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LetsGrowMore Internship Task

Task Level : Beginner

Image to Pencil Sketch with Python

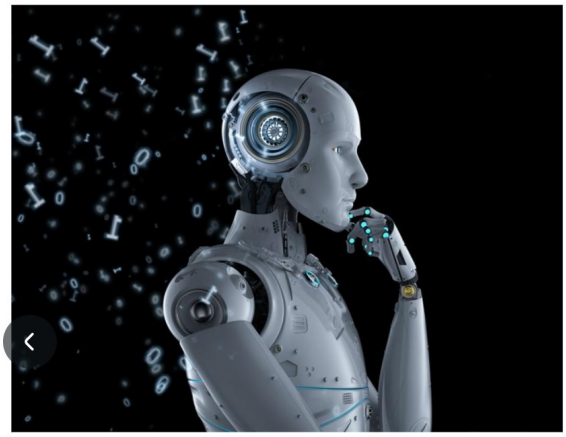
Given Problem Statement

In [1]:

```
from PIL import Image

Image.open('problem.jpg')
```

Out[1]:



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BEGINNER LEVEL TASK

4)Image to Pencil Sketch with Python:
We need to read the image in RBG format and then convert it to a grayscale image. This will turn an image into a classic black and white photo. Then the next thing to do is invert the grayscale image also called negative image, this will be our inverted grayscale image. Inversion can be used to enhance details. Then we can finally create the pencil sketch by mixing the grayscale image with the inverted blurry image. This can be done by dividing the grayscale image by the inverted blurry image. Since images are just arrays, we can easily do this programmatically using the divide function from the cv2 library in Python. Reference:Watch Tutorial from here https://youtu.be/CBCfOTePVPo
https://thecleverprogrammer.com/2020/09/30/pencil-sketch-with-python/

Required Libraries

In [2]:

```
import cv2 as cv
import matplotlib.pyplot as plt

import numpy as np
```

simple functions to display image

In [3]:

```
def show(img , title="default_Title" , fig_size=(7,7) ,text=False):
    plt.figure(figsize=fig_size)
    if text==True:
        img=cv.cvtColor(img,cv.COLOR_BGR2RGB)
        cv.putText(img,"rahul agrawal",(5,18),6,0.5,(0,0,0),1)
        plt.imshow(img)
    else:
        plt.imshow(cv.cvtColor(img,cv.COLOR_BGR2RGB))
    plt.title(title)
    plt.axis('off')
    plt.plot()


def img_compare(img1 , img2 , title1= "First Image", title2= "second Image"):
    fig = plt.figure(figsize=(20, 20))
    fig.add_subplot(2,2, 1)
    plt.imshow(cv.cvtColor(img1,cv.COLOR_BGR2RGB))
    plt.axis('off')
    plt.title(title1)
    fig.add_subplot(2,2, 2)
    plt.imshow(cv.cvtColor(img2,cv.COLOR_BGR2RGB))
    plt.axis('off')
    plt.title(title2)
```

Loading 2 Images for Operation

1] Squirrel

2] Dog

In [4]:

```
img1 = cv.imread('img.jfif')
img2 = cv.imread('dog.jfif')

show(img1 , "main Image Squirrel ")

show(img2 , "main Image Dog ")
```

Conveting to GrayScale Image

In [5]:

```
img1_gray = cv.cvtColor(img1,cv.COLOR_RGB2GRAY)
img2_gray = cv.cvtColor(img2,cv.COLOR_RGB2GRAY)

show(img1_gray ,"Gray Scale image Squirrel")
show(img2_gray ,"Gray Scale image Dog")
```

In [6]:

```
img1_invert = cv.bitwise_not(img1_gray)
img2_invert = cv.bitwise_not(img2_gray)

show(img1_invert , "inverted Squirrel GrayScale Image")
show(img2_invert, "inverted Dog GrayScale Image")
```

In [7]:

```
blur1= cv.GaussianBlur(img1_invert, (17,21),sigmaX=0, sigmaY=0)
blur2= cv.GaussianBlur(img2_invert, (17,21),sigmaX=0, sigmaY=0)

show(blur1,"blur  Squirrel")
show(blur2,"blur Dog")
```

In [8]:

```
img_compare(blur1,img1_gray , " Blur Image" ,"Gray Image")
img_compare(blur2,img2_gray , " Blur Image" ,"Gray Image")
```

In [9]:

```
Sketch1=cv.divide(img1_gray,250-blur1, scale=240)
show(Sketch1, "Squirrel Sketch",text=True)
```

In [10]:

```
Sketch2=cv.divide(img2_gray,250-blur2, scale=240)
show(Sketch2,"Dog Sketch", text=True)
```

Ccomparison between Original Image And Sketch

In [11]:

```
#  For Squirrel
img_compare(img1 ,Sketch1 , "Original Image","Sketch image")
```

In [12]:

```
#  For Dog

img_compare(img2 ,Sketch2 , "Original Image","Sketch image")
```