Assignment 0
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Computer Vision

Task 1

Task 1 is to convert a video to its individual frames and vice versa. For this we use the cv2.VideoCapture function to capture the video object and read function to read each frame. Next, we use the write and VideoWriter functions respectively to capture frames and save the video.

Task 2

In task 2 I used the VideoCapture function and specified the port number to get frames from my webcam. The output is viewed using matplotlib and the camera keeps recording until the user presses Q.

Task 3

For this task I first specified the lower and upper values of green color. Then using cv2.inRange function I created a mask. I negated the mask (mask2 = not mask) to get all the regions of interest of the frame which will be the foreground of my resultant image. Next, I set the values of the background image to 0 wherever the foreground image is non zero.

Chroma keying

Chroma keying is a technique used to replace a region of image having a certain color spectrum with some other background image.

In my assignment I have replaced the green color with appropriate background.

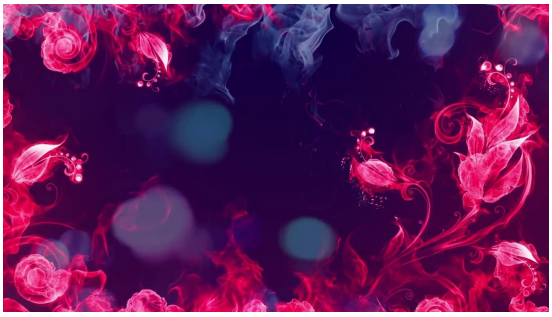
Approach

- Create a mask that selects the low and high values of a certain color (in our case green).

- Negate this mask and apply this to our image to choose the region not containing green.
- Set 0 value for RGB wherever this negated mask has a non zero value.
- This essentially sets 0 values which will be covered by the foreground.
- Add the masked foreground and background.
- The resultant is our foreground image overlayed on the background after replacing the green color.

Results

Input



Output

Trial on my own frame