In this project you will implement dimensionality reduction using PCA with eigen decomposition.

1). Read *iris_dataset.cvs* (4 features).

2). Find the principal components.

3). Reconstruct the data set (X_hat).

- Print the reconstruction error for 1 PC and 4 PCs.

4). Use the LDA classifier to find the average accuracy of X_hat with 1 PC and 4 PCs.

- Expected accuracies: at least 0.90 with 1 PC and 0.98 with 4 PCs.
- The accuracy using the original dataset with the 1st feature and all four features are 0.7467 and 0.9800, respectively.
- Use the function *evaluate_accuracy* to find the average accuracy.

Note you must code the PCA algorithm yourself, but you may use *off-the-shelf* library functions such as `np.mean, np.cov` etc

Submit your *iPython* code.

Discussing this project with other students is highly recommended but you have to submit your own solutions.