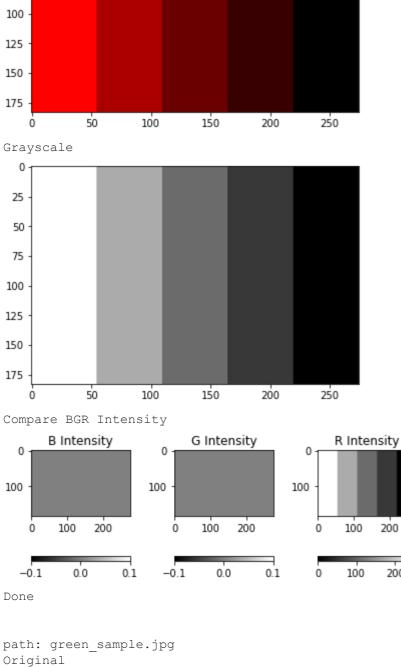
In [1]: # Nama : Avima Haamesha

```
# NIM
                                   : 10219084
                 Tugas 4
In [4]: import cv2 as cv
                  import numpy as np
                  import matplotlib.pyplot as plt
                  import os
                 def cvt_gray(img, c_bgr=(0.114, 0.587, 0.299)):
                          # create black img that have similar size to img
                          w,h,c = img.shape
                          img_gray = np.zeros((w,h))
                           # extract 3 channel: bgr
                          img b, img g, img r = img[:,:,0], img[:,:,1], img[:,:,2]
                           # convert bgr channel to gray
                          for i in range(w):
                                   for j in range(h):
                                            + c_bgr[2] * img_r[i,j]
                          return img gray
                 def run_tugas04(path="mg06/cubic_puzzle.jpg"):
                          # read img in rgb color space
                          img = cv.imread(path)
                          img_rgb = cv.cvtColor(img, cv.COLOR_BGR2RGB)
                          print("Original")
                          plt.imshow(img_rgb, cmap="gray")
                          plt.show()
                          # gray image
                          c_bgr = (0.114, 0.587, 0.299)
                          img_gray = cvt_gray(img, c_bgr)
                          print("Grayscale")
                          plt.imshow(img_gray, cmap="gray")
                          plt.show()
                          # compare every channel intensity
                          print("Compare BGR Intensity")
                          plt.subplots(nrows=1, ncols=3, tight_layout=1)
                          plt.subplot(1,3,1); plt.imshow(img[:,:,0], cmap="gray"); plt.title("B Intensity"); plt.colorbar(orientation: plt.subplot(1,3,2); plt.imshow(img[:,:,1], cmap="gray"); plt.title("G Intensity"); plt.colorbar(orientation: plt.subplot(1,3,3); plt.imshow(img[:,:,2], cmap="gray"); plt.title("R Intensity"); plt.colorbar(orientation: plt.subplot(1,3,3); plt.subplot(1,3,3,3); plt.subplot(1,3,3,3); plt.subplot(1,3,3,3); plt.subplot(1,3,3,3,3,3); plt.subplot(1,3
                          plt.show()
                          print("Done")
                 if __name__ == "__main__":
    folder_path = "./"
                          path arr = ["cubic puzzle.jpg",
                                                    "red_sample.jpg",
                                                     "green sample.jpg",
                                                    "blue_sample.jpg"]
                          # path_arr = ["cubic_puzzle.jpg"]
                          for i in range(len(path_arr)):
                                  print("path: %s" %path_arr[i])
                                   path_arr[i] = os.path.join(folder_path, path_arr[i])
                                  run_tugas04(path_arr[i])
                                  print("\n")
                 path: cubic_puzzle.jpg
                 Original
                  100
                  200
                  300
                  400
                  500
                  600
                                100
                                           200
                                                     300
                                                               400
                                                                         500
                                                                                   600
                 Grayscale
                     0
                  100
                  200
                  300
                  400
                  500
                                100
                                           200
                                                    300
                                                               400
                                                                         500
                                                                                   600
                 Compare BGR Intensity
                               B Intensity
                                                                      G Intensity
                                                                                                              R Intensity
                     0
                                                                                                     0
                                                             0
                  200
                                                          200
                                                                                                 200
                  400
                                                          400
                                                                                                 400
                  600
                                                          600
                                                                                                 600
                                  250
                                              500
                                                                                      500
                        0
                                                                          250
                                                                                                       0
                                                                                                                              500
                                                                         100
                                   100
                                               200
                                                                                       200
                                                                                                       Ó
                                                                                                                 100
                                                                                                                             200
                 Done
                 path: red_sample.jpg
                 Original
                    25
                    50
                    75
                  100
                  125
                  150
                  175
                                                                         150
                                        50
                                                        100
                                                                                                           250
                                                                                          200
                 Grayscale
                    25
                    50
                    75
                  100
                  125
                  150
                  175
```



0

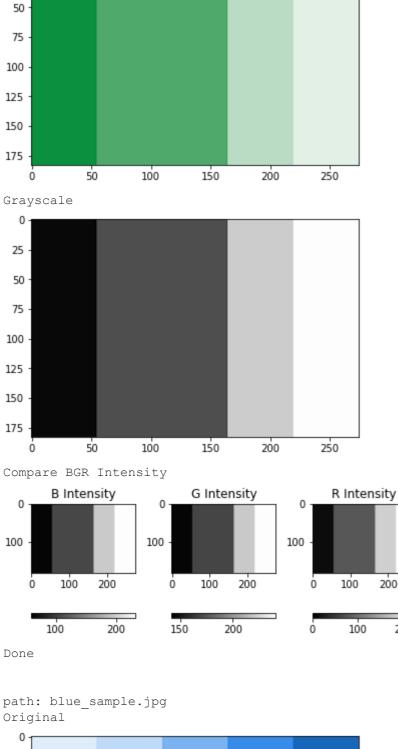
25

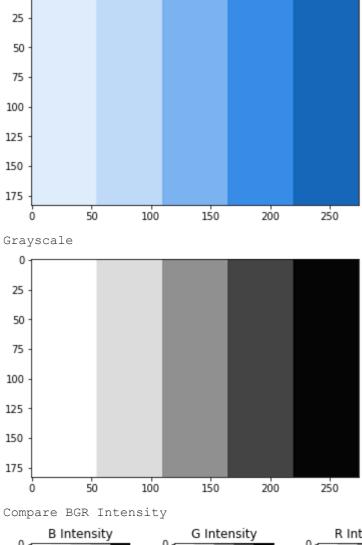
200

200

200

200





R Intensity 0 0 100 100 100 200 200 200 100 100 100 200 225 250 100 150 200 100 Done