

Computer Vision for dummies with opencv

Sampriti Chatterjee (Great Learning)

Agenda

1

What is Python?

2

History of Python

3

Why Python is so popular?

4

Install python

5

statistical visualization on Python user

6

What is Opencv?

7

How computer read an image?

8

History of Opencv

9

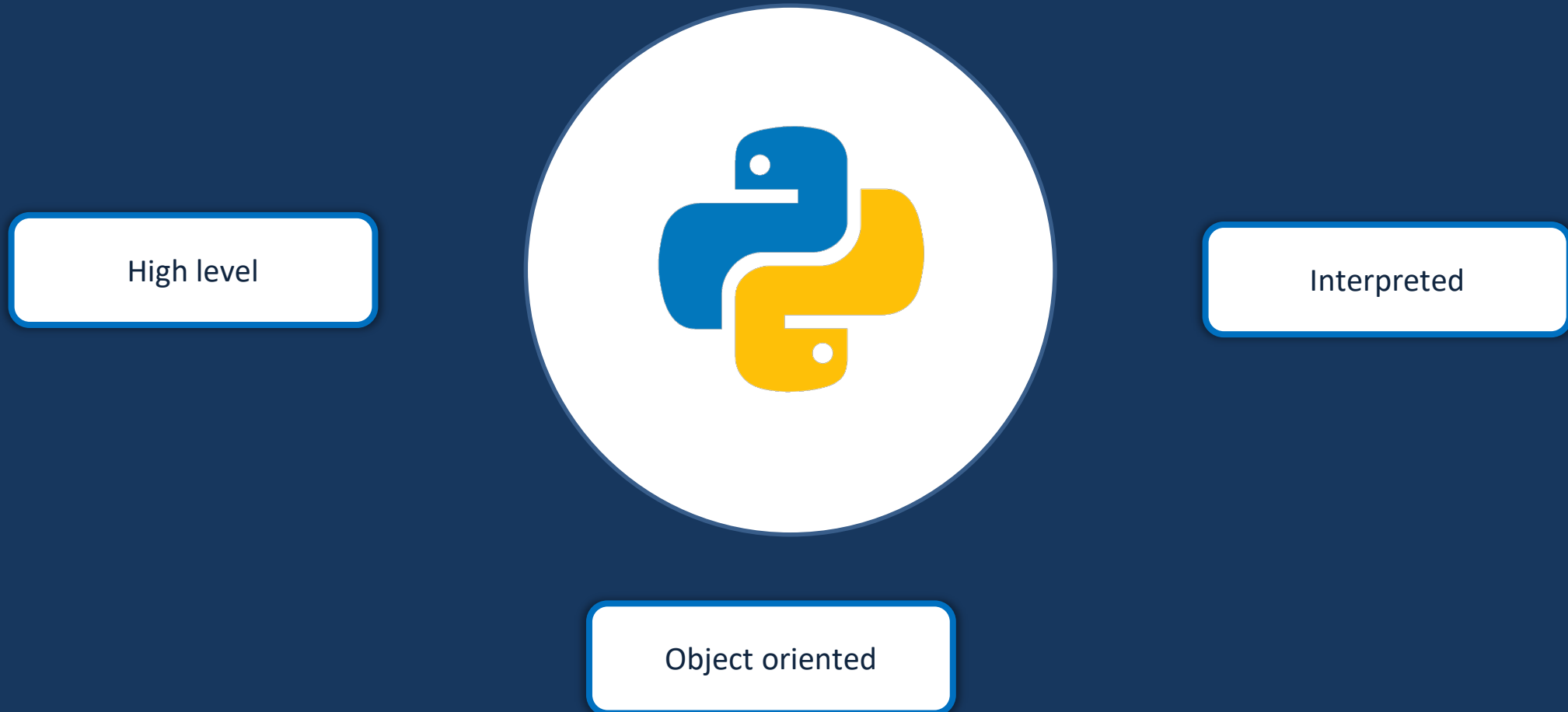
Getting started with OpenCV

10

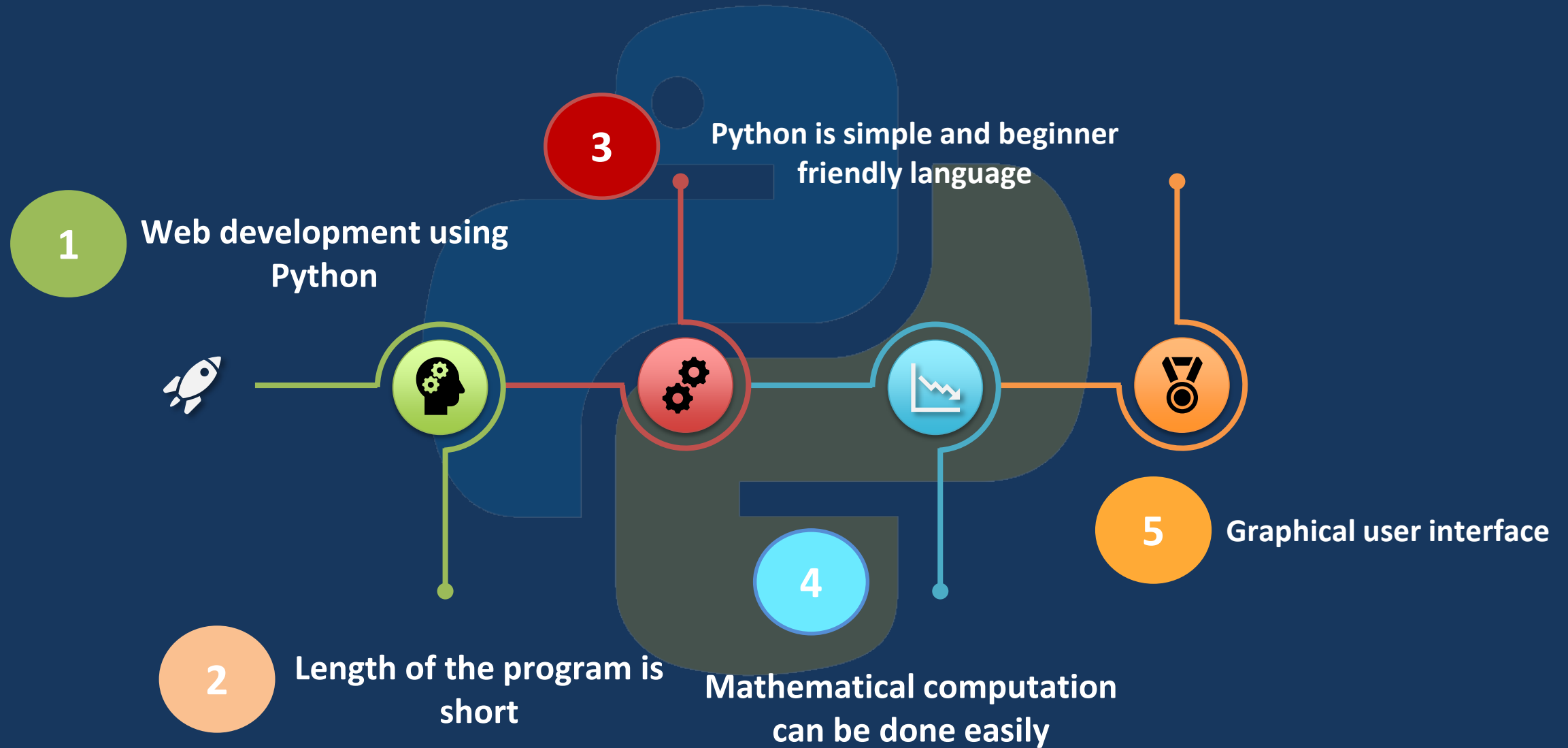
Face recognition using OpenCV

Introduction to Python

Python is a popular high level, object oriented and interpreted language



Why should you learn Python?



Why Python is so popular?

