**Dataset Recommendation:**

**UCI Machine Learning Repository** has a dataset called the ["Bank Marketing" dataset](https://archive.ics.uci.edu/ml/datasets/Bank+Marketing). This dataset is related to direct marketing campaigns of a Portuguese banking institution. The classification goal is to predict if the client will subscribe to a term deposit (binary: 'yes', 'no').

**Features include**:

* Age
* Job type
* Marital status
* Education level
* Default history
* Housing loan
* Personal loan
* Contact communication type
* Month of last contact
* Day of the week of last contact
* Duration of last contact
* Campaign details
* Previous campaign details
* Economic indicators

**Assignment Ideas:**

1. **Logistic Regression**:
   * Goal: Predict if a customer will subscribe to a term deposit.
   * Steps:
     1. Exploratory Data Analysis (EDA) to understand the distribution of data.
     2. Data preprocessing (handling missing values, encoding categorical variables, etc.).
     3. Train-test split.
     4. Build a logistic regression model.
     5. Evaluate the model using metrics like accuracy, precision, recall, and ROC-AUC.
2. **K-Means Clustering**:
   * Goal: Segment customers into meaningful clusters.
   * Steps:
     1. Feature scaling since k-means is distance-based.
     2. Decide on the number of clusters using the Elbow method or Silhouette analysis.
     3. Apply k-means clustering.
     4. Analyze the characteristics of each cluster.
     5. Optionally, visualize the clusters using dimensionality reduction techniques like PCA or t-SNE.
3. **Bonus Exploration**:
   * Analyze how clusters from the k-means segmentation might relate to the likelihood of a customer subscribing to a term deposit. For instance, are customers in one cluster more likely to subscribe than those in another cluster?

**Other Ideas:**

* **E-commerce Dataset**: If you can find a dataset from an e-commerce platform, students could predict purchase decisions based on user behavior (clicks, time spent on site, etc.) and segment customers based on buying behavior or product preferences.
* **Telecom Churn Dataset**: Often used in ML courses, this dataset can help students predict customer churn using logistic regression and segment customers based on usage metrics using clustering.

While the Bank Marketing dataset is publicly available and has been widely used for educational purposes, always ensure that datasets used for educational purposes respect privacy and ethical considerations.