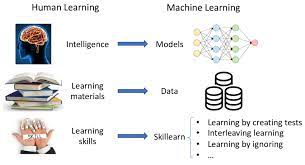
1. What is the concept of human learning? Please give two examples.

To define learning, it is necessary to analyze what happens to the individual. For example, an individual's way of perceiving, thinking, feeling, and doing may change as a result of a learning experience. Thus, learning can be defined as a change in behavior as a result of experience.

1. What different forms of human learning are there? Are there any machine learning equivalents?



1. What is machine learning, and how does it work? What are the key responsibilities of machine learning?

Machine learning uses two types of techniques: supervised learning, which trains a model on known input and output data so that it can predict future outputs, and unsupervised learning, which finds hidden patterns or intrinsic structures in input data.

1. Define the terms "penalty" and "reward" in the context of reinforcement learning.

Reinforcement learning is all about gamifying the learning process. This type of machine learning uses a reward-penalty method to teach an AI system. If it makes the right move, it gets rewarded. If it makes a mistake, it receives a penalty.

1. Explain the term "learning as a search"?

Concept learning can be viewed as the task of searching through a large space of. hypotheses implicitly defined by the hypothesis representation. The goal of this. search is to find the hypothesis that best fits the training examples.

1. What are the various goals of machine learning? What is the relationship between these and human learning?

The goal of ML, in simples words, is to understand the nature of (human and other forms of) learn- ing, and to build learning capability in computers.

1. Illustrate the various elements of machine learning using a real-life illustration.

## 1. Image recognition

## 2. Speech recognition

## 3. Medical diagnosis

## 4. Statistical arbitrage

## 5. Predictive analytics

## 6. Extraction

1. Provide an example of the abstraction method.

abstract class Bike{

abstract void run();

}

class Honda4 extends Bike{

void run(){System.out.println("running safely");}

public static void main(String args[]){

Bike obj = new Honda4();

obj.run();

1. What is the concept of generalization? What function does it play in the machine learning process?

Generalization refers to your model's ability to adapt properly to new, previously unseen data, drawn from the same distribution as the one used to create the model. Estimated Time: 5 minutes Learning Objectives. Develop intuition about overfitting. Determine whether a model is good or not.

10.What is classification, exactly? What are the main distinctions between classification and regression?

The most significant difference between regression vs classification is that while regression helps predict a continuous quantity, classification predicts discrete class labels. There are also some overlaps between the two types of machine learning algorithms

1. What is regression, and how does it work? Give an example of a real-world problem that was solved using regression.

Linear regression is one of the most commonly used techniques in statistics. It is used to quantify the relationship between one or more predictor variables and a response variable.

The most basic form of linear is regression is known as [simple linear regression](https://www.statology.org/linear-regression/), which is used to quantify the relationship between one predictor variable and one response variable.

If we have more than one predictor variable then we can use multiple linear regression, which is used to quantify the relationship between several predictor variables and a response variable.

1. Describe the clustering mechanism in detail.

Clustering is the task of dividing the unlabeled data or data points into different clusters such that similar data points fall in the same cluster than those which differ from the others. In simple words, the aim of the clustering process is to segregate groups with similar traits and assign them into clusters.

1. Make brief observations on two of the following topics:
2. Machine learning algorithms are used

Machine learning algorithms use historical data as input to predict new output values. Recommendation engines are a common use case for machine learning. Other popular uses include fraud detection, spam filtering, malware threat detection, business process automation (BPA) and Predictive maintenance.

1. Studying under supervision

iii. Studying without supervision

1. Reinforcement learning is a form of learning based on positive reinforcement.

In reinforcement learning, developers devise a method of rewarding desired behaviors and punishing negative behaviors. This method assigns positive values to the desired actions to encourage the agent and negative values to undesired behaviors.