



Andhra Pradesh State Skill Development Corporation(APSSDC)

(Department of Skill Development & Training, Govt. of Andhra Pradesh)



Machine Learning using  python™

PREREQUISITES

1. Python Programming

- Jupyter Notebook Environment

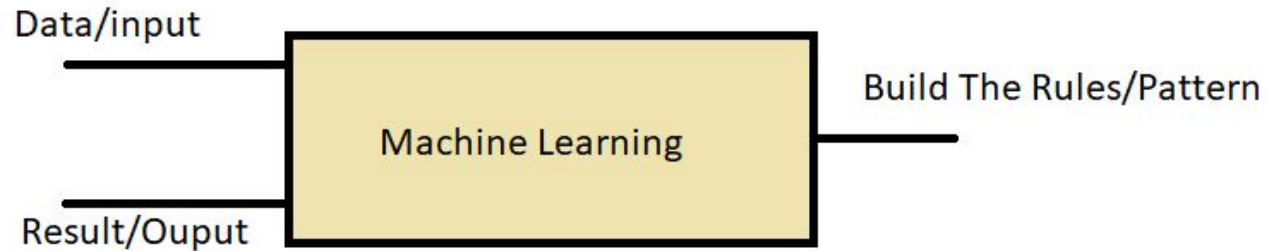
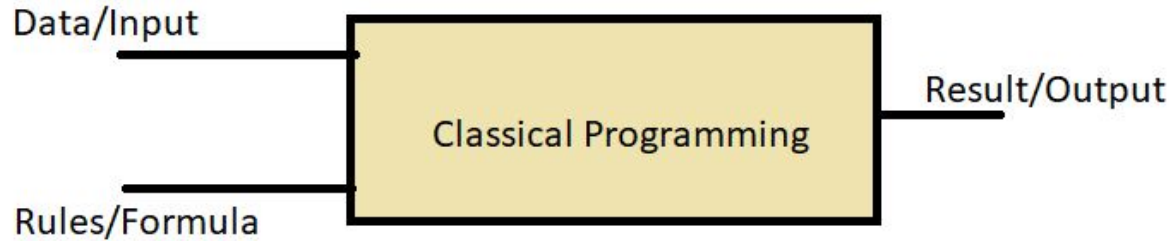
2. Data Analysis Concepts:

- Data Manipulation using NumPy
- Data Analysis using Pandas
- Data Visualizations using Matplotlib & Seaborn
- Data Preprocessing techniques using Sklearn

Introduction

Machine learning (ML) is the study of computer algorithms that improve automatically through experience

Introduction to Machine Learning



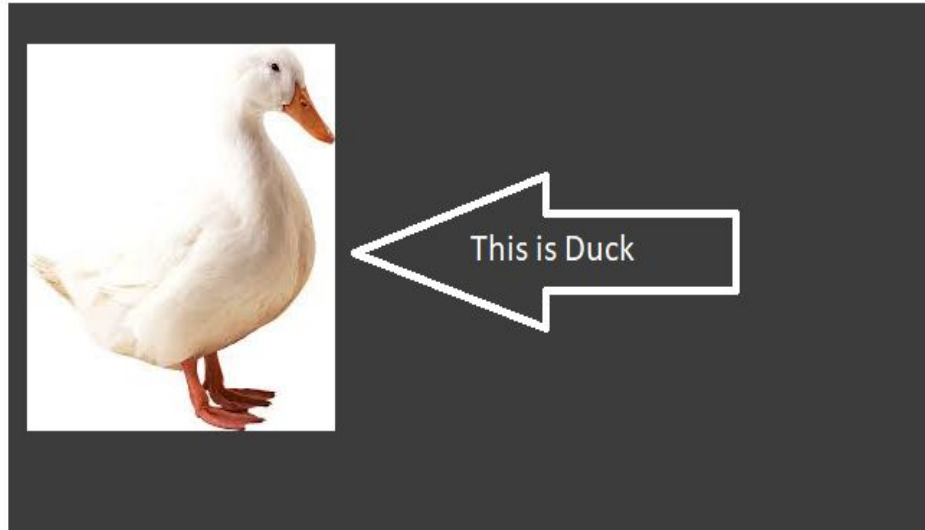
1. Supervised Learning
2. Unsupervised Learning
3. Reinforcement Learning

