**TASK 4**

First step was to take a snapshot of an instance in the video, or to extract a frame of the video and to treat It as an individual image

Height and Width of the image are taken and the Region of interest was defined, in this case the ROI was a triangle with the corners as bottom right, bottom left and the centre of the image.

A Gray image of the original image is generated and then a canny image is generated from the gray image.

This image was then passed onto a function defined as ROI and over here the image was cropped and masked onto the original image.

Hough Line Transformation was then performed onto this resultant image which provided the coordinates of the edges of the lines that have been detected.

Now the consecutive coordinates are then checked for their respective slopes if their absolute value is less than 0.5 then they are discarded else if the slope is negative then the coordinates are appended in the left coordinate list and if they are positive then they are appended in the right coordinate list. Using these coordinates then 2 polynomial functions are defined one for the left side and other for the right side, the max and min values of (x,y) are obtained from both these polynomials and these 4 coordinates are then used by the draw\_the\_lines function which draws 2 red lines and fills the space within the red lines with green colour on the image.

This image is then returned and new frame image is sent. When the images are played consecutively, we obtain the full video with the respective lanes detected.

This approach is used in other videos as well.