Experiment - 7

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Subject Name: Machine Learning Lab
Subject Code: CSP-317

1. Aim/Overview of the practical:

Apply K-Nearest Neighbour classifier on iris dataset**.**

2. Source Code:

```
data_path = "/content/drive/MyDrive/ML Lab/Iris.csv"
```

+ Code + Text

```
[2] import pandas as pd
    import numpy as np
```

```
[3] df = pd.read_csv(data_path )
```

```
[4] df.head()
```

	Id	SepalLengthCm	SepalWidthCm	PetalLengthCm	PetalWidthCm	Species
0	1	5.1	3.5	1.4	0.2	Iris-setosa
1	2	4.9	3.0	1.4	0.2	Iris-setosa
2	3	4.7	3.2	1.3	0.2	Iris-setosa
3	4	4.6	3.1	1.5	0.2	Iris-setosa
4	5	5.0	3.6	1.4	0.2	Iris-setosa

```
[5] df['Species'].value_counts()
```

```
Iris-setosa        50
Iris-versicolor    50
Iris-virginica     50
Name: Species, dtype: int64
```

```
[15] ## don't need the id column as it is unique to every row
     df.drop('Id', axis = 1, inplace = True)
```

```
[16] ## Now splitting the data independent and dependent variable
     X = df.drop('Species', axis = 1)
     y = df['Species']
```

```
[17] ## Now splitting the data into train and test split
     from sklearn.model_selection import train_test_split
```

```
     X_train, X_test, y_train, y_test = train_test_split(X, y, test_size = 0.2, random_state = 10)
```

```
[6]  ## Apply the KNN algorithm for classification
```

```
[7]  from sklearn.neighbors import KNeighborsClassifier as KNN
```

```
[20] knn = KNN()
     knn.fit(X_train, y_train)
     pred = knn.predict(X_test)
```

```
     ## Applly metrics to find the accuracy scores
     from sklearn.metrics import accuracy_score, confusion_matrix
```

```
[23] accuracy_score(pred, y_test)
     ## it gave 96% of accuracy
```

```
0.9666666666666667
```

```
[25] confusion_matrix(pred, y_test)
```

```
array([[10,  0,  0],
       [ 0, 12,  0],
       [ 0,  1,  7]])
```

Learning outcomes (What I have learnt):

1. Learn about the KNN algorithm
2. Learn to perform the KNN algorithm on iris dataset
3. Learnt about the exploratory data analysis
4. Learn to optimize the Model
5. Got the clear concept of KNN classifier