K-Means Clustering Task with Dataset

Problem: Customer Segmentation

You have been provided with the following dataset of 10 customers. Each customer is represented by two features: **Age** (in years) and **Annual Spending** (in dollars).

Customer ID	Age	Annual Spending ($)
1	25	30000
2	45	60000
3	35	45000
4	50	70000
5	23	28000
6	38	50000
7	40	55000
8	60	90000
9	32	42000
10	28	35000

Task:

You are tasked with applying **K-Means clustering** on this dataset to group the customers into two distinct segments based on their age and annual spending.

Questions:

1. **Data Preparation**:
    - How will you preprocess the data before applying K-Means clustering?
    - Are there any normalization or scaling steps required for the age and spending features?
2. **Clustering**:
    - Apply the K-Means algorithm to segment the customers into 2 clusters.
    - How will you choose the number of clusters, and why did you select 2 clusters in this case?
3. **Cluster Analysis**:
    - After performing K-Means clustering, what are the coordinates of the centroids for the two clusters?
    - How will you interpret these clusters? What does each cluster represent in terms of customer age and spending?

4. **Visualization:**
    - How would you visualize the clustering result? What type of plot would you use to show how the customers are grouped into two segments?