

In [1]:

```
import numpy as np
import cv2 as cv
```

In [2]:

```
def K_Means(Image, K):

    if(len(Image.shape)<3):
        Z = Image.reshape((-1,1))
    elif len(Image.shape)==3:
        Z = Image.reshape((-1,3))

    # convert to np.float32
    Z = np.float32(Z)

    # define criteria, number of clusters(K) and apply kmeans()
    criteria = (cv.TERM_CRITERIA_EPS + cv.TERM_CRITERIA_MAX_ITER, 10, 1.0)
    ret,label,center = cv.kmeans(Z, K, None, criteria, 10, cv.KMEANS_RANDOM_CENTERS)

    # Now convert back into uint8, and make original image
    center = np.uint8(center)
    res = center[label.flatten()]
    Clustered_Image = res.reshape((Image.shape))

    return Clustered_Image
```

In [4]:

```
def main():
    Input_Image = cv.imread(r"C:\Users\Ilakiya\Desktop\dora.jpg")
    Clusters = 2
    Clustered_Image = K_Means(Input_Image, Clusters)

    cv.imwrite("Cluster_Image.png", Clustered_Image)
    input("Please Enter to Continue...")
if __name__ == '__main__':
    main()
```

Please Enter to Continue...

In []: