

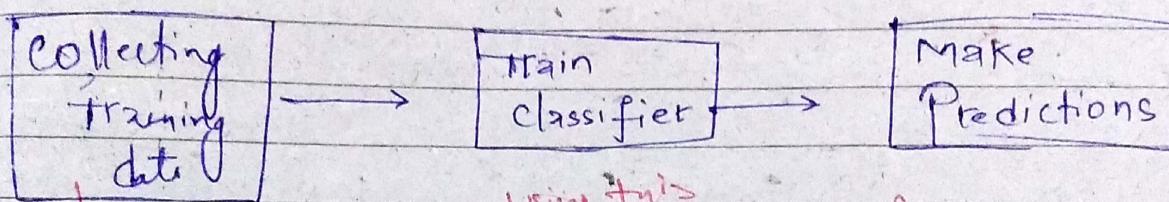
② Black & White

It is the study of Algorithm that learn from example and experience instead of relying on hard-coded rules.

Classifier - Classifier is a function It take some data as input assign a label to it as output.
(As a box of Rules) The input & output type of classifier is always same
The Technique to write classifier automatically is called Supervised Learning.

To code this up will work with Scikit-learn

Supervised Learning Anaconda



problem/example we will be solve
Measurement (features)

Using this problem we train classifier (start with tree)
types of classifiers

Weight	Texture	Label
150 g	Bumpy	Orange
170 g	Bumpy	Orange
140 g	Smooth	Apple
130 g	Smooth	Apple

identify type of food in each row

Then all we example we want the classifier learn from

The more training data we give, the better classifier created

① Apple → Orange
② Black & white

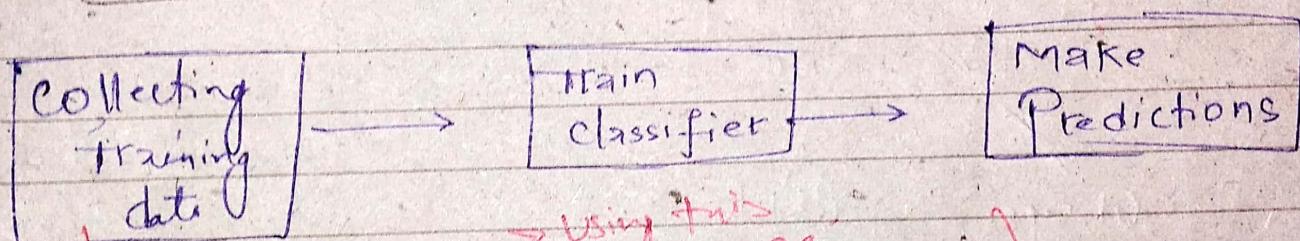
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Supervised Learning



problem example we will be solve
 Measurement (features) → Training data → Using this problem we train classifier (start with Weisley tree types of classifiers)

Decision rule of fruit
Descriptor

Weight	Texture	Label
150 g	Bumpy	Orange
170 g	Bumpy	Orange
190 g	Smooth	Apple
300 g	Smooth	Apple