Supervised Learning

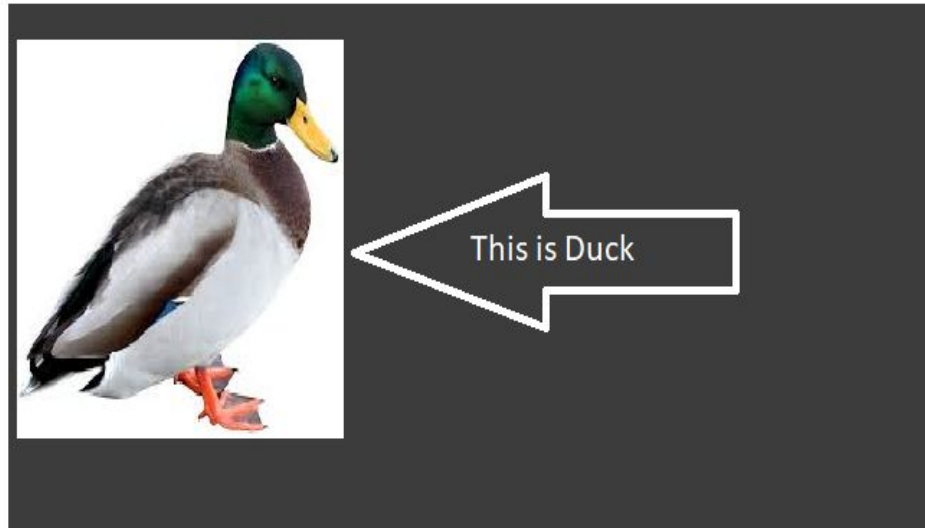
Supervised learning is the machine learning task of learning a function that maps an input to an output based on example input-output pairs

- Classification
target values are discrete classes(category 1 or 0,Yes or No)
- Regression
target values are continuous values(student marks,temperature,house price)

