```
from numpy.lib.function_base import average
from math import log10, sqrt
import cv2
import numpy as np

def PSNR(original, compressed):
    mse = np.mean((original - compressed) ** 2)
    if(mse == 0):  # MSE is zero means no noise is present in the signal .
                # Therefore PSNR have no importance.
        return 100
    max_pixel = 255.0
    psnr = 20 * log10(max_pixel / sqrt(mse))
    return psnr

psnr = []

def main():
  for i in range(0,38):
    original = cv2.imread("input/" + str(i) + ".png")
    compressed = cv2.imread("output/" + str(i) + ".png", 1)
    value = PSNR(original, compressed)
    psnr.append(value)
    # print(f"PSNR value is {value} dB")

if __name__ == "__main__":
    main()
    print(psnr)
    avg = average(psnr)
    print("average psnr is " + str(avg))

#https://www.geeksforgeeks.org/python-peak-signal-to-noise-ratio-psnr/
```

```
[28.46349379464599, 28.84508966245069, 28.241670404592032, 27.92842202750323, 31.56640354497604, 29.061888594100964, 29.586603498371247,
average psnr is 29.212641537653525
```

```
from skimage.metrics import structural_similarity as ssim
import numpy as np
import cv2

def compare(imageA, imageB):
  # Calculate the MSE and SSIM
  s = ssim(imageA, imageB)

  # Return the SSIM. The higher the value, the more "similar" the two images are.
  return s

ssim_avg = []

def main():
 # Import images
 for i in range(0,38):
    image1 = cv2.imread("input/" + str(i) + ".png")
    image2 = cv2.imread("output/" + str(i) + ".png", 1)
    image1 = cv2.cvtColor(image1, cv2.COLOR_BGR2GRAY)
    image2 = cv2.cvtColor(image2, cv2.COLOR_BGR2GRAY)
    ssim_value = compare(image1, image2)
    # print("SSIM:", ssim_value)
    ssim_avg.append(ssim_value)

if __name__ == '__main__':
  main()
  print(ssim_avg)
  avg = average(ssim_avg)
  print("average ssim is " + str(avg))

  #https://code.adonline.id.au/structural-similarity-index-ssim-in-python/
```

```
[0.9613444841217738, 0.9709495953799393, 0.9576656261934116, 0.9123863062484596, 0.9840305248864171, 0.8749385554952147, 0.9297622363601
average ssim is 0.9300591149755945
```

✓ 2s completed at 6:10 PM