

# assignment\_30.1

January 19, 2019

```
In [3]: import numpy as np
        from sklearn import cluster, datasets
        import scipy.misc
        from sklearn.mixture import GaussianMixture
        import matplotlib.pyplot as plt
        %matplotlib inline
```

## 0.1 Display the racoon grey image

```
In [8]: raw_image = scipy.misc.face(gray=True)
        plt.figure(figsize=(20, 8))
        plt.imshow(raw_image, cmap=plt.cm.gray)
        plt.show()
```



## 0.2 Compress racoon grey scale image into 5 clusters

Reshape the image into one dimension. Using unsupervised learning GaussianMixture, fit the image into 5 clusters and predict using the image. Transformed image is displayed

```
In [17]: num_rows = raw_image.shape[0]
         num_columns = raw_image.shape[1]

         image = raw_image.reshape(-1,1)

         clusterer = GaussianMixture(n_components=5).fit(image)

         preds = clusterer.predict(image)
         labels = preds.reshape(rows,columns);
         plt.imsave('transformed_racoon.png',labels);

         image = plt.imread('transformed_racoon.png')
         plt.figure(figsize=(20,8))
         plt.imshow(image)
         plt.show()
```



