

Lets Save life With Data Science Understanding Epilepsy through Data Science

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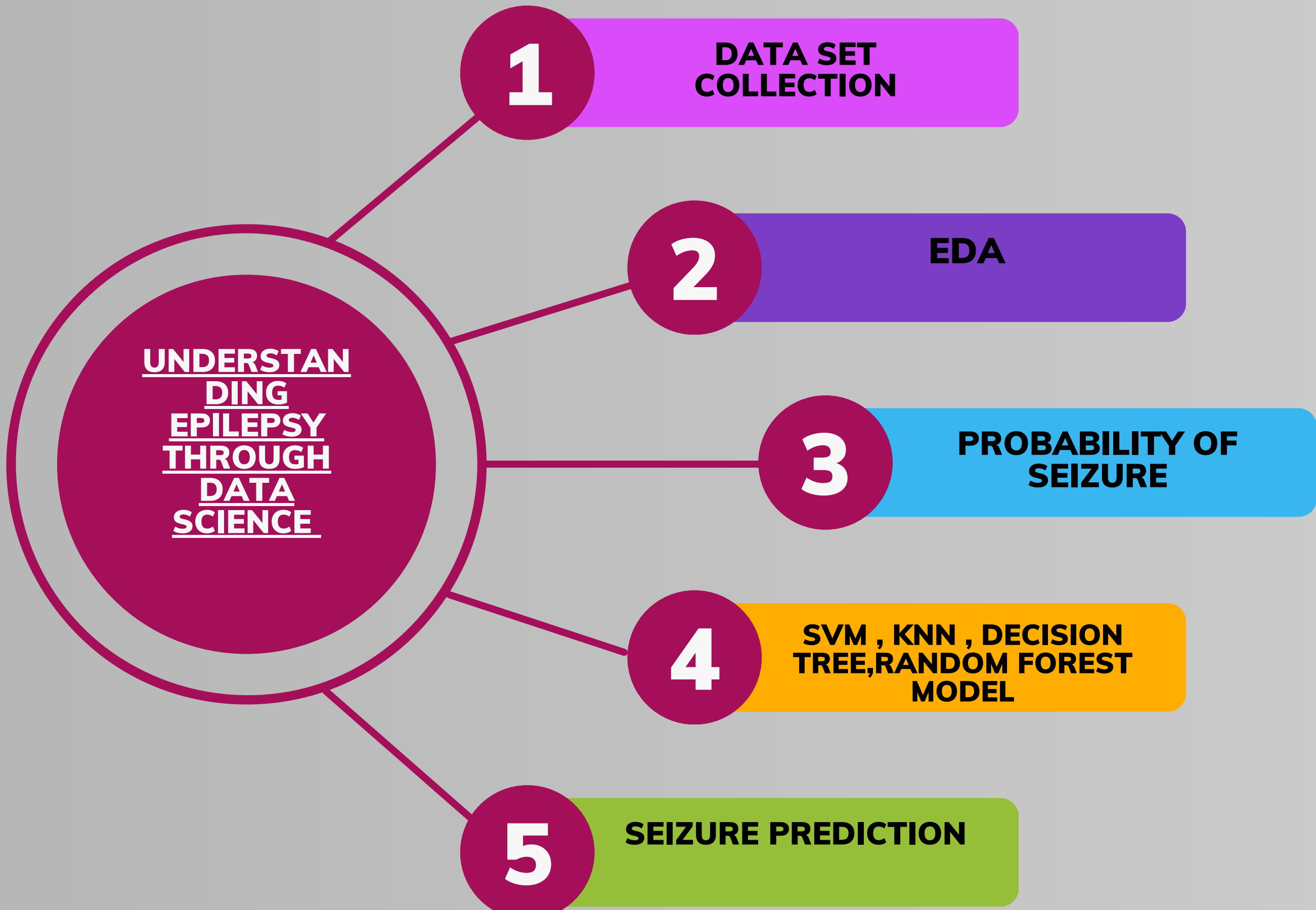
Introduction

Epilepsy is a neurological disorder that affects the brain and causes recurrent seizures. Seizures are caused by abnormal electrical activity in the brain, which can cause a wide range of symptoms depending on the severity and location of the seizure.

