Machine Learning in Python

(Summer Internship 2021)

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Introduction

- ❏ Machine learning is a method of data analysis that automates analytical model building.

- ❏ Machine learning algorithm build mathematically model based on sample data, known as
  "training data".

- ❏ Machine leaning, a branch of artificial intelligence, concerns the construction and study of systems that can learn from data.

- ❏ Machine learning is a subfield of artificial intelligence (AI). The goal of machine learning generally is to understand the structure of data and fit that data into models that can be understood and utilized by people.

- ❏ Any technology user today has benefitted from machine learning. Facial recognition technology allows social media platforms to help users tag and share photos of friends. Optical character recognition (OCR) technology converts images of text into movable type. Recommendation engines, powered by machine learning, suggest what movies or television shows to watch next based on user preferences. Self-driving cars that rely on machine learning to navigate may soon be available to consumers.
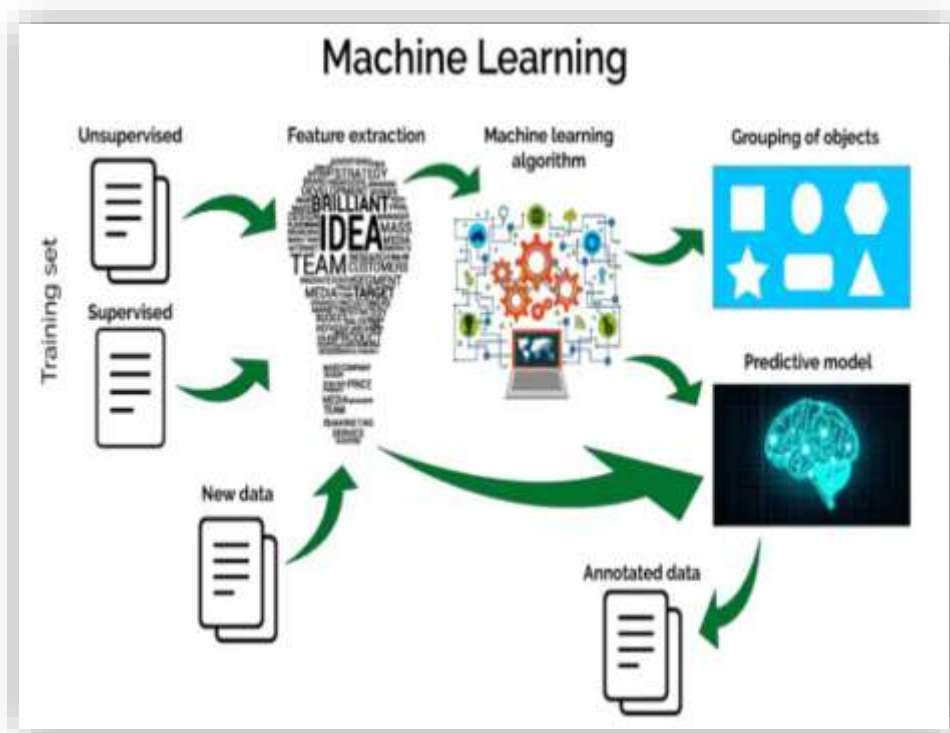
Objectives

- ➢ Motivation behind ML

- ➢ Concept of ML

- ➢ Technique of ML

Contents of the Program

- Part 1:DATA PREPROCESSING
- Part 2: Build linear model.
- Part 3: build KNN classification model.

Methodology

Methodology used in machine learning:

