**Assignment\_2**

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

**Ans: It is the form of learning which requires higher order mental processes like thinking, reasoning, intelligence, etc . When we say ‘dog’ we learn the the term dog refers to a particular animal.**

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

**Ans:**

**1. Motor learning : Day –to- day life activities refer to motor activites. A individual has to learn them in order to maintain his regular life. Ex – walking, running, driving, etc.**

**2.Problem solving: This is a higher order learning process. This learning reguires the use of cognitive abilities – such as think , reasoning.**

**Yes, these are equivalents to Machine Learning.**

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

**Ans: ML is a type of AI that allows software applications to become more accurate at predicting outcomes without being explicitly programmed to do. Then models are then used to automate processes like image classification, speech recognition.**

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

**Ans: Learning as search ,means as a search problem. The learner searches through a space of hypotheses to find the best one.**

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

**Ans: Goals of ML :**

1. **To make the computers smarter, more intelligent.**
2. **To develop computational models of human learning process and perform computer simulations.**

**Humans acquire knowledge through experience either directly or shared by others. Machine acquire knowledge through experience shared in the form of past.**

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

**Ans: Medical diagnosis , Image recognition.**

8. Provide an example of the abstraction method.

**Ans: Ex – Driving a car**

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

**Ans: Generalization refer 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.**

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

**Ans: Classification is the tasl of predicting a discrete class label. Regression is the task of predicting a continuous quantity.**

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

**Ans:** **Regression is the task of predicting a continuous quantity.**

**Examples :**

**1) Predicting the price of a house**

1. **predicting the impact of GRE scores on college admissions.**
2. **Predicting the sales based on input parameters.**

12. Describe the clustering mechanism in detail.

**Ans: Clustering is the task of dividing the population or data points into a number of groups such that data points in the same groups are more similar to other data points in the same group than those in other groups.**

13. Make brief observations on two of the following topics:

i. Machine learning algorithms are used: **to learn or uncover underlying patterns embedded in the data. It perform pattern recognition, classification , and prediction on data by learning from existing data.**

ii. Studying under supervision:

iii. Studying without supervision

iv. Reinforcement learning is a form of learning based on positive reinforcement.:

**It is based on rewarding desired behaviours and/or punishing undesired ones. Ingeneral, a reinforcement learning agent is able to perceive and interpret its environment, take actions and learn trial and error.**