1. Data Collection

- The dataset typically consists of handwritten images, such as digits (e.g., the MNIST dataset) or characters.
- Each image is labeled with the corresponding class (e.g., the digit or letter it represents).

2. Data Preprocessing

- **Flattening the Images:** Convert 2D image data into a 1D vector to feed into the decision tree.
- **Feature Extraction:** Optionally, extract specific features (e.g., pixel intensities, edges) to simplify the input data.
- **Scaling or Normalization:** Normalize the pixel values (e.g., from 0-255 to 0-1) if required.

3. Splitting the Dataset

- Divide the data into training and testing sets, commonly using an 80-20 or 70-30 split.

4. Decision Tree Model

- A **decision tree classifier** is built using libraries like scikit-learn in Python.
- Each node in the tree splits the data based on feature thresholds to maximize classification accuracy (e.g., using Gini impurity or entropy).

5. Compare it with SVM using F1 score and accuracy score

6. The comparison must be represented using graphs

7. Visualize and describe the data in the above steps as well