Machine learning Assignment – 1

**Q – 1 What does one mean by the term “machine learning”?**

Ans - Machine learning of the subset of the Artificial intelligence and computer science which is focus on the use of data and algos to imitate the wat that humans learns, gradually improve the accuracy.

**Q – 2 Can you thinks of 4 distinct types of issues where it shines?**

Ans – Machine learning is the great for problem whose solution requires a great deal of work for a long list of rules, complex problem that are hard to get a solution of a using traditional method, fluctuation environments and gating insights about complex problem and large data.

**Q -3 What is labelled training set, and how does it work?**

Ans – Labelled training set is the set of training data which has a solution to the problem or task.

**Q -4 What are the two important task that are supervised?**

Ans – The two most important supervised task one is Regression and other one is classification.

**Q – 5 Can you think of four examples of unsupervised task?**

Ans – Four common unsupervised task is :- clustering, Visualization, dimensionality reduction and association rule learning.

**Q – 6 State the machine learning models that would be best to make a robot walk through various unfamiliar terrains?**

Ans – The best machine learning algorithm to allow a robot walk is unknown terrains is Reinforced learning, where the robot can learn form response of the terrains to optimize itself.

**Q – 7 Which algorithms will you use to divided customer into different groups?**

Ans – The best algorithm will use to divided customers into different group one is supervised and unsupervised learning.

**Q – 8 Will you consider the problem of spam detection to be a supervised or unsupervised learning problem?**

Ans – Actually the spam detection is the supervised learning because the labels are knowns.

**Q -9 What is the concept of online learning system?**

Ans – It is the learning system in which the machine learns as data is given in small streams continuously.

**Q – 10 What is out of core learning, and how does it different form core learning.**

Ans – Out of core learning is the system is a system that can handle data that can not fil into your computer memory. It is used online learning system to feed data into small bits.

**Q – 11 What kinds of learning algorithm makes predictions using a similarity measure?**

Ans - Learning algorithm that relies on a similarity measure to makes predictions is instance-based algorithm.

**Q – 12 What is the difference between a modal parameter and hyperparameter in learning algorithm?**

Ans - The modal parameter determines how a modal will predict gives a new instance modal usually has one parameter (i.e., is slop of linear modal). Hyperparameter is a parameter for a linear algorithm, not for a modal.

**Q -13 What are the criteria that modal based linear algorithms looks for? What is the most popular method that use to achieve success? What method do they use to prediction?**

Ans – Model based learning algorithm search for the optimal value of parameter in a model that will gives the best result for the new instances. We often use a cost function or similar to determine what the parameter value has to be in order to minimize the function. The model makes prediction by using the value of the new instance and the parameter in its function.

**Q – 14 Can you name four of the most important machine learning challenges?**

Ans – The four names of most important machine learning challenges are.

1. Overfitting in data.
2. Underfitting in data.
3. Lacking in data.
4. Non representative data.

**Q – 15 What happen if the model performs well on the training data but fails to generalize the result to new situations? Can you think the three different options.**

Ans – If the model performs poorly to new instances, then it has overfit on the training data. To solve this, we can do any of the following three:

1. Get more data.
2. Implement a simpler model.
3. Eliminate outliers or noise from the existing data set.

**Q – 16 What exactly is a test data and why would you need one?**

Ans – Test set is a set that test your model (fit using training data) to see how it performs. Test set is necessary so that you can determine how good (or bad) your model performs.

**Q – 17 What is the purpose of a validation set?**

Ans – validation set is a set use to compare between difference training modal.

**Q – 18 What precisely is the train-dev kit, when will you need it, how do you put it to use?**

Ans – The goal of dev-kit is to rank the models it terms of their accuracy and helps to decide which model to proceed further with. Well you might be thinking if our goal is to train learning which are data hungry, In the process of building the model that learn form data, and we need to find the best parameter of the model and best model out of others available ones.

**Q – 19 What could go wrong if you use the test set to tune hyperparameters?**

Ans - If you tune hyperparameter using the test sets, them it may not perform well on the out of sample data because the model is tuned just for that specific set.