CSIP5403

Research Methods and Applications  
Lab Sheet – 4

# Aims

* Explore and experiment examples of different unsupervised learning methods using **scitkit-learn**:
  + k-means clustering
  + Hierarchical clustering: agglomerative and divisive clustering methods
* Continue working on your **mini-project**.

# Part 1: Explore and Experiment Examples of Unsupervised Learning Methods

1. Explore what kinds of unsupervised learning algorithms are implemented in **scitkit-learn**: <https://scikit-learn.org/stable/>. For instance, list representative implementations of unsupervised (clustering and dimensionality reduction) learning algorithms in **scitkit-learn** library.
2. Experiment examples of **scitkit-learn** for unsupervised (k-means & hierarchical clustering) learning algorithms in scitkit-learn library, and properly evaluate their performances.
3. Compare the performances of different unsupervised (k-means & hierarchical clustering) learning algorithms on a given dataset in the scitkit-learn library. You should show your investigative experimental results to your **tutor**.

# Part 2 – Continue Working on your Mini-Project

Identify one or two group members to work with (this could be your lab group if you have already been working on lab exercises within a group).

After you identify the topic of your **mini-project**, you should continue working on it. Please keep in mind the **deadline** of the project.