# Assignment

Clustering:

**Objective: To understand and apply clustering techniques on a real-world dataset using a Kaggle notebook.**

**Instructions:**

1. **Download a Notebook:**
   * **Go to** [**Kaggle**](https://www.kaggle.com/) **and log in or create an account if you don’t have one.**
   * **In the search bar, type “clustering notebook” and browse through the available notebooks.**
   * **Choose a notebook that uses clustering techniques (e.g., K-means, DBSCAN, hierarchical clustering) and download it.**
2. **Explore the Dataset:**
   * **Open the downloaded notebook in Jupyter or any other compatible environment.**
   * **Review the dataset used in the notebook. Make sure you understand the features and the clustering approach applied.**
3. **Modify and Extend the Notebook:**
   * **Data Exploration: Perform additional exploratory data analysis (EDA) on the dataset. Visualize the distribution of the data and identify any patterns.**
   * **Clustering Model: Modify the existing clustering code or add a new clustering algorithm. For instance, if the notebook uses K-means, you might try DBSCAN or hierarchical clustering.**
   * **Evaluation: Evaluate the performance of your clustering model. Use appropriate metrics such as silhouette score, Davies-Bouldin index, or visual inspection of cluster separation.**
4. **Report Your Findings:**
   * **Summary: Provide a summary of the dataset and the clustering techniques applied.**
   * **Visualizations: Include visualizations that illustrate the results of your clustering analysis.**
   * **Insights: Discuss any insights or patterns you discovered from the clustering results.**
   * **Reflection: Reflect on the effectiveness of the clustering algorithms you tried and any challenges you encountered.**
5. **Submission:**
   * **Save your modified notebook and submit it through the designated platform or send it to the instructor.**