1 Largest community for Learners and Collaborators

2 Open source

3 Easy to learn and usable flexibility

4 Huge numbers of Python libraries and Frame work

5 Supports Big Data, Machine Learning and Cloud computing

6 Supports Automation

Installing Python

This is the site to install Python -> <https://www.python.org/downloads/>




Popular IDE for Python: Pycharm

Site to install Python ->

<https://www.jetbrains.com/pycharm/download/#section=mac>

PyCharm

Coming in 2020.2 What's New Features Learning Center Buy [Download](#)



Version: 2020.1.2
Build: 201.7846.77
3 June 2020

[System requirements](#)
[Installation Instructions](#)
[Other versions](#)

Download PyCharm

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Professional

For both Scientific and Web Python development. With HTML, JS, and SQL support.

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Free trial

Community

For pure Python development

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Get the Toolbox App to download PyCharm and its future updates with ease

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| [Y]es, I agree   [N]o, thanks
|
=====

~ root#
```

Popular IDE for Python: Anaconda

Anaconda installation site->

<https://www.anaconda.com/products/individual>



Individual Edition

Your data science toolkit

With over 20 million users worldwide, the open-source Individual Edition (Distribution) is the easiest way to perform Python/R data science and machine learning on a single machine. Developed for solo practitioners, it is the toolkit that equips you to work with thousands of open-source packages and libraries.

Download

Popular IDE for Python: Google colab

Google collaboratory link->

<https://colab.research.google.com/notebooks/intro.ipynb>