- Epilepsy affects approximately 50 million people worldwide, making it one of the most common neurological disorders.
- In the United States, epilepsy affects about 3.4 million people, or about 1 in 26 people

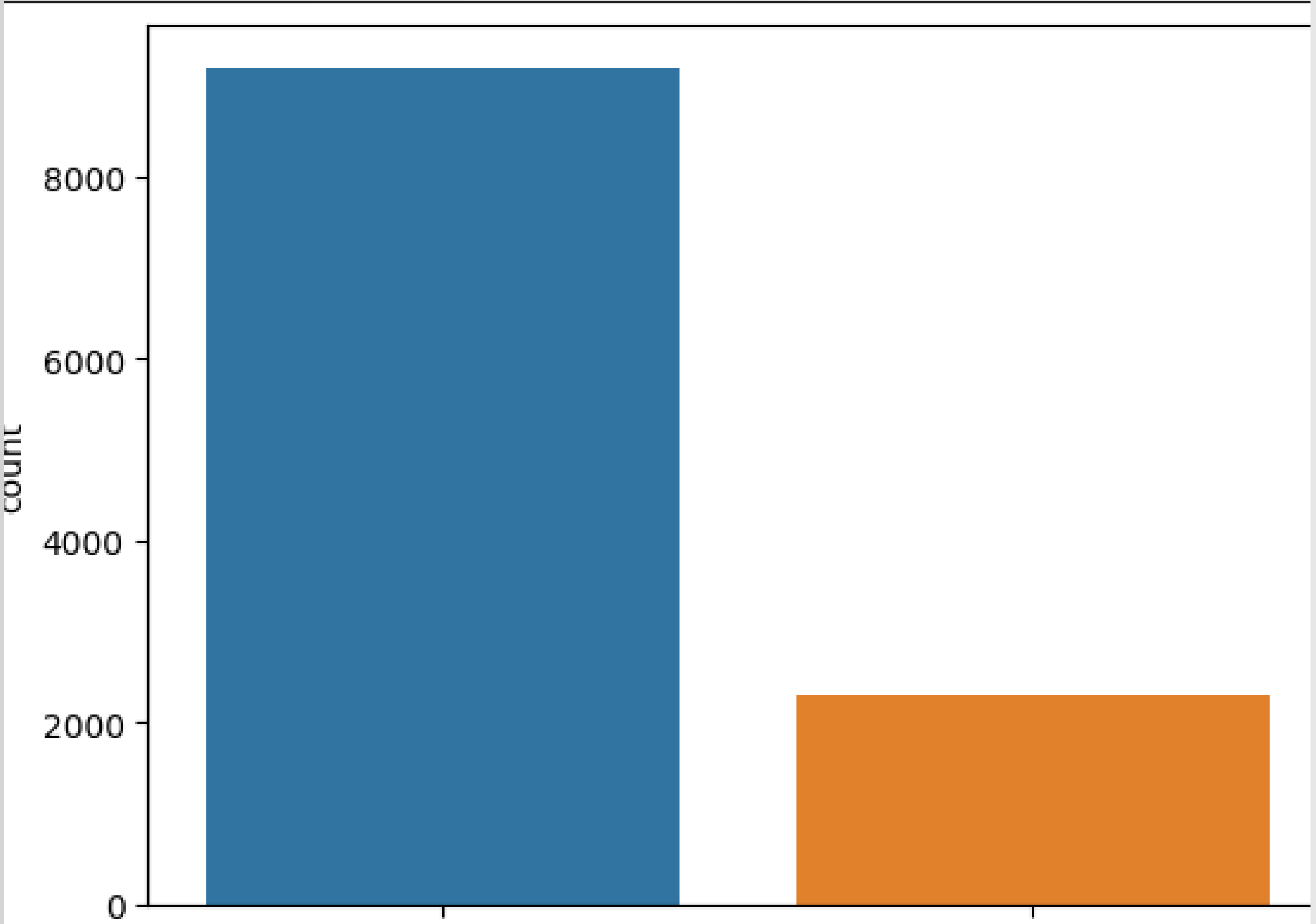
Summary		
Brain Activity 23.6s	Individual 500	Chunks data 23
Data Points 4097	11500 Rows	Each Chunks data 23