identify type of food it can know

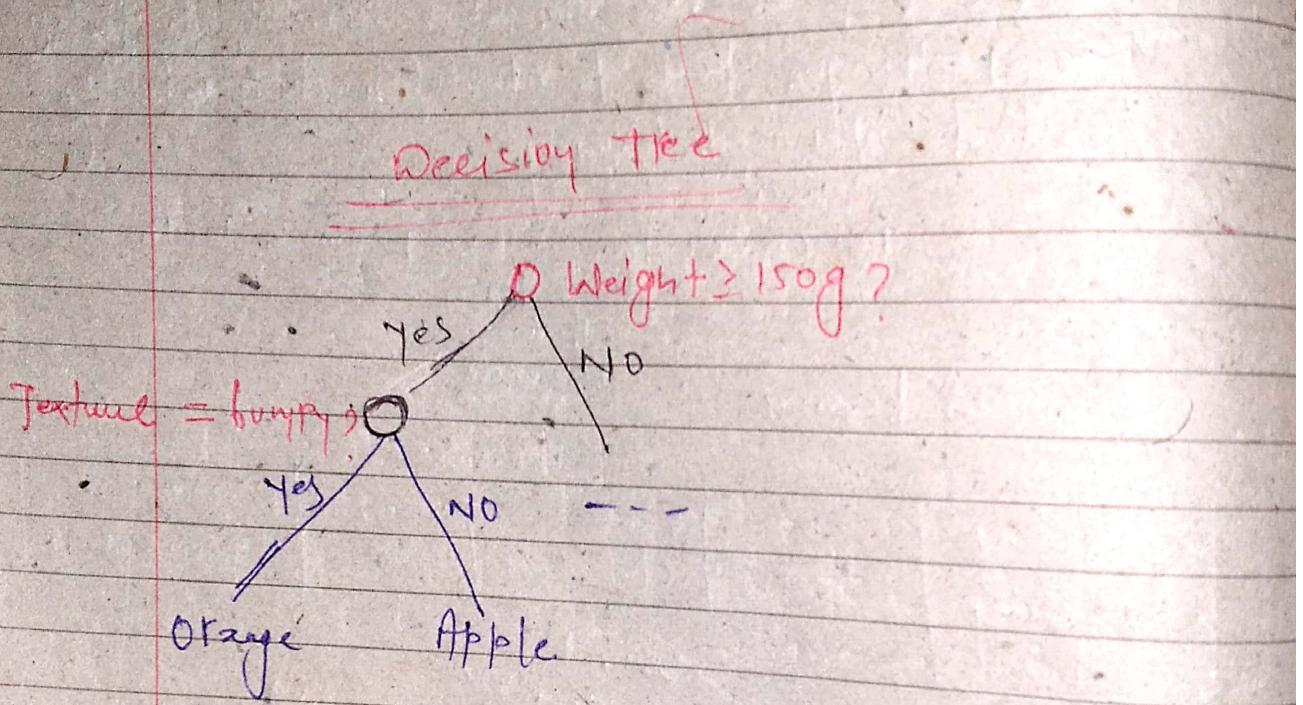
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import Sklearn import tree
from features = [[140, "smooth"], [130, "smooth"], [170, "bumpy"]] → Input of classifier

labels = ["apple", "apple", "orange", "orange"] → Output we want from classifier



clf = tree.DecisionTreeClassifier()

If a classifier is the Box of Rules they Learning Algorithm as the Procedure that Create them
It does that by finding pattern in our training data

In ~~the~~ ^{scikit} the training algorithm included in the classifier object & its called fit.

clf = clf.fit(features, labels)

finding pattern in data

Print Clf.predict([[10,0]])

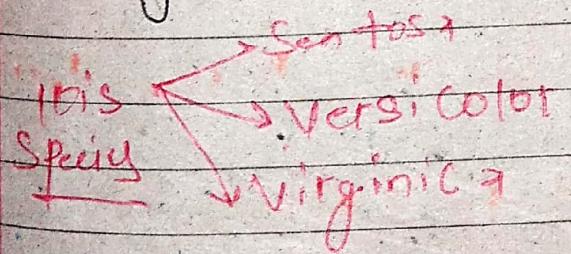
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Horsepower	Seats	Label
300	2	Sports-Car
400	2	—
200	8	Minivan
100	9	—

A2 - types of classifier:-

- i) Artificial Neural Network
- ii) Support Vector Machine (SVM)
Lions
- iii) Tigers
- iv) Bears
- v) Oh my!

But we start with Decision tree - Because it is easy to read & understand.



Spcl length | Sepal width | Petal length | Petal width | Species

Goal
features

1. import dataset (of this Iris flower)
2. Train a classifier
3. Predict label for new flower
4. Visualize the tree