**Summary:**

Using make\_blobs dataset, from the reference code provided. I trained the dataset using KNN algorithm.

**Case 1:** KNN with zero arguments

* The code snippet for the K-nearest neighbor with zero arguments and K-value ranges from 1 – 50 with data samples as 500 and n values ranges from 1-20.
* One key point to be noted that if we don’t provide any k value, the default will be 1.
* And the data samples classified with train size of 80 percent and test size of 20 percent. The random state variable will be the seeding point.
* The code snippets for the above-mentioned cases are attached below.

Text, letter

Description automatically generated

The above libraries are required to work with our data and sklearn is a machine learning library that has Neighbor’s classifier class.

A picture containing diagram

Description automatically generated

Here above, we loaded the dataset with 500 saamples and in the next line we divided the train and test data.

Text, letter

Description automatically generated

This is a piece of code we took KNeighbors classifier class, the fit will normalize and test the data and we use knn.predict to test it.

And the print statements are required to print the labels and scores.

**Results:**

**A picture containing background pattern

Description automatically generated**

**Application

Description automatically generated with medium confidence**

**From the figure, the accuracy is constant throughout the 20 K values.**

**Case 2:** KNN with arguments

* The code snippet for the K-nearest neighbor with zero arguments and K-value ranges from 1 – 50 with data samples as 500 and n values ranges from 1-20.
* One key point to be noted that if we don’t provide any k value, the default will be 1.
* And the data samples classified with train size of 80 percent and test size of 20 percent. The random state variable will be the seeding point.
* The code snippets for the above-mentioned cases are attached below.

Text, letter

Description automatically generated

The above libraries are required to work with our data and sklearn is a machine learning library that has Neighbor’s classifier class.

A picture containing diagram

Description automatically generated

Here above, we loaded the dataset with 500 saamples and in the next line we divided the train and test data.

Text

Description automatically generated

We have the argument list here; we provide algorithm as auto and metric as minkowski and 20 K valyes and uniform weights.

This is a piece of code we took KNeighbors classifier class, the fit will normalize and test the data and we use knn.predict to test it.

And the print statements are required to print the labels and scores.

**Results:**

**A picture containing background pattern

Description automatically generated**

**Background pattern

Description automatically generated**

**Graphical user interface, application

Description automatically generated with medium confidence**

**From the figure and the results the accuracy is constant throughout the K values and recorded as 1.**

**I am not sure why the accuracy is constant, and I believe the problem is with data and we took limited samples that might be the reason for the constant accuracy.**