The screenshot displays the Google Colaboratory web interface. At the top, there's a header with the Colab logo, the text 'Welcome To Colaboratory', and a menu bar with options: File, Edit, View, Insert, Runtime, Tools, and Help. On the right of the header are links for 'Share' and a settings gear icon. Below the header, a sidebar on the left contains a 'Table of contents' section with links to 'Getting started', 'Data science', 'Machine learning', 'More Resources', 'Machine Learning Examples', and a 'Section' button. The main content area has a toolbar with '+ Code', '+ Text', and 'Copy to Drive' buttons, along with 'Connect' and 'Editing' status indicators. The main content area itself features the Colab logo and the title 'What is Colaboratory?'. It explains that Colab allows writing and executing Python in the browser, listing benefits: 'Zero configuration required', 'Free access to GPUs', and 'Easy sharing'. It then suggests watching an 'Introduction to Colab' video. A 'Getting started' section follows, stating that the document is an interactive 'Colab notebook' and provides an example of a Python code cell that calculates the number of seconds in a day (24 * 60 * 60), resulting in 86400.

CO Welcome To Colaboratory

File Edit View Insert Runtime Tools Help

Share

Table of contents

- Getting started
- Data science
- Machine learning
- More Resources
- Machine Learning Examples
- Section

+ Code + Text Copy to Drive

Connect Editing

CO What is Colaboratory?

Colaboratory, or "Colab" for short, allows you to write and execute Python in your browser, with

- Zero configuration required
- Free access to GPUs
- Easy sharing

Whether you're a **student**, a **data scientist** or an **AI researcher**, Colab can make your work easier. Watch [Introduction to Colab](#) to learn more, or just get started below!

Getting started

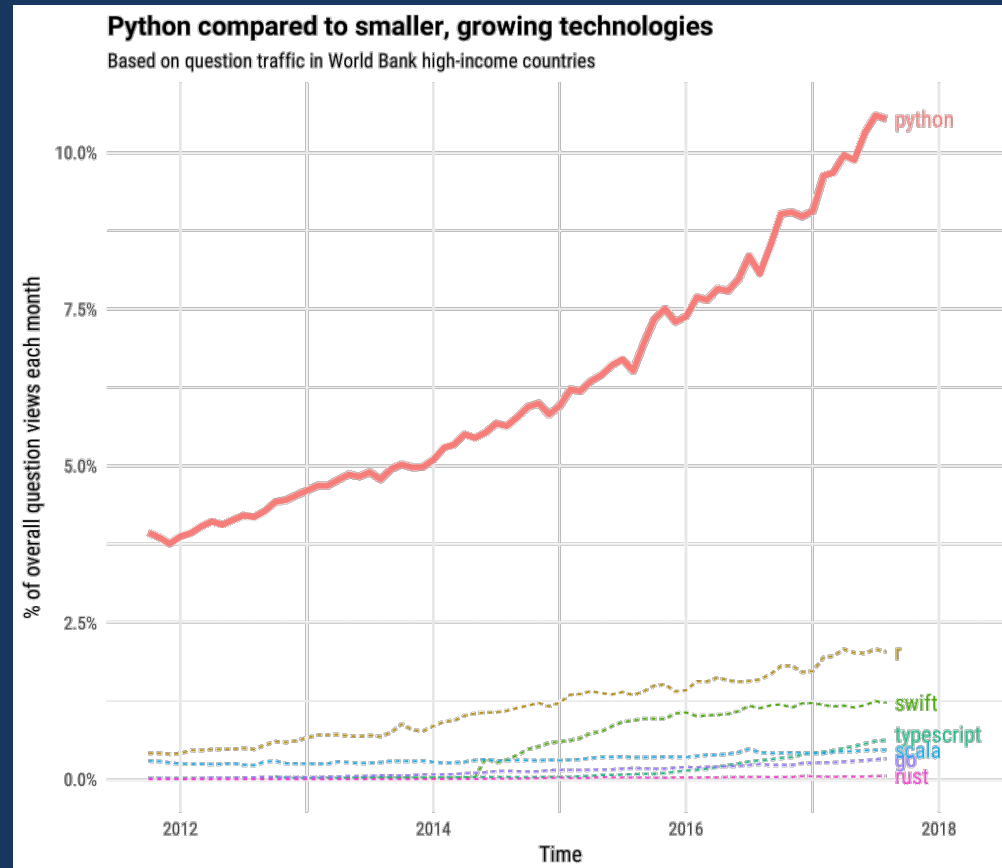
The document you are reading is not a static web page, but an interactive environment called a **Colab notebook** that lets you write and execute code.

For example, here is a **code cell** with a short Python script that computes a value, stores it in a variable, and prints the result:

