Homework# 5 - Due day 15th December

- Use whatever your favorite programming language to code out kmeans clustering, kernel kmeans, and also spectral clustering (last 2 both based on RBF kernels)
  - In spectral clustering you are allowed to use any package which provide you solver of eigenvalue problem
  - **30 points** You need to make a **video** showing the **clustering procedure** of your kmeans/kernel kmeans program (excluding spectral clustering)
    You can refer to the following webpage to see what kind of visualization you want to have:
    http://stanford.edu/class/ee103/visualizations/kmeans/kmeans.html
  - **20 points** In addition to cluster data into 2 clusters, try more clusters and show results.
  - **25 bonus** for the **initialization** of kmeans clustering used in kmeans/kernel kmeans/ spectral clustering, you can try different ways and show corresponding results. You will get **bonus** points if you do so.
  - **25 bonus** For spectral clustering, you can see if **data points within the same cluster** do have the **same coordinates in the eigenspace of graph** Laplacian, discuss in the report to get **bonus** points.
  - **50 points** Submit a report with showing your code and give detailed explanations
  - Test data will be available on E3 (2 datasets with points on 2d space, the ground truth cluster assignments will also be provided)