Roll No: 2019102028

Name: Raj Singh Parihar

Importing necessary libraries

In [2]:

```
import numpy as np
import matplotlib.pyplot as plt
import cv2
```

Video to image capture using webcam

for primary webcam, videocapture src is 0.

In [14]:

```
vid = cv2.VideoCapture(0)
cnt = 201
i = 0
while(cnt > 0):
    ret, frame = vid.read()
    cv2.imwrite("./images/frame-{}".format(i) + '.jpg', frame)
    i += 1
    cnt -= 1
```

Merging frames to get a video

For Webcam frames

In [15]:

```
fps = int(24)
image = cv2.imread("./images/frame-0.jpg")
height, width, channels = image.shape

fourcc = cv2.VideoWriter_fourcc(*'mp4v')
video = cv2.VideoWriter('./video.mp4', fourcc, fps, (width,height))

for j in range(0,200):
    image = cv2.imread(f"./images/frame-{j}.jpg")
    video.write(image)
video.release()
```

For greenscreen video

In [20]:

```
greenscreen = cv2.VideoCapture("./videos/travolta.mp4")
i = 0
while(True):
    ret, frame = greenscreen.read()
```

```
    if ret == False:
        break
    frame = cv2.resize(frame, (640, 480))
    cv2.imwrite("./images/greenscreen-{}".format(i) + '.jpg', frame)
    i += 1
```

For background video

In [21]:

```
bg = cv2.VideoCapture("./videos/dance.mp4")
i = 0
while(True):
    ret, frame = bg.read()
    if ret == False:
        break
    frame = cv2.resize(frame, (640, 480))
    cv2.imwrite("./images/bg-{}".format(i) + '.jpg', frame)
    i += 1
```

Chroma Keying

In [28]:

```
fps = int(24)
height = int(480)
width= int(640)

fourcc = cv2.VideoWriter_fourcc(*'mp4v')
video = cv2.VideoWriter('./final_video.mp4', fourcc, fps, (width,height))

for j in range(99):

    gs = cv2.imread(f"./images/greenscreen-{j}.jpg")

    gs_copy = gs.copy()

    reds = gs_copy[:,:,0]
    greens = gs_copy[:,:,1]
    blues = gs_copy[:,:,2]

    mask = (greens > reds) & (greens > blues) & (greens > 100)

    masked_image = gs_copy
    masked_image[mask != 0] = [0, 0, 0]
    bg = cv2.imread(f"./images/bg-{j+160}.jpg")
    res = np.zeros_like(gs)
    for i in range(res.shape[0]):
        for k in range(res.shape[1]):
            if mask[i,k] == False:
                res[i,k,0]= gs_copy[i,k,0]
                res[i,k,1]= gs_copy[i,k,1]
                res[i,k,2]= gs_copy[i,k,2]
            elif mask[i,k] == True:
                res[i,k,0]= bg[i,k,0]
                res[i,k,1]= bg[i,k,1]
                res[i,k,2]= bg[i,k,2]

    video.write(res)
plt.figure(figsize=(20,20))
plt.subplot(221)
plt.imshow(mask,cmap="gray")
plt.subplot(222)
```

```
plt.imshow(bg)
plt.subplot(223)
plt.imshow(gs_copy)
plt.subplot(224)
plt.imshow(res)
video.release()
```