Assignment Day-1

1. Differentiate between Rule-Based Approach and Machine Learning Approach?

Rule-Based Approach :

- Here rules are defined.
- Requires skilled developers for developing rules.
- Improvements come from algorithms and data.

Machine Learning :

- To recognize patterns from the data.
- Doesn't required skilled developers for labelling data.
- Improvements come from additional data.

2. Explain the Lifecycle of an ML model?

1. Define objective
2. Collecting data
3. Preprocessing of Data
4. Train data
5. Test data
6. Deploy the model

3. Differentiate between Supervised and Unsupervised learning? Mention real-time applications of each?

Supervised Learning :

- Works on labelled data
- Predicting output given the input.
- Ex: Given an image of a car - predicts Innova
- Algorithms: Regression and Classification.

Unsupervised Learning:

- Works on un-labelled data
- Finding patterns in the data.
- Ex: Given images of multiple cars, learns to identify what is a car.
- Algorithms: Clustering.

4. What do you mean by Clustering?

- Dividing data into groups such that data points are similar to each other.
- For example, Amazon can divide their customers based on their preferences.

5. What is Regression? Explain with an example?

- Regression is a relationship between two things.
- Relationship between a dependent and independent variable.
- Example: cost and distance in a cab ride
- We know as the distance increases the fare in the cab ride increases.
- Regression gives a single value as an output rather than a range of values.
- For example, the fare for 10km would be Rs.150.

6. How do we check the efficiency of an ML model? Mention the parameters.

- Loss function
- Cost function
- Accuracy
- Precision