Sohag University
Faculty of Engineering

3ed year Communication Dept.
Computer Vision

LAB 1

By: Zaynab Al-Ariny

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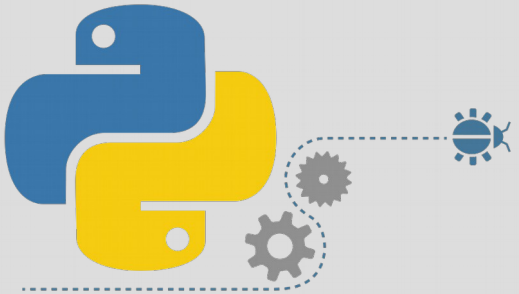
What's up !

- Image processing Programming language
- Intro to Python.
- Python Installation
- Image processing using python.
- Get your hands dirty with code!

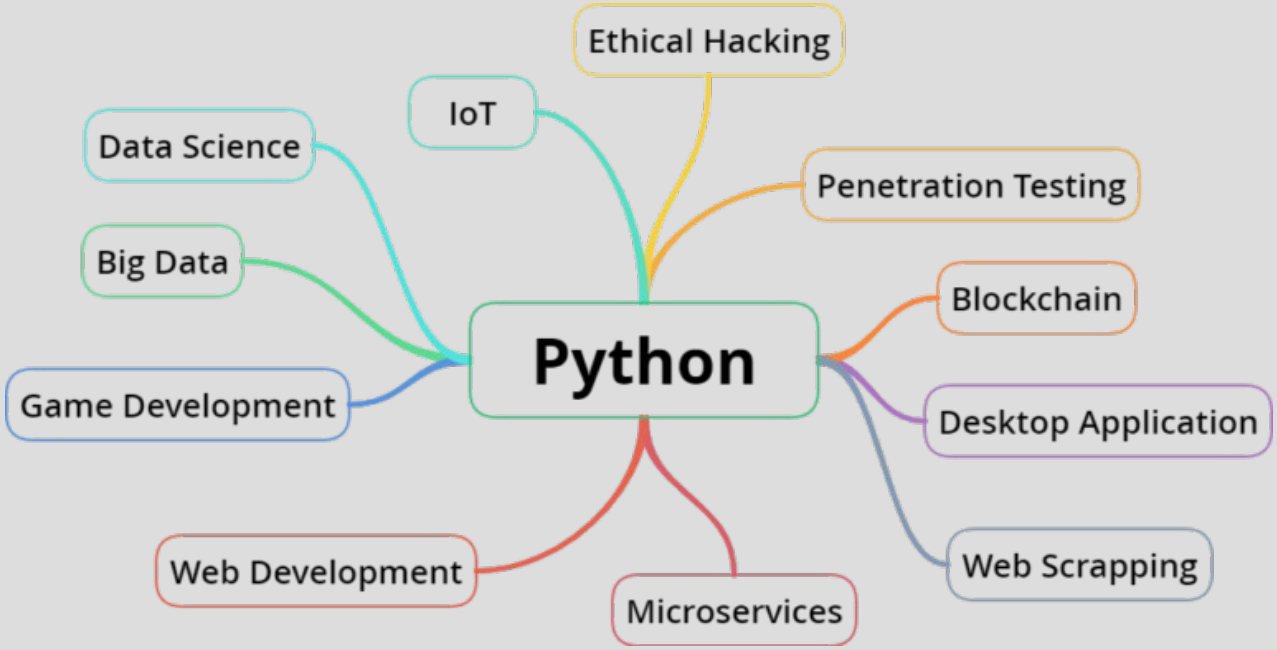
Many programming languages support computer vision and AI:

Why Python !?

- Easy to learn.
- Powerful.
- Open source and free.
- High-Level language and Object-Oriented.
- Large standard library.
- Elegant syntax and dynamic typing.
- Interpreted nature.



- All this make it an ideal language for scripting and rapid application development in many areas on most platforms.
- Python is one of the best suited programming language for Computer Vision and AI Applications.



- It’s lovely !

  discover it here…

Python provides lots of libraries for image processing:

- ***OpenCV***:
  - real-time computer vision
  - 2D and 3D feature tool-kits
  - recognition, Human-computer interaction, Mobile robotics, Object identification … etc.

- ***Numpy*** and ***Scipy*** :
  - image manipulation and processing.

- ***Sckikit*** :
  - lots of algorithms for image processing.

- ***PIL***:
  - basic operations on images like create, resize, rotation, convert between different file formats … etc.

Python Installation:

- ***Windows*** **:**
  - Download installer from here 
- ***Linux*** **:**
  - No need, already installed 

Try your first Image processing code !

```
import math, numpy
import scipy.misc
import matplotlib.pyplot as plt
from scipy import misc
img = misc.imread('images/image1.jpg')
misc.imsave('images/image2.png',img)
plt.imshow(img)
plt.show()
```