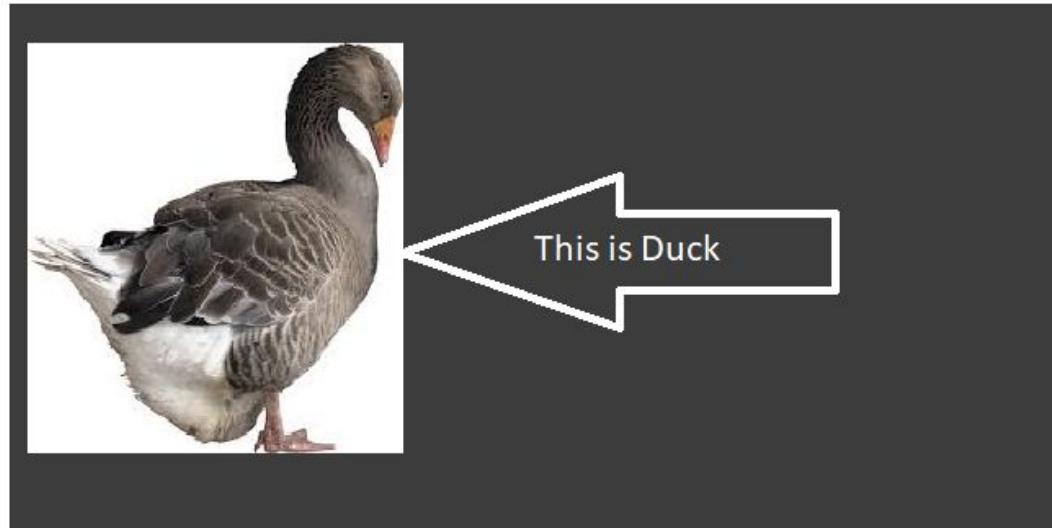
Supervised Learning



Supervised Learning



Supervised Learning



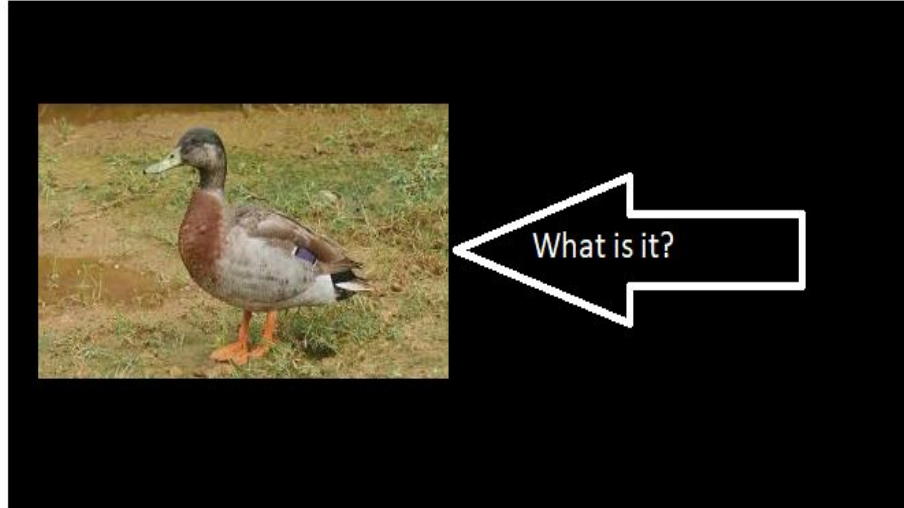
Supervised Learning



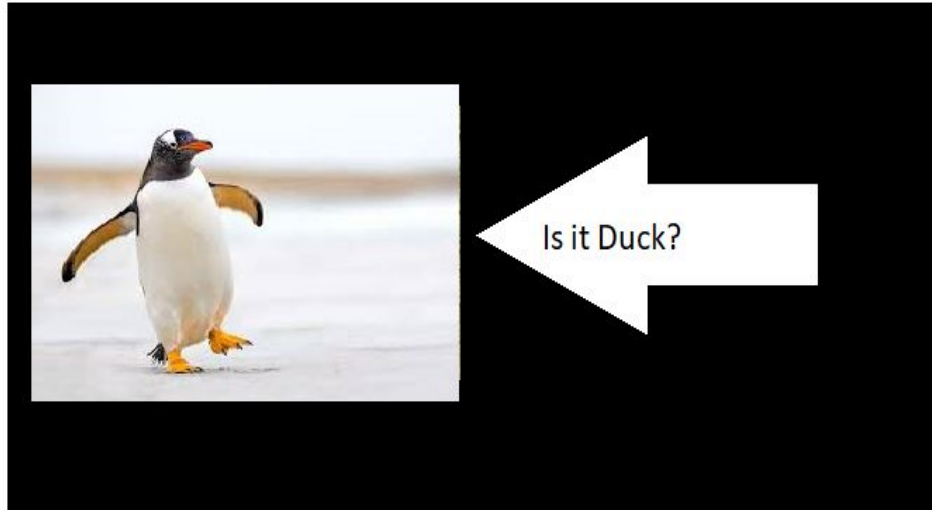
What is it?



