# Machine learning-Iris classification

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## Title:

Iris classification using Machine Learning

## Background :

**Language:** Python

**Python lib:** Pandas, numpy, Scikit learn

**Platform:** Jupyter notebook

## Motivation :

Inorder to classify the different species of the Iris,We should prepare the datasets with features and labels.But **sklearn** comes with the inbuilt datasets for the iris classification problem.

## Problem Statement :

Iris flower classification is a very popular machine learning project. The iris dataset contains three classes of flowers, Versicolor, Setosa, Virginica, and each class contains 4 features, 'Sepal length', 'Sepal width', 'Petal length', 'Petal width'

Supervised machine learning builds a model that makes predictions based on evidence in the presence of uncertainty. A supervised learning algorithm takes

a known set of input data and known responses to the data (output) and trains a model to generate reasonable predictions for the response to new data.

## Data set description :

Getting data from image to be classified.The data set consists of:

- 150 samples

- 3 labels: species of Iris (*Iris setosa*, *Iris virginica* and *Iris versicolor*)

- 4 features: Sepal length,Sepal width,Petal length,Petal Width in cm

## Existing Methodology:

1. KNeighborsClassifier(efficiency is higher)
2. Decision tree algorithm
3. Accuracy rate
4. Train-Test split to evalute the Machine learning model for classification

## Methodology :

Support vector machine

Neural network

## Proposed Methodology:

- Use Decision Tree Classifier
- Accuracy will be predict over 80%.
- Expectations are fulfilled using this classification.
- Creating a product (Flask App) for best User Interface experiences.

## Implementation Details :

- Cleaning and preparing the data for modelling.
- Develop the Flask API for the selected model.
- Predictions are accurated for iris classification problem.

## Experimental results and evaluation:

The experimental result is predict the accuracy of iris classification using Decision tree classifier.Evaluate the different species of iris flower.The accuracy is 0.96.

## Details of your code repository in GitHub and demo in Youtube:

https://github.com/Karthikeyan78091/PML_Midreport

**Conclusion:**

- The dataset is balanced i.e. equal records are present for all three species.
    - We have four numerical columns while just one categorical column which in turn is our target column.
    - A strong correlation is present between petal width and petal length.
    - The setosa species is the most easily distinguishable because of its small feature size.
    - The Versicolor and Virginica species are usually mixed and are sometimes hard to separate, while usually Versicolor has average feature sizes and virginica has larger feature sizes.

Reference URL :

https://medium.com/@jebaseelanravi96/machinelearning-iris-classification-33aa18a4a983