Machine\_learning\_Assignment\_2

**Q – 1 What is the concept of machine learning? Please give 2 example?**

Ans – Machine learning is the branch of artificial intelligence and computer science which focused on the use of data and algorithms imitate the way that human learns gradually improve the accuracy.

Example of machine learning.

1. Self-Driving Car
2. Image detecting
3. Public safety.
4. Agriculture
5. Smart Assistance.

**Q – 2 What different forms of human learning are there? Are there any machine learning equivalents?**

Ans – Three major types of learning.

1. Learning thorough association – Classical conditioning
2. Learning through consequences – Operant conditioning
3. Learning through observation – Modeling observation learning.

**Q – 3 What is machine leaning and how does it work? What are the key responsibility of machine leaning?**

Ans – Machine leaning is the type of artificial intelligence that allows software application to become more accurate at predicting outcome without being explicitly programmed to do so. Machine learning use historical data use as input and gives as a new output.

**Q – 4 Define the term of “penalty” and “reward” in the context of reinforcement learning.**

Ans – A reinforcement leaning algorithm, which may also be referred to as an agent, learn by interacting with its environment. The agent receives rewards by performing correctly and penalties for performing incorrectly.

**Q – 5 Explain the term “learning as a search”?**

Ans – In general, we think the concept learning as a search problem. The learner research through a space of hypotheses to find the best one.

**Q – 6 What are the various goals of machine learning? What is the relationship between these and human learnings?**

Ans – The goal of machine learning, closely coupled with the goal of A.I achieve through understanding about the nature of learning process( About human leaning and other process of learning) about the computation aspects of learning behaviors and to implant the learning capability in computer system.

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

Ans – Application of the machine learning from day to day life:-

1. Virtual Personal Assistance.
2. Predicting while computing.
3. Video surveillance.
4. Social media.
5. Banking and personal finance.

**Q – 8 Provide an example of the abstraction method?**

Ans – Abstraction method of those type of method that don’t required implementation for its declaration. These method don’t have a body which means no implementation. A few properties of an abstract method are:

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

Ans – Generalization is a form of abstraction whereby common properties of specific instances are formulated is general concept or claim. Generalization posit the existence or a domain or set of elements, as well as one or more common characteristics shared by those element.

Either your model is underfitting or overfitting to your train data. Generalization is a measure of how you model id perform or predicting unseen data so, it is important to come up with the best generalized model to give better performance against future data.

**Q – 10 What is classification, exactly? What is the main distinction between classification and regressing?**

Ans – Classification is an ordered set of related categories used to group data according to its similarity. It consists of code and descriptor and allow survey response to be put into meaning full categories in order to produce useful data. Classification is a useful tool for anyone developing statistical surveys.

The main difference between Regression and classification algo that regression algo are used to predict the continuous value such as Salary, age etc and classification algo are used to predict/classify the discrete value such as male or female, True or false, spam or not spam etc.

**Q – 11 What is regression and how does it work? Give an example of real-world problem that is solve using regression.**

Ans – Regression is the statistical technique that relates a dependent variable to one or more independent variable. A regression model is able to show whether changes observed in the dependent variable are associated with the one or more of the independent variable.

It basically helps us to estimate that factory like sale, grow, market evaluation, customer demand, and many more so, lets give start with the basic of this problem solving skill using intelligent machine by studying the regression model.

**Q – 12 Describe the clustering mechanism in detains?**

Ans – Clustering is the task is dividing the population or data points into number of group such that data pints in the same group and more similar data points in the same group than those in the other group.

**Q – 13 Make brief observation on two of the following topics:**

Ans – **1. Machine learning algorithms are used:-** Machine learning can be defined as the ability of a machine to learn something having to be programmed for that specific thing. It is the field of study where computer use a massive set of data and apply algorithms for tanning themselves and making predictions. Training in machine entails feeding a lot of data into the algorithm and allowing the machine itself to learn more about the processed information.

Answering whether the animal in a photo is a cat or a dog, spotting obstacles on front of a self-driving car, spam mail detection, and speech recognition of a you tube video generate caption are just a few examples out if a plethora of predictive machine learning models.\\

Another machine learning definition can be given as machine learning is a subset if artificial intelligence that comprises algorithms programmed to gather information without explicit instructions at each step. It has experienced the colossal success of late.

Machine leaning works on different types of algorithms and techniques. These algorithms are created with the help of various ML programming languages. Usually, a training data sets is fed to algorithm to create a model.

Now, Whenever input is provided to ML algorithm, it return a result value based on the model. Now if the prediction is accurate, it is accepted and algorithm is deployed. But if the prediction is not accurate, the algorithm is trained repeatedly with a training dataset to arrive at an accurate prediction/result.

2**. Studying under supervision** = In many environments, for example in investment banking, sales-force management and others, workers and supervisors work closely as a team. Workers are paid a fixed salary and supervisors determine any raises, which are typically dependent on hoe well the organization does. IN such scenarios, a supervisor who constantly offers suggestions can create a problem-typically a workers cannot ignore his supervise advise, yet if such advice is wrong and followed, it will only decrease firm profits. We conduct a laboratory experiment a address a question critical for such settings does the relationship between advisor and workers interfere with the learning abilities of the of the workers? The answer is resounding no. in fact, subject who have a supervisor advising them and whose advice is costly to ignore actually learn better then those with an advisor whose can be ignored. An even more striking result is that advisees as well as advisor in both these conditions learn better then subject with no advisors. Our result can be attributed to the presence of advice and has direct relevance to learning in many environments.