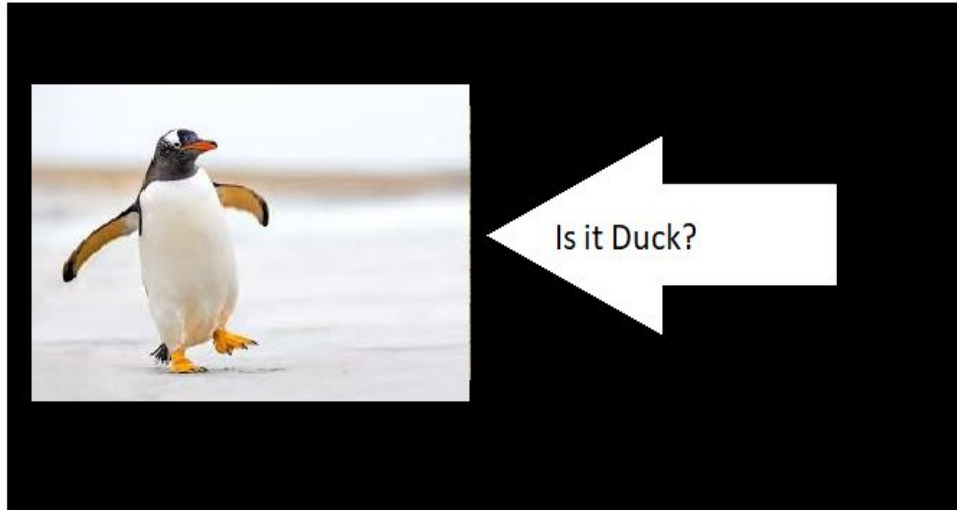
Supervised Learning



Supervised Learning



Supervised Learning



Unsupervised Learning

No labels(output) are given to the learning algorithm, leaving it on its own to find structure in its input.

- Clustering
- Dimensionality Reduction

Unsupervised Learning

1



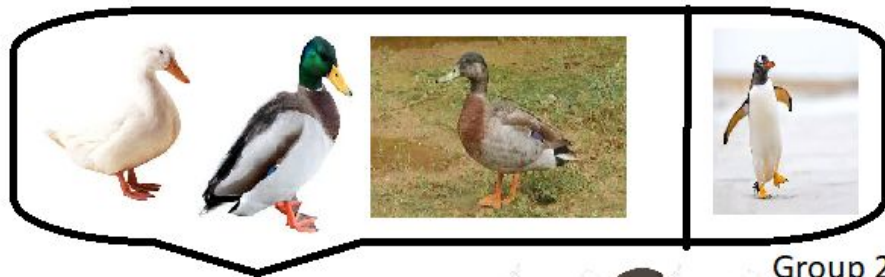
2



3



4



Reinforcement Learning

A computer program interacts with a dynamic environment in which it must perform a certain goal (such as driving a vehicle or playing a game against an opponent). As it navigates its problem space, the program is provided feedback that's analogous to rewards, which it tries to maximise

