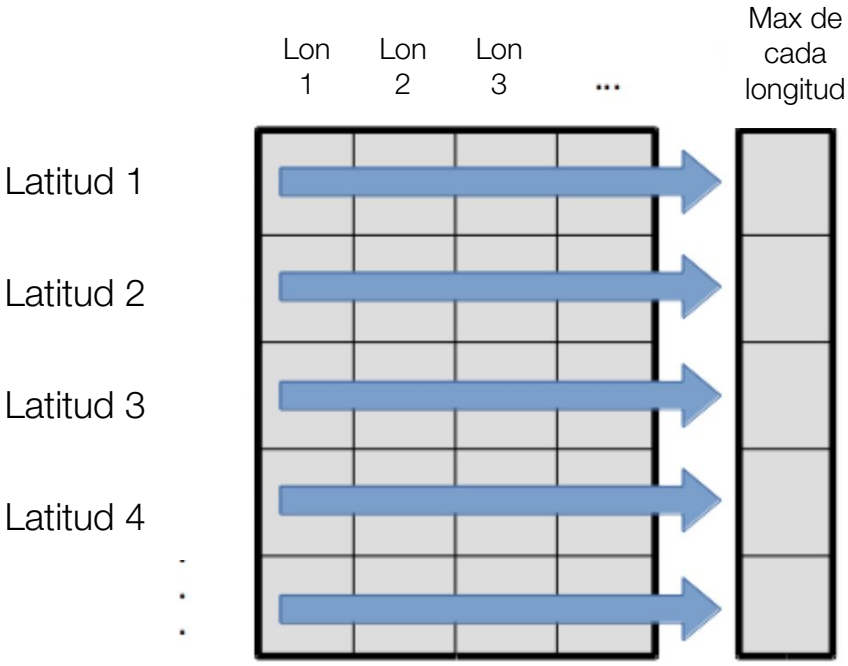
data[1, 2]



Numpy arrays

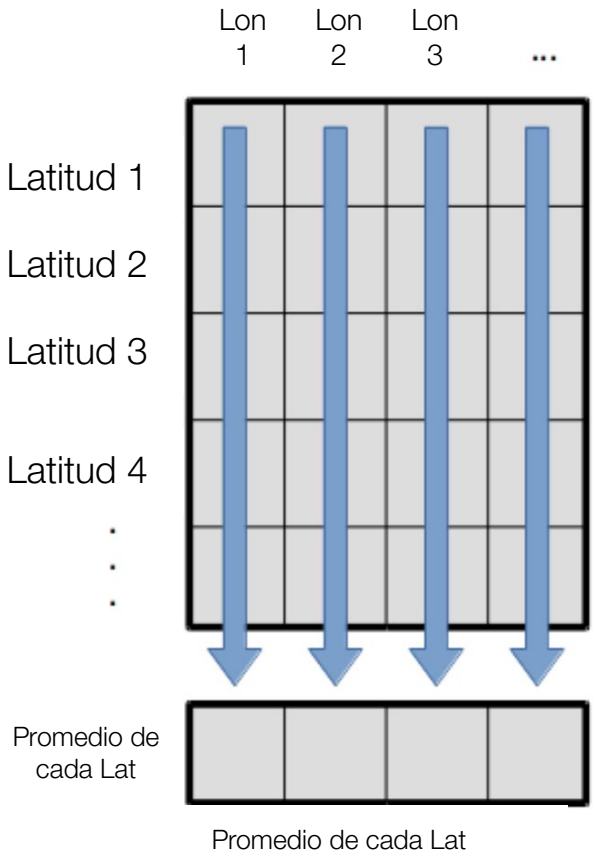


Numpy arrays



Max de cada longitud

```
numpy.max(data, axis=1)
```



Promedio de cada Lat

```
numpy.mean(data, axis=0)
```

conditional statements

```
num = 37
if num > 100:
    print('greater')
else:
    print('not greater')
print('done')
```