Each file is a recording of brain activity for 23.6 seconds. The corresponding time-series is sampled into 4097 data points. Each data point is the value of the EEG recording at a different point in time. So, we have total 500 individuals with each has 4097 data points for 23.5 seconds. We divided and shuffled every 4097 data points into 23 chunks, each chunk contains 178 data points for 1 second, and each data point is the value of the EEG recording at a different point in time. So now we have 23 x 500 = 11500 pieces of information(row), each information contains 178 data points

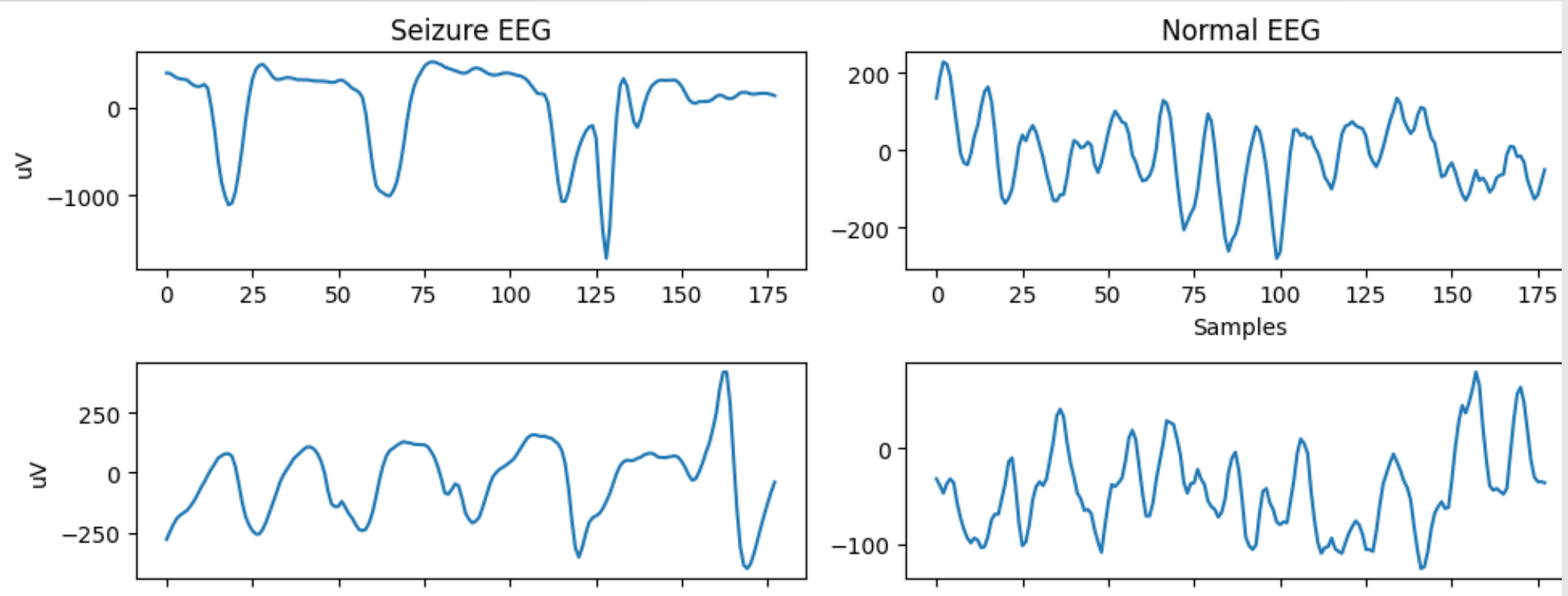


Exploratory Data Analysis

- Data must now be shown based on its various trends after being gathered

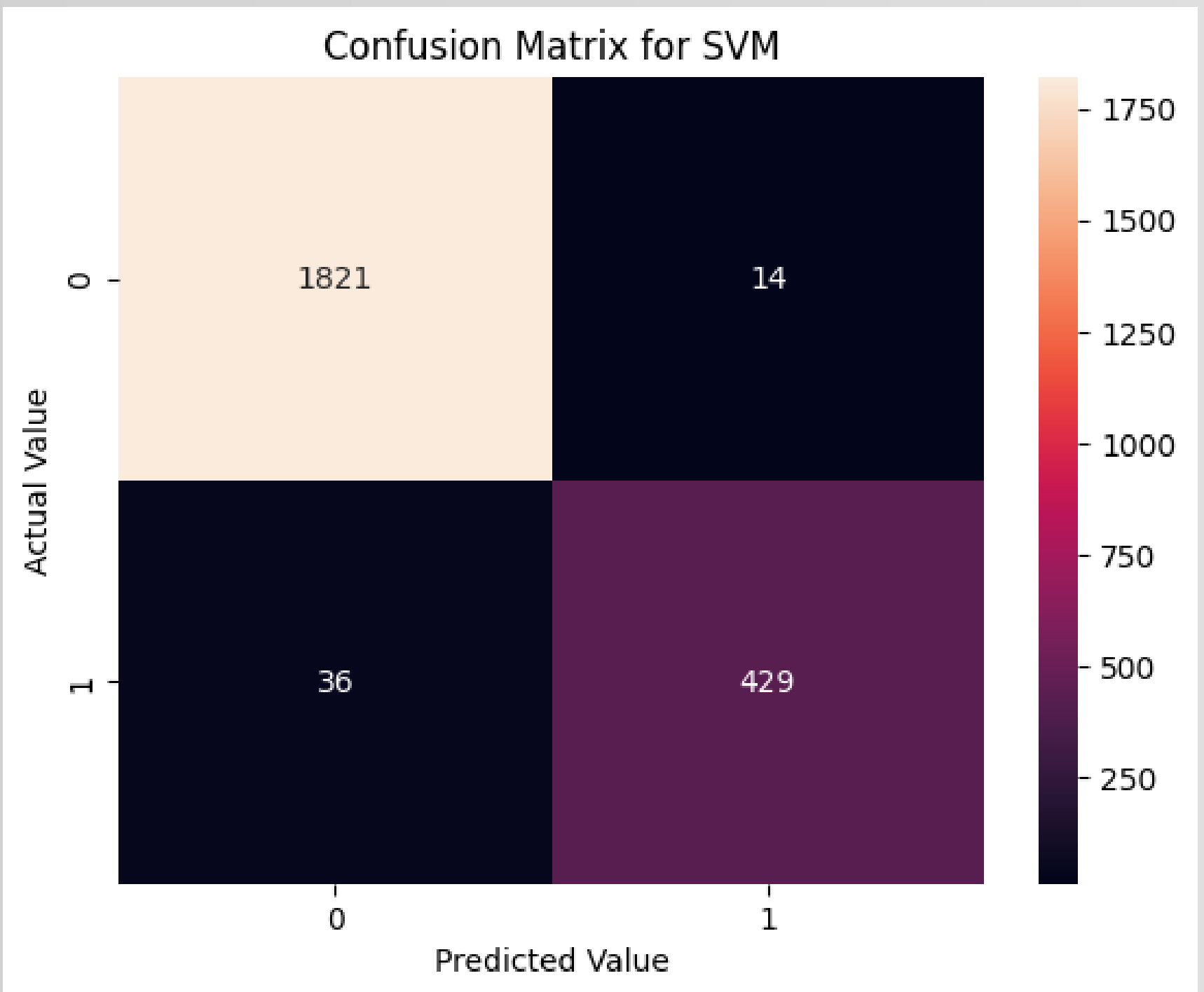


We plotted how many patient are epileptic and how many are not

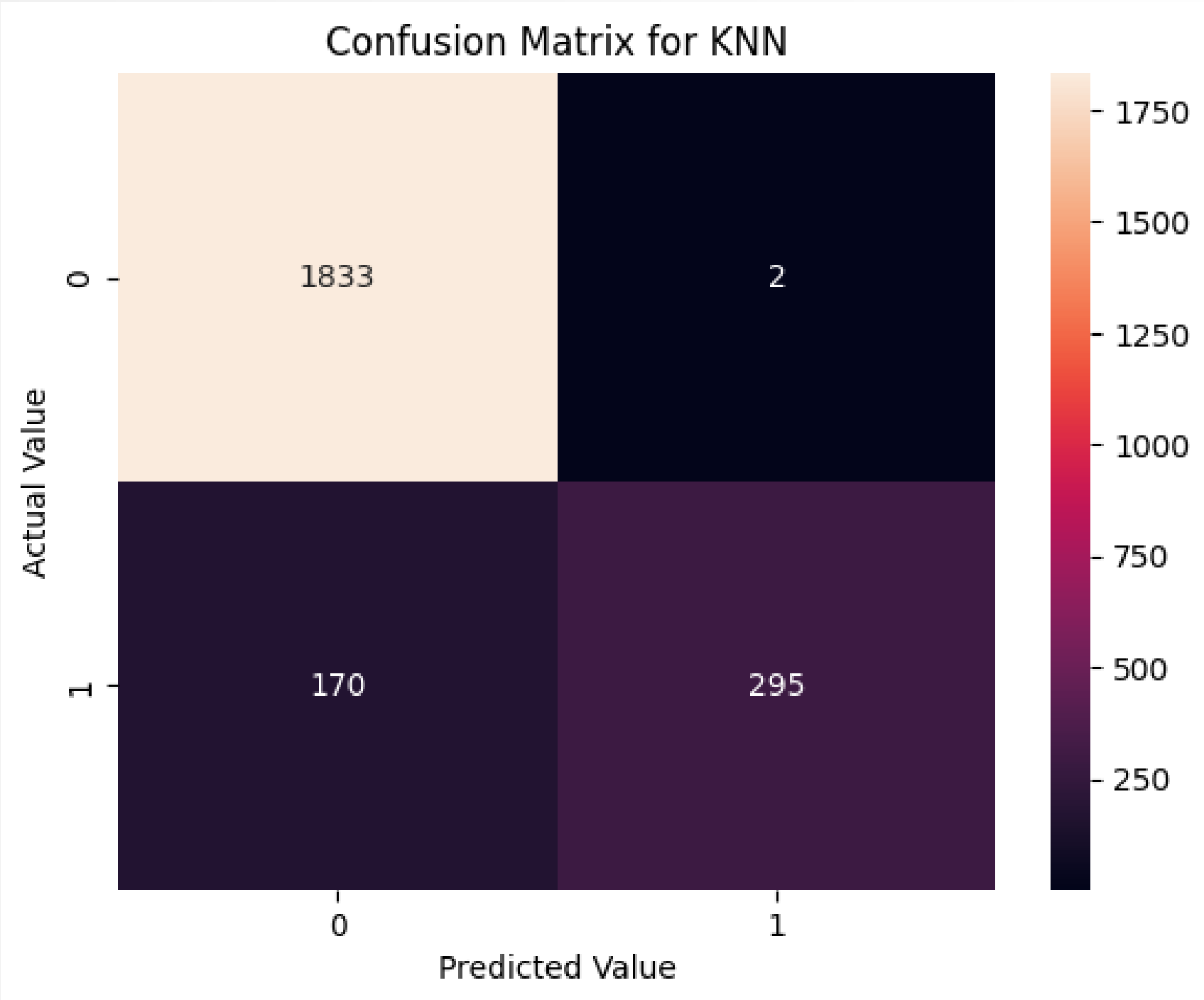