```
[ ] seconds_in_a_day = 24 * 60 * 60
seconds_in_a_day
```

86400

Statistical measurement on Python user



In recent time it is prominent that Python is one of the most popular language because of it's simplicity

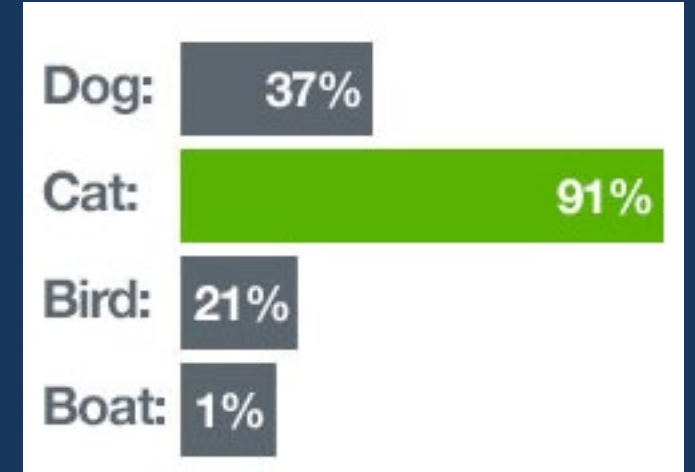
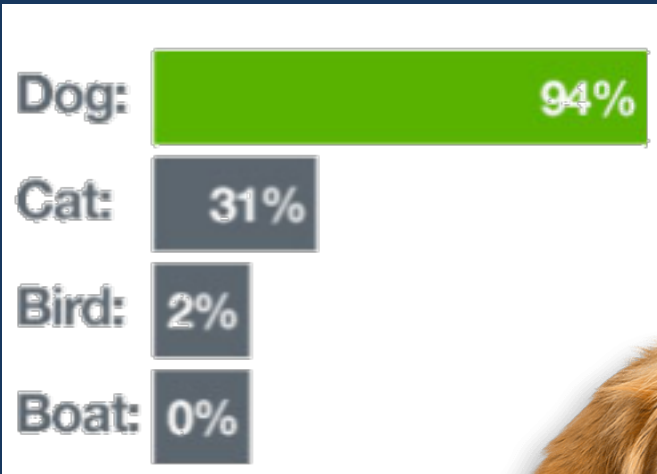
What is Image Processing

Image processing is a method to perform some important operations on an image. In order to get an enhanced high Quality image or to extract the most useful information from that

- It is a one type of signal processing
- In this processing input is an image and output may be image or characteristics/features associated with that image



Is It A Cat Or A Dog?



What is OpenCV?

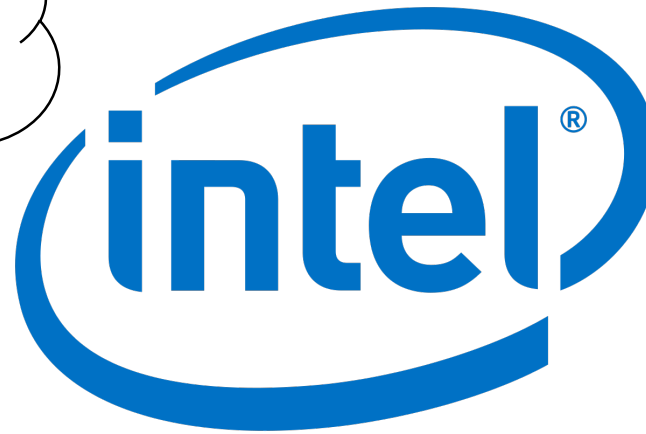
OpenCV is a open source library which is widely used for computer vision purpose

- It helps us to develop a system which can process images and real-time video using computer vision
- OpenCv focused on image processing, real-time video capturing to detect faces and objects.





How Opencv came into the picture?



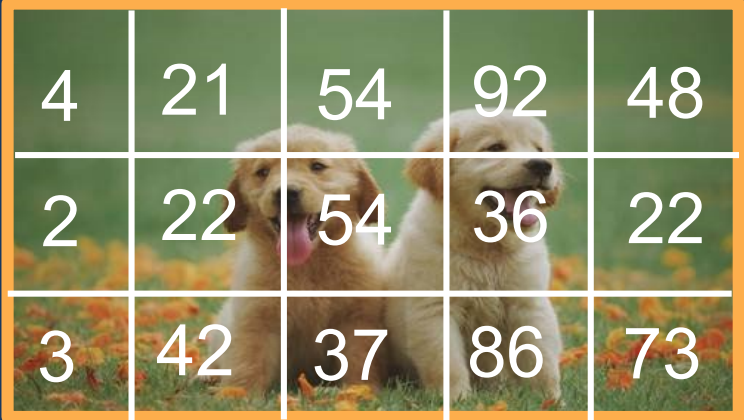
Opencv was invented by Intel

Important Facts

- [OpenCV](#) was invented by Intel in 1999 by Gary Bradsky.
- The first release was in the year 2000.
- OpenCV stands for Open Source Computer Vision Library.
- This Library is based on optimized C/C++ and it supports Java and Python along with C++ through interfaces.

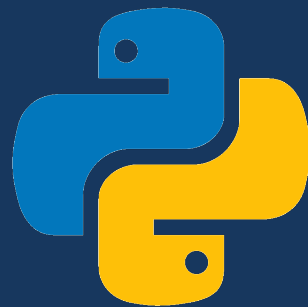
How Image Input Works In Computer?

Converts the image into an array of pixel values where the dimension of array depends on the resolution of the image



4	21	54	92	48
2	22	54	36	22
3	42	37	86	73

Array of dimension 32 X 32 X 3 (The 3 refers to RGB values)



Getting started with Opencv



Face Recognition using Python

Thank You