**DAILY ASSESSMENT FORMAT**

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| **Date:** | **2 june 2020** | **Name:** | **Shreya poojary** |
| **Course:** | **python** | **USN:** | **4al16ec074** |
| **Topic:** | **udemy** | **Semester & Section:** | **8-B** |
| **Github Repository:** | **Shreya-test** |  |  |

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| **FORENOON SESSION DETAILS** |
| **Image of session**  **p1.PNG**  **p2.PNG** |
| **Report:**  **Main Logic :** Videos can be treated as stack of pictures called frames. Here I am comparing different frames(pictures) to the first frame which should be static(No movements initially). We compare two images by comparing the intensity value of each pixels. In python we can do it easily as you can see in following code:  # Python program to implement  # Webcam Motion Detector  # importing OpenCV, time and Pandas library  import cv2, time, pandas  # importing datetime class from datetime library  from datetime import datetime  # Assigning our static\_back to None  static\_back = None  # List when any moving object appear  motion\_list = [ None, None ]  # Time of movement  time = []  # Initializing DataFrame, one column is start  # time and other column is end time  df = pandas.DataFrame(columns = ["Start", "End"])  # Capturing video  video = cv2.VideoCapture(0)  # Infinite while loop to treat stack of image as video  while True:  # Reading frame(image) from video  check, frame = video.read()  # Initializing motion = 0(no motion)  motion = 0  # Converting color image to gray\_scale image  gray = cv2.cvtColor(frame, cv2.COLOR\_BGR2GRAY)  # Converting gray scale image to GaussianBlur  # so that change can be find easily  gray = cv2.GaussianBlur(gray, (21, 21), 0)  # In first iteration we assign the value  # of static\_back to our first frame  if static\_back is None:  static\_back = gray  continue  # Difference between static background  # and current frame(which is GaussianBlur)  diff\_frame = cv2.absdiff(static\_back, gray)  # If change in between static background and  # current frame is greater than 30 it will show white color(255)  thresh\_frame = cv2.threshold(diff\_frame, 30, 255, cv2.THRESH\_BINARY)[1]  thresh\_frame = cv2.dilate(thresh\_frame, None, iterations = 2)  # Finding contour of moving object  cnts,\_ = cv2.findContours(thresh\_frame.copy(),  cv2.RETR\_EXTERNAL, cv2.CHAIN\_APPROX\_SIMPLE)  for contour in cnts:  if cv2.contourArea(contour) < 10000:  continue  motion = 1  (x, y, w, h) = cv2.boundingRect(contour)  # making green rectangle arround the moving object  cv2.rectangle(frame, (x, y), (x + w, y + h), (0, 255, 0), 3)  # Appending status of motion  motion\_list.append(motion)  motion\_list = motion\_list[-2:]  # Appending Start time of motion  if motion\_list[-1] == 1 and motion\_list[-2] == 0:  time.append(datetime.now())  # Displaying image in gray\_scale  cv2.imshow("Gray Frame", gray)  # Displaying the difference in currentframe to  # the staticframe(very first\_frame)  cv2.imshow("Difference Frame", diff\_frame)  # Displaying the black and white image in which if  # intensity difference greater than 30 it will appear white  cv2.imshow("Threshold Frame", thresh\_frame)  # Displaying color frame with contour of motion of object  cv2.imshow("Color Frame", frame)  key = cv2.waitKey(1)  # if q entered whole process will stop  if key == ord('q'):  # if something is movingthen it append the end time of movement  if motion == 1:  time.append(datetime.now())  break  video.release()  # Destroying all the windows  cv2.destroyAllWindows()  **Difference Frame :** Difference frame shows the difference of intensities of first frame to the current frame.  **Threshold Frame :**If the intensity difference for a particular pixel is more than 30(in my case) then that pixel will be white and if the difference is less than 30 that pixel will be black  **Color Frame :**In this frame you can see the color images in color frame along with green contour around the moving objects |

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