**IRIS FLOWER CLASSIFICATION**

**AIM:** ANALYSIS OF IRIS FLOWER CLASSIFICATION

**INTRODUCTION**  : It is a very popular machine learning project. The iris dataset contains three classes of flower , versicolor, setosa, virginica, and each class contains 4 features ,sepal length, sepal width, petal length, petal width , the aim of the iris flower classification is to predict flowers based on their specific features.

**STEPS TO CLASSIFY IRIS FLOWER**

1. LOAD THE DATA
2. ANALYSIZE AND VISUALIZE THE DATASET
3. MODEL TRAINING
4. MODEL EVALUATION
5. TESTING THE MODEL

**EXPLANATION :** Will go through step by step

**STEP1 : Loading the data :**

To load the data we have to import necessary packages like numpy, pandas, seaborn, matplotlib….etc .

* -Numpy will be used for any computational operations.
* we’ll use matplotlib and seaborn for data visualization .
* we use pandas for loading data from various sources like local storages , databases , excel , csv files ……etc
* Next we load the data using pd.read\_csv() . and set the column name as for the iris data information
* pd.read\_cvs reads CSVfiles.csv transfer comma separated value
* df.head() only shows the first five rows from the dataset table -All the numeric values are in cm

**STEP2 : ANALYSIZE AND VISUALIZE DATASET**

* Let’s see information…
* Before that we have done some basic operations like describe (). , info () , head functions and tail functions droping function , indexing and slicing ..etc
* Later we prepare the data in a perfect manner without any null values that means we cleared the data
* we have built some model for the dataset based on that data we do some basic operations and analyzed the data
* After that based on analization we visualized the data with seaborn pairplot,matplotlib….etc

**=>ANALYSING THE DATASET**

* Firstly to visualize the whole dataset we used seaborn pairplot method it plot the whole dataset information
* Now we ploted the avg of each features of each class
* Later we separated features from target values and calculated the average of each features of all classes

**=>TO CALCULATE AVERAGE OF EACH FEATURES**

\*np average calculates the from an array

\*Here we used to two for loops inside a list

\*This is known as list comprehension

\*List comprehension helps to reduce the number of lines of code

\*The Y\_data is a 1 D array but we have four features for every three classes so we reshaped Y\_data to a (4,3) shaped array

\*Then we reshaped the matrix

After reshaping we plot the data by using matplotlib to show the averages in bar plot to get a clear view and visualize the data we ploted some other bar graphs that individually gives the count values of iris flower categories and length , width of sepals and petals

**Step 3 – Model training:**

* Using train\_test\_split we split the whole data into training and testing datasets. Later we’ll use the testing dataset to check the accuracy of the model.
* Here we imported a support vector classifier from the scikit-learn support vector machine.
* Then, we created an object and named it svn.
* After that, we feed the training dataset into the algorithm by using the svn.fit() method.

#### Step 4 – Model Evaluation:

* Now we predict the classes from the test dataset using our trained model.
* Then we check the accuracy score of the predicted classes.
* accuracy\_score() takes true values and predicted values and returns the percentage of accuracy.

**Output:**  
0.9

* The accuracy is above 96%.

### **Step 5 – Testing the model:**

* Here we take some random values based on the average plot to see if the model can predict accurately.

**Output:**

Prediction of Species: [‘Iris-setosa’ ‘Iris-versicolor’ ‘Iris-virginica’]

SUMMARY AND ANALASYS IN MY POINT OF VIEW

I worked on the dataset and the model is successful.we got the accurate value from the model.From the output It looks like the model is predicting correctly because the setosa is shortest and virginica is the longest and versicolor is in between these two.

Here we learned to train our own supervised machine learning model using Iris Flower Classification Project with Machine Learning.

It helps us to learn machine learning, data visualization ,model creation etc..

* Based on our data set when we are visualizing the data with the help of seaborn we observed that iris-setosa is well separated from the other two flowers and And iris virginica is the longest flower and iris setosa is the shortest.

And also in this model based on the range only it gives the accurate values that means that iris flower belongs to which specie in those 3 the species…