Writeup – Assignment 1

1. **Describe your pipeline. As part of the description, explain how you modified the draw_lines() function.**

   My pipeline consist of steps,

   I. Read the video and convert to frames
   II. Convert each frame to YCrCb coordinate for getting better line features
   III. Apply canny edge detection
   IV. Apply polygon extraction to extract region of interest
   V. Apply Hough transform to find possible line features
   VI. Separate the line points into left and right line points based on their point's x value.
   VII. Apply line fitting on the left and line points to get the best fitted lines
   VIII. Draw back the fitted lines to image with separate colours
   IX. Create a video using annotated frames

   In order to draw the left and right line I first tuned the Hough transform parameter so that I get only the main line features. Then I split the points in left and right regions. After this I applied line fitting on each set of points. The fitted line has used as left and right detected lines.

2. **Identify potential shortcomings with your current pipeline**

   I. I am expecting only main line points from the Hough transform to apply line fitting. Any un-wanted line points will affects the accuracy on the fitted lines.
   II. I am only considering the ego lines and based on this requirement I have manually fitted an ROI. This part has to generalize to take care any number of lines.

3. **Suggest possible improvements to your pipeline**

   I. Need to use better feature detection technique other than using canny edge detection. So that the Hough transform will give better line points.
   II. Need adapt a dynamic ROI generation technique.