Dataset Classification

Using the two-class classification dataset that will be provided, examine four classification methods and evaluate their generalization performance using the **accuracy metric** with the **10-fold cross-validation** method. The class label is located in the last column of the dataset table.

The classification methods to be examined are as follows:

- **k-Nearest Neighbors (kNN) classifier**: Test various values of **k** in the range **[1, 9]** and select the best-performing classifier.
- **Naïve Bayes classifier**, assuming a normal distribution.
- **Support Vector Machines (SVM) classifier** with:
    - **RBF kernel function**: Test different kernel width values (**σ**) and select the best-performing one.
    - **Linear kernel**.
- **Decision Trees**, adjusting tree complexity in various ways (**number of nodes** or **leaf size**).

Requirements

- Prepare a **brief report** on the construction of the classifiers and the results obtained for each method.
- Identify and discuss the **best-performing method** based on comparisons between the different models and hyperparameters.
- Include the **code used** as an appendix.