1. **Supervised**

2. **Unsupervised**

3. **Reinforcement**

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. It infers a function from labeled training data consisting of a set of training examples. In supervised learning, each Example is a pair consisting of an input object and a desired output value.
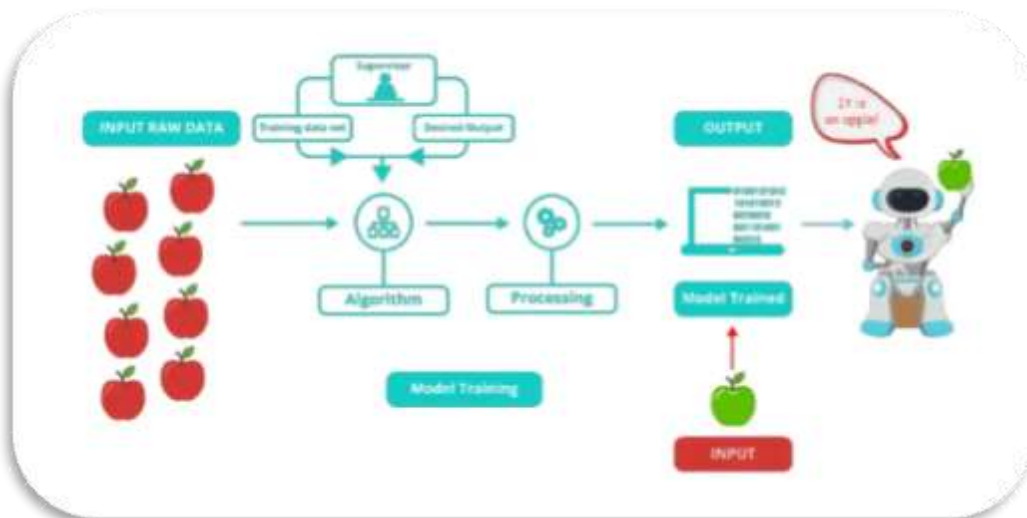
Unsupervised Learning : Unsupervised learning is the training of machine using information that is neither classified nor labeled and allowing the algorithm to act on that information without guidance. Here the task of machine is to group unsorted information according to similarities, patterns and differences without any prior training of data.

Reinforcement Learning : Reinforcement learning is a type of Machine Learning that allows the learning system to observe the environment and learn the ideal behavior based on trying to maximize some notion of cumulative reward. It differs from supervised learning in that labelled input/output pairs need not be presented, and sub-optimal actions need not be explicitly corrected. Instead the focus is finding a balance between exploration and exploitation.
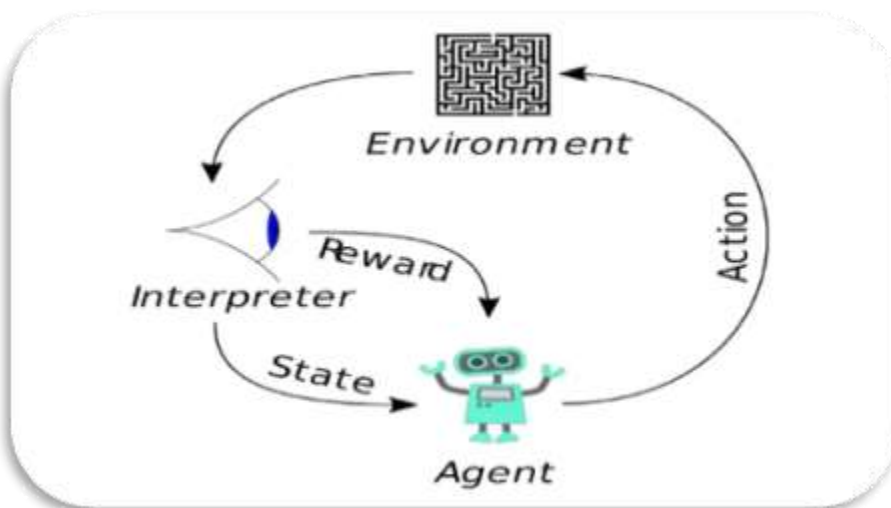
▶ **Step 1:** Data preprocessing

▶ **Step 2:** Importing libraries

▶ **Step 3**: Import data set

▶ **Step 4:** Creating feature matrix and dependent variable vector

- **Step 5: Replace missing value**

- **Step 6:** Encoding

- **Step 7:** Spiliting of data set

- **Step 8:** Feature scaling

- **Step 9:** Building linear model

- **Step 10:** Training

- **Step 11:** Testing

- **Step 12:** Visualizing the data

Details of Works done during the Internship (on daily/weekly basis)

❑ **Title of the minor project:** Data preprocessing of
- Investment_data
- Logistic data
- Captia_income

❑ **Title of the major project:** Heart-Attack Analysis and Prediction

❑ **Model(s) Used:** Logistic Regression, K Nearest Neighbors

Outcomes of the program:

Major Project-

Data collection from: Kaggle.com

Our machine learning algorithm can now classify patients with heart disease. Now we can properly diagnose patients, & get them the help they needs to recover. By diagnosing detecting these features early, we may prevent worse symptoms from arising later. After implementing the classification models, we got that the accuracy_score in logistic regression algorithm is around 80% and accuracy_score in KNN algorithm is around .

CONCLUSION

❑ Machines should be able to do all the things what we can do and machine learning will play a big role in achieving this goal.

❑ Machine learning is the shining star of the moment.

❑ This course assisted us in gaining an understanding of the Machine Learning area and beginning to work on real-world challenges using machine learning techniques.