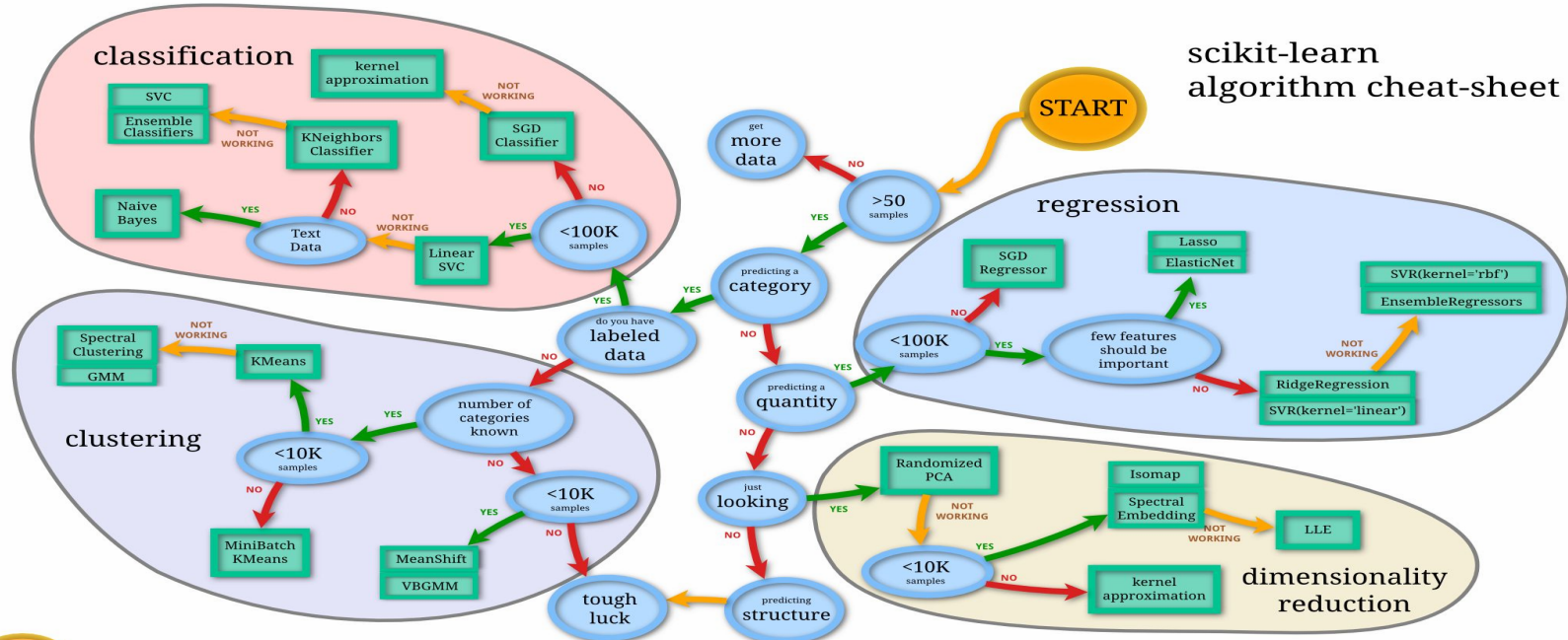
Reinforcement Learning



ML Algorithms

https://scikit-learn.org/stable/_static/ml_map.png

scikit-learn
algorithm cheat-sheet

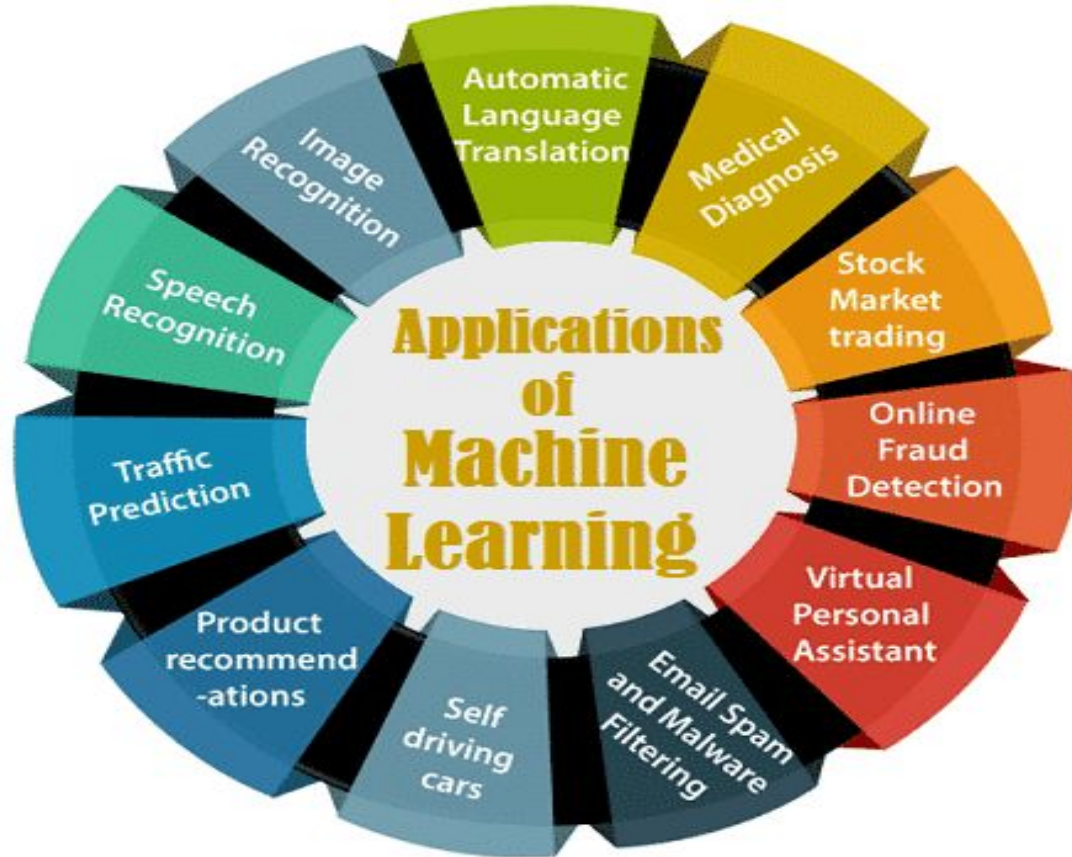


Algorithms we Apply

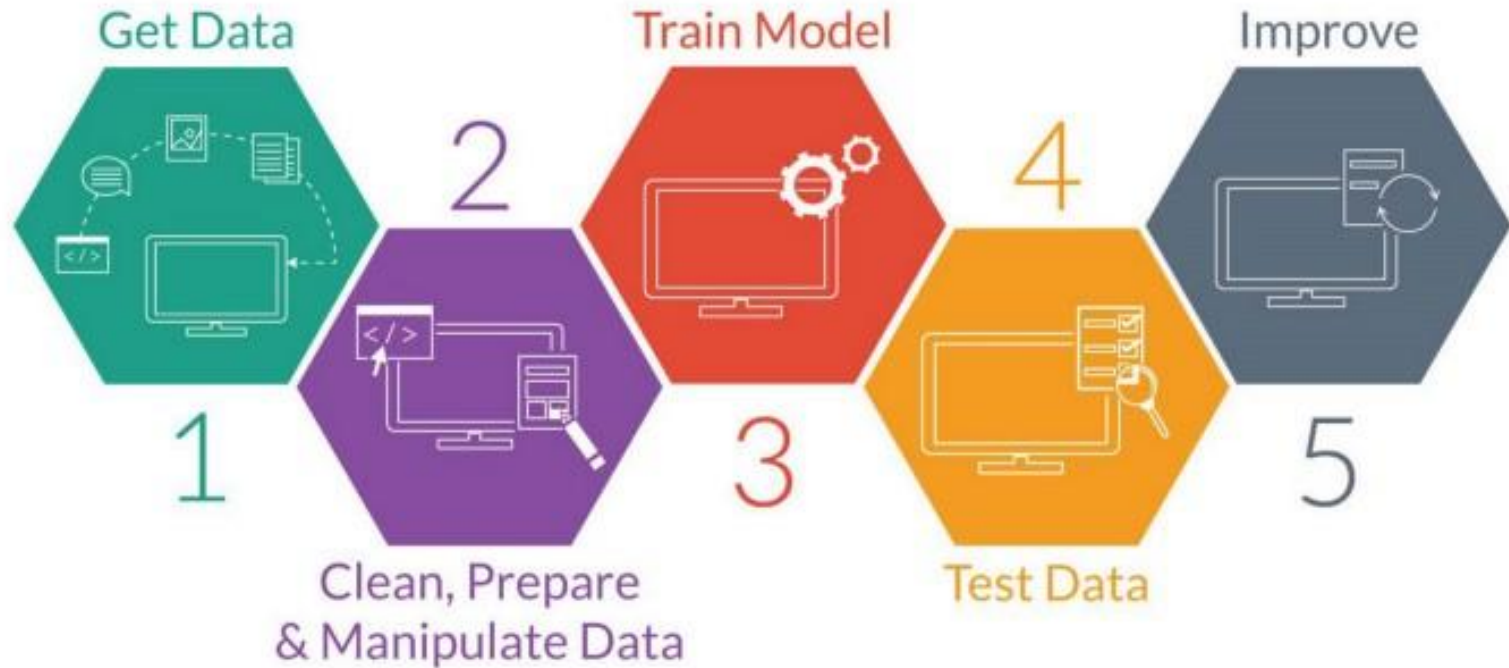
1. Linear Regression
2. Non-Linear Regression (Polynomial Features)
3. K-Nearest Neighbours
4. Logistic Regression(classification)
5. Support Vector Machine
6. Decision Tree
7. Random Forest
8. K-Means Clustering
9. Principal Component Analysis(PCA)

Applications of ML

Applications of ML



Steps to solve problem in ML



Let us learn by doing