Gen-AI through Computer Vision. (workshop).

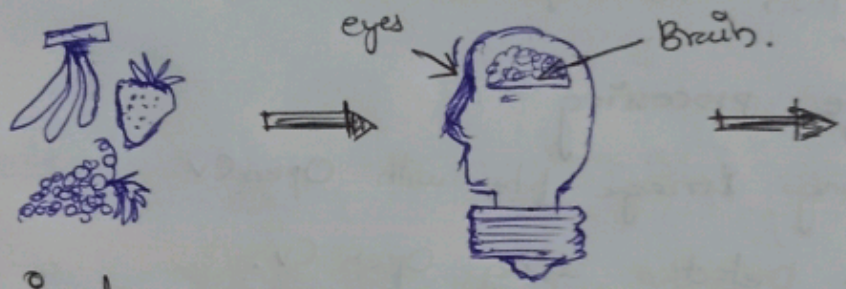
AGENDA:

1. Introduction to computer vision
2. What is image
3. Numpy & Image connection
   - Image reading with Numpy & MATPLOTTIB
4. Introduction to Open Cv
   - Image processing
   - Opening Image file with Open Cv
   - Video Detection using Open Cv.

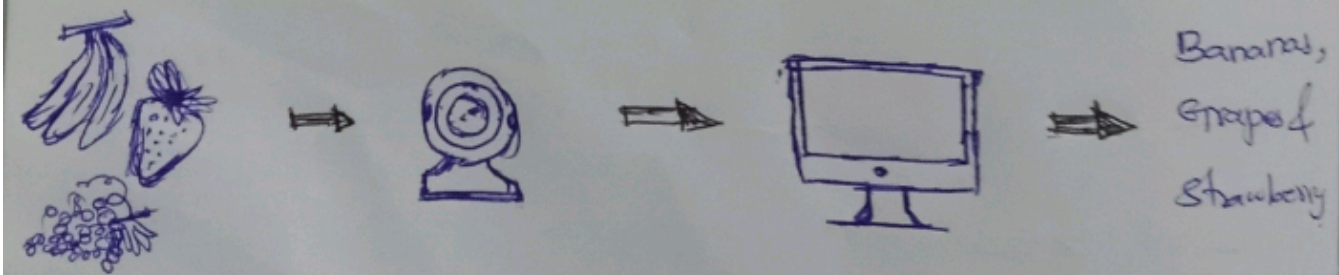
Introduction to Computer Vision :—

- Computer vision is a field of computer science that focuses on enabling computers to identify and understand objects and people in images and videos.

* Human Vision System. *



* Computer Vision System *.



NOTE :-

Human Vision uses eyes and brain to see and understand, while computer vision uses a camera and computer to detect and recognize objects.

2. What is image

- Let's understand how computer handles images & how does a computer represent image data?

Real image of the digit "8"

Represented in the form of an array

0	0	1	1	0	0
0	1	0	0	1	0
0	0	1	1	0	0
0	1	0	0	1	0
0	0	1	1	0	0

Digit 8 represented in the form of pixels of 0's and 1's.

→ 8 digit image can represent as an array & image will convert to pixel.

→ Pixel range between 0-255 (0 - dark value) (255 - Higest / Brightest value).

→ Every image are stored in value b/w 0-255

→ coloured image can be represented as R, G, B

→ Additive color mixing allows us to represent wide-variety of colors by combining different amounts of RGB.

→ RGB allows provide range of colors like "gray-scale" Image & coloured image.

—— Prefer Jupyter Notebook for practical ——

3. Numpy & Image Connection.

- Hands on Experiance in Anaconda Jupyter Notebook.

4. Open CV

- Open Cv (open source computer vision library) is a python library used for image and video processing, compute vision and machine learning.

- Open Cv libraries are written in C++ programing language.

- It's fast and widely used in real-world applications like face detection, object tracking, and image filtering.

5. Video Detection using Open Cv.

- Hands on Experiance in Anaconda Jupyter Notebook (prefer that).