1. **Import Required Libraries**

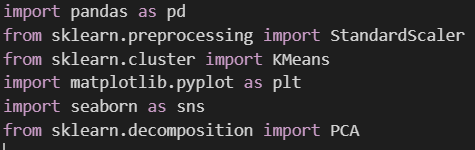
 **pandas**: Handles data loading and manipulation.

 **StandardScaler**: Standardizes feature values.

 **KMeans**: Applies K-Means clustering.

 matplotlib **/ seaborn**: Visualizes data and clustering results.

 PCA: Reduces feature dimensions for 2D visualization.



1. **Load Excel Sheets**

**A computer screen with white text

AI-generated content may be incorrect.**

1. **Merge Transactions with Account Data**

* To combine transactions with their corresponding accounts



1. **Aggregate Customer Features**

 Total amount spent

 Number of transactions

 Average transaction amount

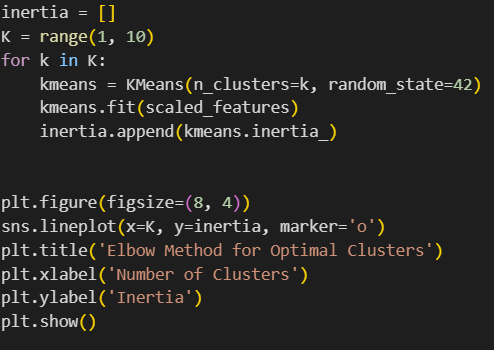
 Total balance across accounts

 Number of distinct accounts

**A screen shot of a computer code

AI-generated content may be incorrect.**

1. A graph with a line

   AI-generated content may be incorrect.**Determine Optimal Number of Clusters (Elbow Method)**
2. **Apply K-Means Clustering**

With k = 3, Regarding to the Elbow method at k = 3, The decrease of inertia sharply slows.

1. A computer screen shot of a program

   AI-generated content may be incorrect.**A diagram of a diagram

   AI-generated content may be incorrect.Visualize Clusters using PCA**