# KNN-CLAS

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## 1 Introduction

This document presents a study on the K-Nearest Neighbors (KNN) classification algorithm.

## 2 Methodology

Describe the methodology used in the study.

## 3 Results

Present the results obtained from the experiments.

| **Dataset** | **Samples** | **Features** | **Accuracy** | | | | **Training Time (ms)** | | **Prediction Time (ms** | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | **nn** | **1nn** | **3nn** | **5nn** | **nn** | **knn** | **nn** | **1nn** | **3nn** | **5n** |
| Ionosphere | 351 | 34 | 0.87 | 0.85 | 0.87 | 0.87 | 70.90 | 27.10 | 2.90 | 3.00 | 3.00 | 3.4 |
| Binary Digits | 360 | 64 | 1.00 | 0.52 | 0.52 | 0.52 | 267.70 | 103.40 | 3.30 | 4.20 | 3.90 | 4.1 |
| Haberman | 306 | 3 | 0.71 | 0.68 | 0.69 | 0.69 | 19.40 | 10.10 | 2.50 | 2.90 | 3.00 | 2.9 |
| Pima Diabetes | 768 | 8 | 0.73 | 0.52 | 0.52 | 0.52 | 77.30 | 32.40 | 2.70 | 5.10 | 4.90 | 4.9 |
| Banknote | 1372 | 4 | 1.00 | 0.99 | 0.99 | 0.99 | 296.50 | 50.90 | 3.00 | 3.70 | 3.40 | 4.0 |
| Sonar | 208 | 60 | 0.77 | 0.85 | 0.83 | 0.81 | 67.00 | 29.10 | 3.00 | 3.00 | 2.90 | 2.9 |
| Breast Cancer | 569 | 30 | 0.93 | 0.39 | 0.39 | 0.39 | 75.50 | 15.80 | 2.90 | 3.50 | 3.10 | 3.5 |
| SPECT Heart | 349 | 44 | 0.70 | 0.95 | 0.95 | 0.95 | 197.30 | 75.70 | 3.00 | 3.60 | 3.40 | 3.2 |

Table 1: Comparison of Models with Training and Prediction Times

## 4 Conclusion

Summarize the findings and conclusions of the study.