SNS COLLEGE OF ENGINEERING

Kurumbapalayam (Po), Coimbatore – 641 107

An Autonomous Institution

Accredited by NBA – AICTE and Accredited by NAAC – UGC with 'A' Grade

Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

DEPARTMENT OF COMPUTER SCIENCE AND DESIGN

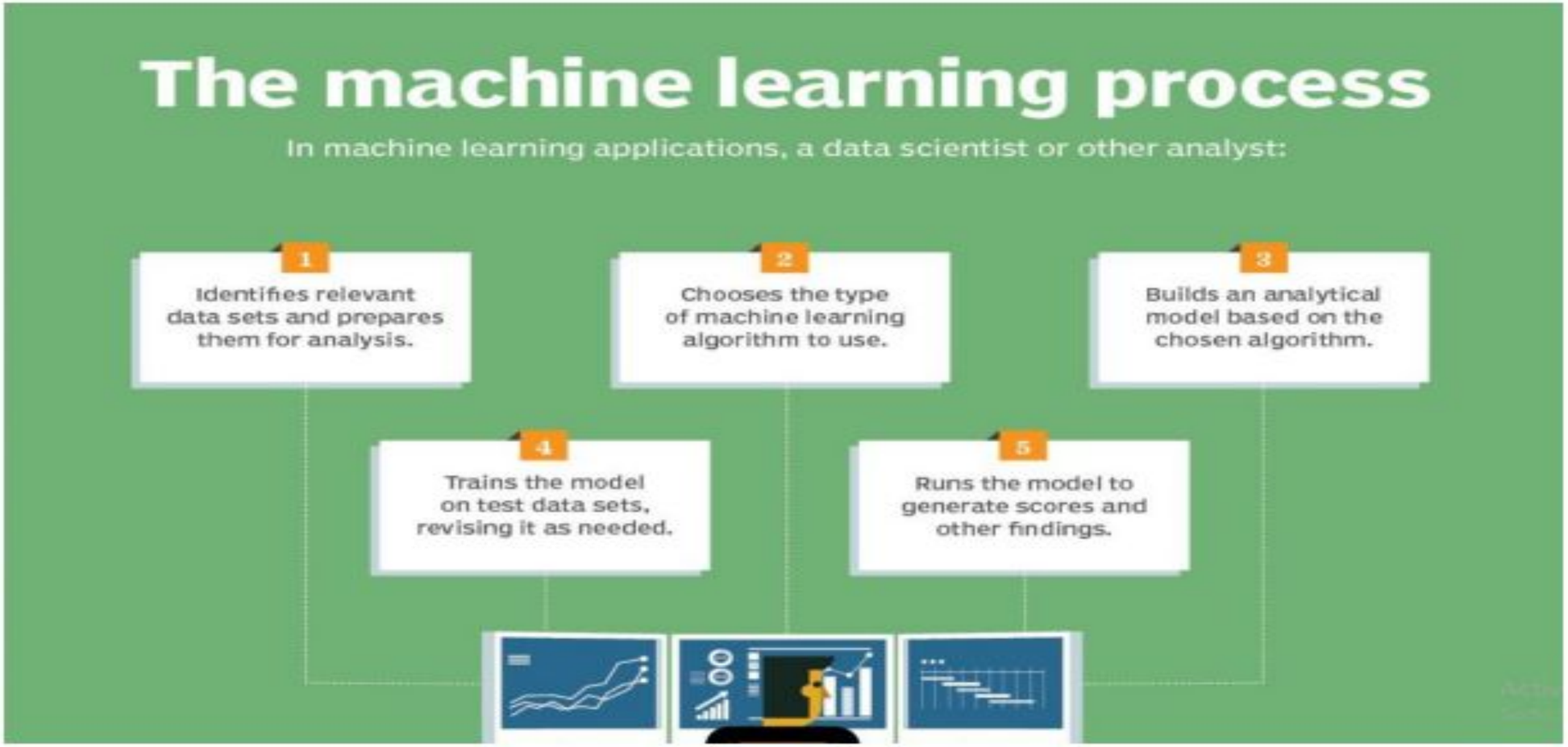
COURSE NAME : MACHINE LEARNING

III YEAR /V SEMESTER

Unit 1 - INTRODUCTION

Topic 7 : Process of machine learning

Machine Learning Process



Machine Learning Process

- There are three types of machine learning:

- Supervised Learning,
- Unsupervised Learning and
- Reinforcement Learning.

Machine Learning Algorithms

- Machine Learning algorithms are the programs that can learn the hidden patterns from the data, predict the output, and improve the performance from experiences on their own.
- Different algorithms can be used in machine learning for different tasks, such as simple linear regression that can be used for prediction problems like stock market prediction, and the KNN algorithm can be used for classification problems.
- In this topic, we will see the overview of some popular and most commonly used machine learning algorithms along with their use cases and categories.

