Workshop-1

# Declaration

We, Steven David Pillay, Olha Hodovaniuk, Ruyuan Sun, Syed Moonis Iqbal, declare that the attached assignment is our own work in accordance with the Seneca Academic Policy. We have not copied any part of this assignment, manually or electronically, from any other source, including websites, unless specified as references. We have not distributed our work to other students.

# Task Distribution

|  |  |
| --- | --- |
| **Name** | **Task(s)** |
| Steven David Pillay | Setup Local Environment / Walkthrough for Anaconda Setup |
| Olha Hodovaniuk | Setup Local Environment / Setup Team Meeting |
| Ruyuan Sun | Setup Local Environment / Draft the Team Contract |
| Syed Moonis Iqbal | Setup Local Environment |

# Questions

## Briefly explain what you do and don’t understand in this code?

What I Understand:

**frame\_width = int(cap.get(3))** and **frame\_height = int(cap.get(4))** are used to get the video's width and height.

**codec = cv2.VideoWriter\_fourcc(\*'DIVX')** specifies the codec used for encoding the video.

**out = cv2.VideoWriter(outputvideofilepath, codec, frame\_rate, resolution, True)** initializes the VideoWriter object with the output file path, codec, frame rate, resolution, and color flag.

**ret, frame = cap.read()** reads a frame from the video, where **ret** indicates success and **frame** contains the image data.

**hsvframe = cv2.cvtColor(frame, cv2.COLOR\_BGR2HSV)** converts a frame from BGR to HSV color space.

**if cv2.waitKey(25) & 0xFF == ord('q'):** checks if the 'q' key is pressed to break the loop.

**cap.release()** and **out.release()** release the video capture and writer objects, respectively, to free up resources.

What I Don’t Understand:

I am not entirely sure how the system determines the default video resolution and why it varies.

The syntax **\*'DIVX'** for unpacking the codec characters into the **VideoWriter\_fourcc** function is unclear.

The reason for using **& 0xFF** in the **cv2.waitKey** function is not clear.

## Change the frame-rate parameter {5, 10, 20, 25, 30} and check both size and duration of the saved video. Can you briefly explain what is going on?

1. Frame Rate: 5 fps

Size: 9.2 MB

Duration: 1:16

1. Frame Rate: 10 fps

Size: 9.2 MB

Duration: 0:38

1. Frame Rate: 20 fps

Size: 9.2 MB

Duration: 0:19

1. Frame Rate: 25 fps

Size: 9.2 MB

Duration: 0:15

1. Frame Rate: 30 fps

Size: 9.2 MB

Duration: 0:12

Changing the frame rate affects the duration of the saved video. Higher frame rates result in shorter video durations because the same number of frames is displayed in a shorter amount of time, making the video play faster. The file size remains constant at 9.2 MB because the total number of frames and their resolution does not change, only the display rate of the frames changes.