**Customization to code**

import cv2

import numpy as np

from google.colab.patches import cv2\_imshow

from google.colab import files

def read\_file(filename):

  img = cv2.imread(filename)

  cv2\_imshow(img)

  return img

uploaded = files.upload()

filename = next(iter(uploaded))

image = read\_file(filename)

gray = cv2.cvtColor(image, cv2.COLOR\_RGB2GRAY)

plt.imshow(gray, cmap='gray')

sobel\_y = np.array([[ -1, 0, -1],

                   [ 0, 0, 0],

                   [ 1, 2, 1]])

sobel\_x = np.array([[-1, 0, 1],

                    [-2,0,2],

                    [-1, 0, 1]])

filtered\_image = cv2.filter2D(gray, -1, sobel\_y)

plt.imshow(filtered\_image, cmap='gray')

sobel\_y = np.array([[ -1, 1, -1],

                   [ 0, 0, 0],

                   [ 1, 2, 1]])

sobel\_x = np.array([[-1, 0, 1],

                    [-2,0,2],

                    [-1, 0, 1]])

filtered\_image = cv2.filter2D(gray, -1, sobel\_x)

plt.imshow(filtered\_image, cmap='gray')

sobel\_decimal = np.array([[1,-1,-2,-1,-1],

                          [-1,-1,-2,-1,-1],

                          [0,0,0,0,0],

                          [1,1,2,1,1],

                         [1,1,2,1,1]])

filtered\_image = cv2.filter2D(gray, -1, sobel\_decimal)

plt.imshow(filtered\_image, cmap='gray')