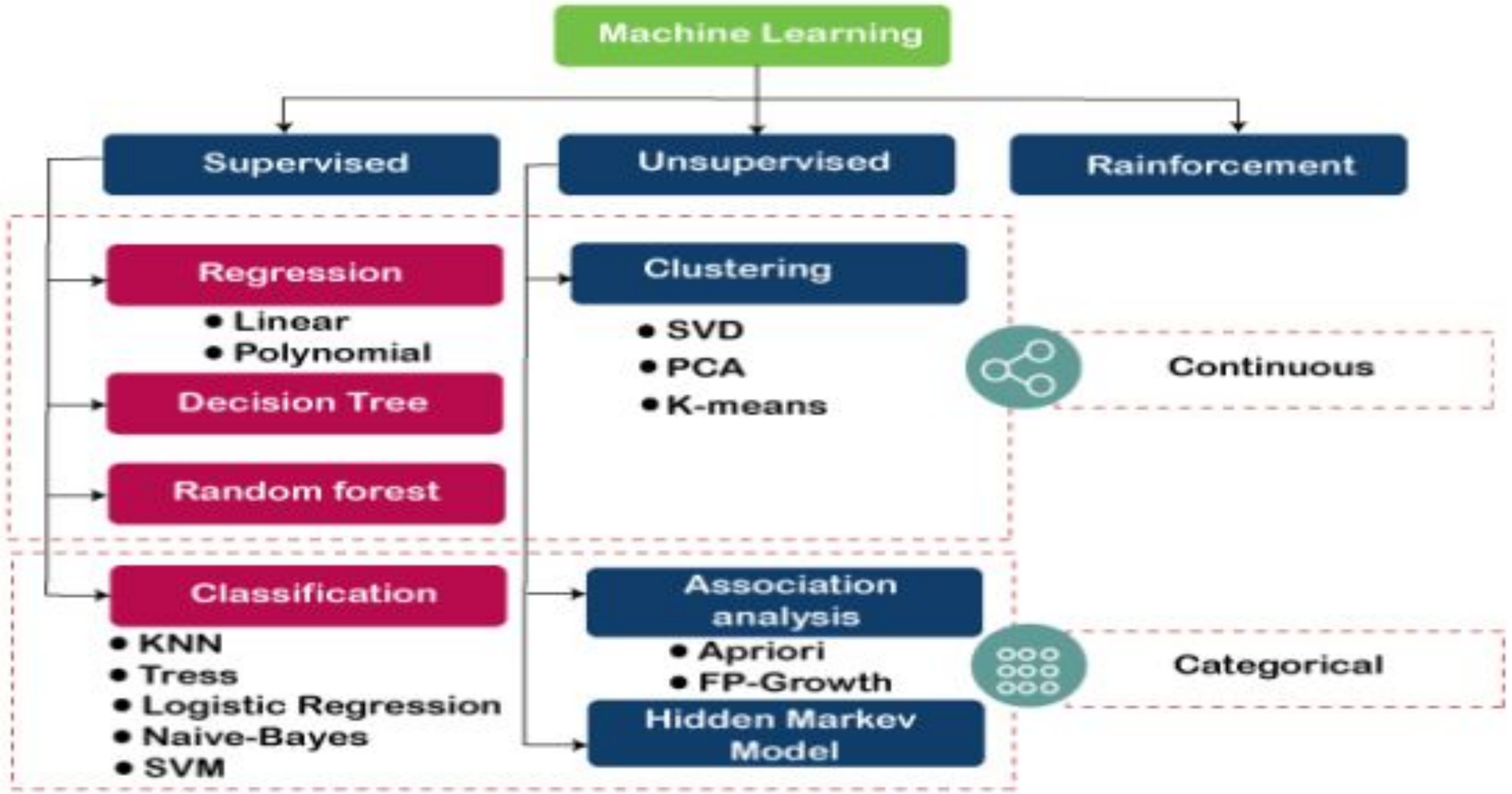
Types of Machine Learning Algorithms

Machine Learning Algorithm can be broadly classified into three types:

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

ML Algorithm with Categories

The below diagram illustrates the different ML algorithm, along with the categories:



Types of ML

Supervised Learning Algorithm

1) Supervised Learning Algorithm:

- Supervised learning is a type of Machine learning in which the machine needs external supervision to learn.
- The supervised learning models are trained using the labelled dataset.
- Once the training and processing are done, the model is tested by providing a sample test data to check whether it predicts the correct output.

Types of ML

Supervised Learning Algorithm

- The goal of supervised learning is to map input data with the output data.
- Supervised learning is based on supervision, and it is the same as when a student learns things in the teacher's supervision.
- The example of supervised learning is spam filtering.

Supervised learning can be divided further into two categories of problem:

1. Classification
2. Regression

Types of ML

Unsupervised Learning Algorithm

2) Unsupervised Learning Algorithm :

- It is a type of machine learning in which the machine does not need any external supervision to learn from the data, hence called unsupervised learning.
- The unsupervised models can be trained using the unlabelled dataset that is not classified, nor categorized, and the algorithm needs to act on that data without any supervision.

Types of ML

Unsupervised Learning Algorithm

2) Unsupervised Learning Algorithm :

- In unsupervised learning, the model doesn't have a predefined output, and it tries to find useful insights from the huge amount of data.
- These are used to solve the Association and Clustering problems.
- Hence further, it can be classified into two types:

1. Clustering
2. Association

Types of ML

Reinforcement Learning

3) Reinforcement Learning:

In Reinforcement learning, an agent interacts with its environment by producing actions, and learn with the help of feedback.

Types of ML

Reinforcement Learning

List of Popular Machine Learning Algorithm

1. Linear Regression Algorithm
2. Logistic Regression Algorithm
3. Decision Tree
4. SVM
5. Naïve Bayes
6. KNN
7. K-Means Clustering
8. Random Forest
9. Apriori
10. PCA

Thank you