We plotted signals for epileptic and non epileptic seizure

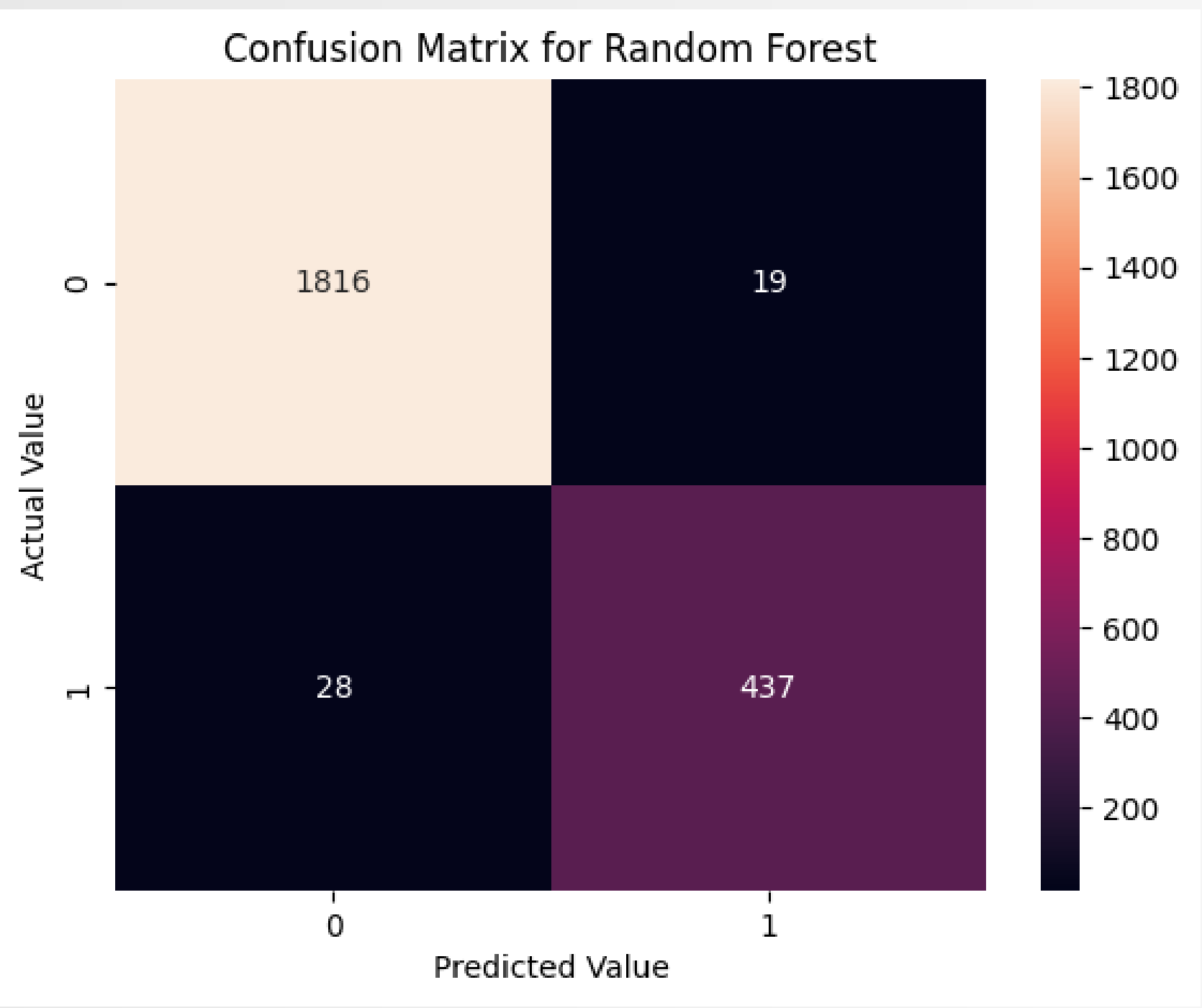
Data Modeling



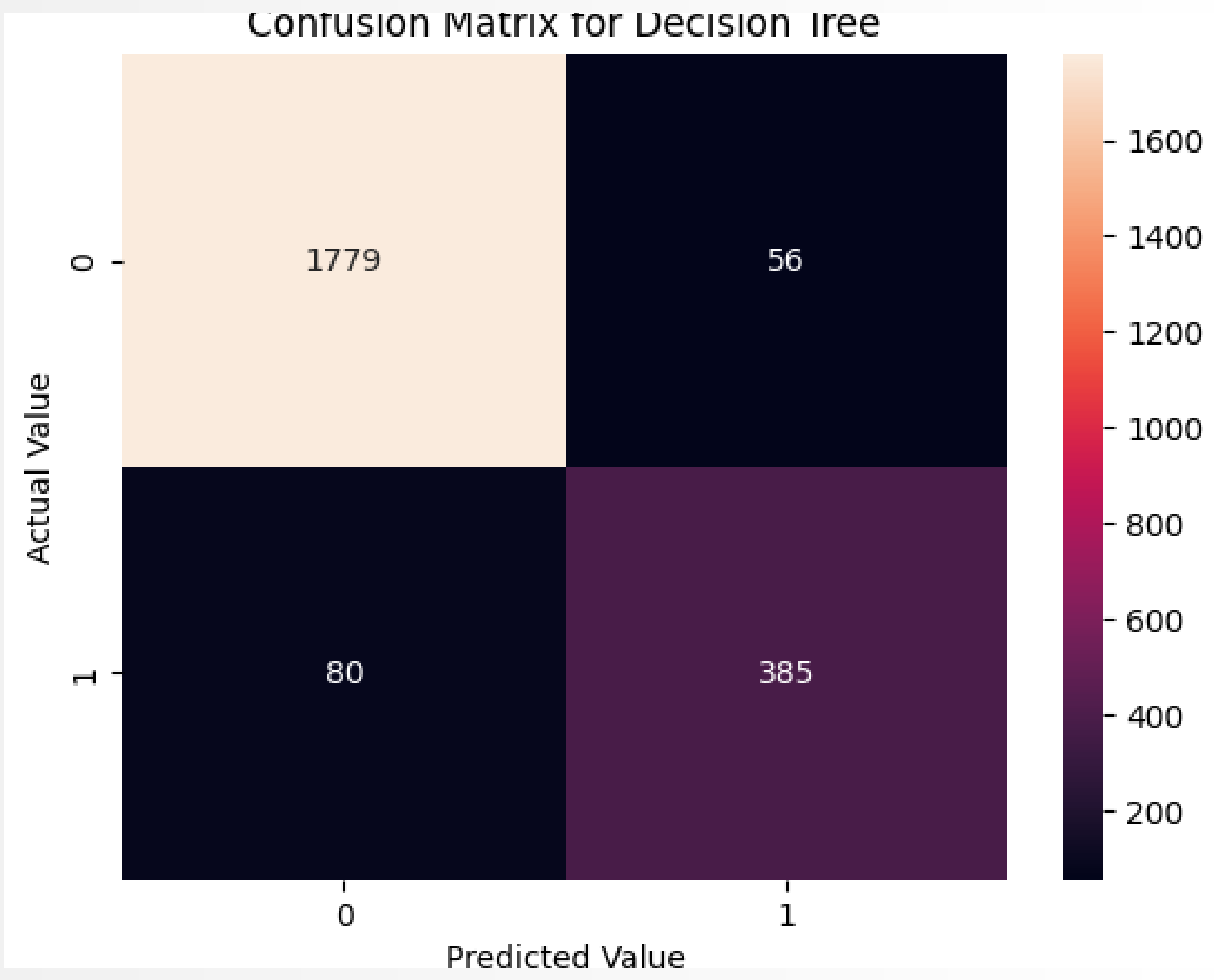
Used for finding non-linear decision boundaries.



Effective for high-dimensional spaces and noisy data.



Ensemble method that reduces overfitting and provides more accurate predictions.



Easy to interpret and visualize model.

Data was train by using SVM ,Decision Tree ,Random forest and the KNN

Conclusion

From the above models applied the best results are given by the two Models these are Random Forrest Model and KNN.