# Summary Report
# Assignment -1

**Introduction:**

The purpose of the study was to evaluate how well the K-Nearest Neighbors (KNN) algorithm performed using a new simulated dataset. Three different classes were created for the dataset so that data points could be classified according to their features.

**Methodology:**

1. Generating the dataset:
   Using the 'make_blobs' function, we created a new simulated dataset with 150 samples and 3 classes.

2. Data Split:
   The dataset was split into training (80%) set and testing (20%) set to train and evaluate the KNN classifier.

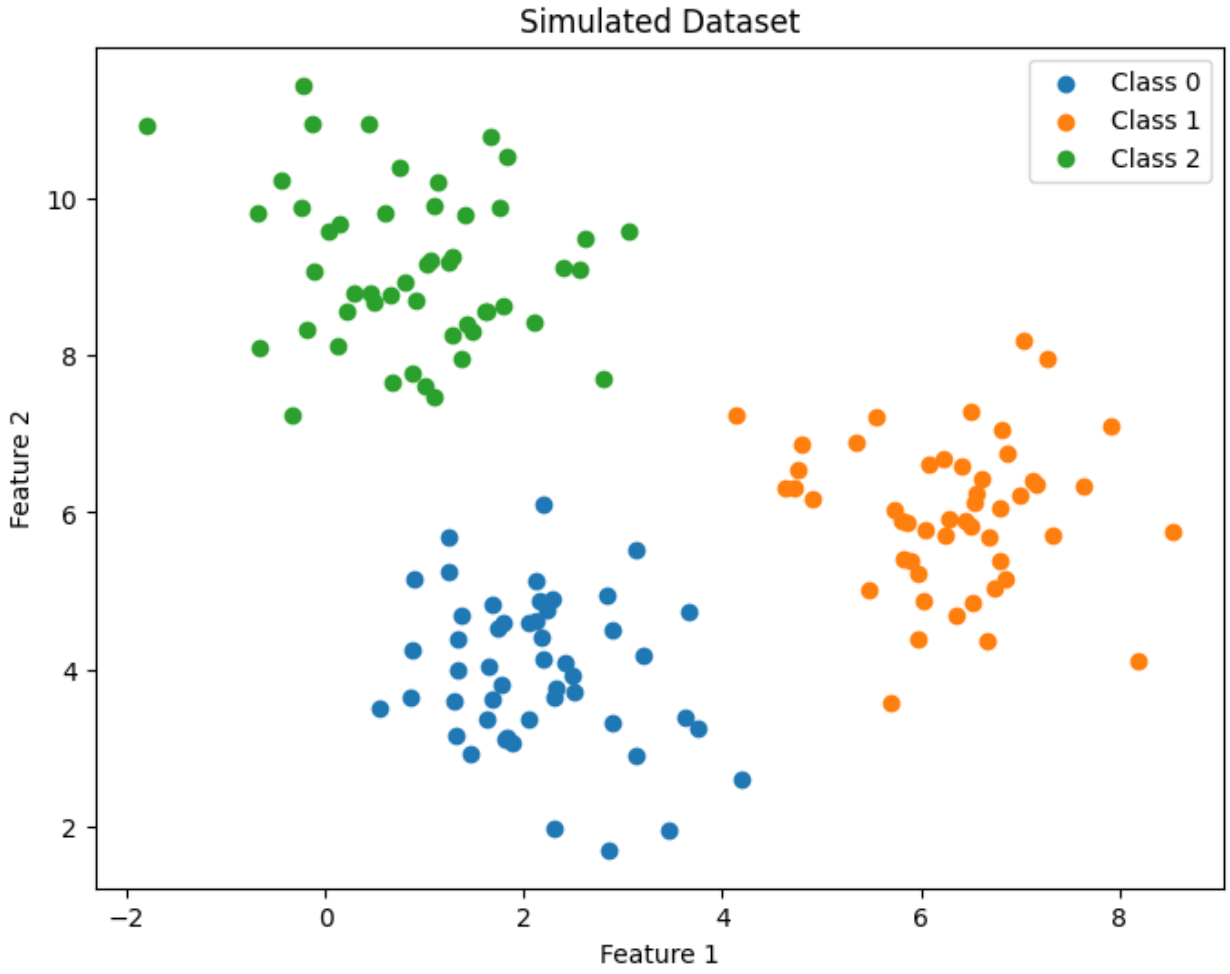
3. KNN Model:
   A KNN classifier was implemented with default parameters and trained on the training set.

4. Model Evaluation:
   Training and testing sets' labels were predicted by the trained classifier. To evaluate the performance of the model, the accuracy score was calculated.

**Results:**

- Training Set Accuracy: The KNN classifier achieved an accuracy of approximately 97% on the training set.
- Testing Set Accuracy: The testing set's accuracy was roughly 97.5%, indicating the model's strong ability to generalize to unseen data.

**Plot:**




**Conclusion:**

The KNN algorithm's performance was effectively replicated by the study using a new simulated dataset. The excellent accuracy scores on the testing and training sets show how well the KNN algorithm performs feature-based data point classification.