ML DAY 1

What is ml ?
It is the statistical technique to recognize patterns within a set of data.

Most important part of ML?
Learning algorithms and creating end to end projects (project life cycle)

Difference between traditional coding and machine learning ?
Traditional coding takes the input and the program within a computer to generate an output. It also uses explicit coding to write codes for a specific functionality.
ML uses the input and output initially to generate the output or we say the logic. It does not use explicit coding.

Difference bw AI/ML/DL
AI or the artificial intelligence focuses on replication of quantifiable intelligence such as pattern recognition. Things like EI and CREativity are not yet quantifiable and thus are not used in AI.
ML are the algorithm used to recognize patterns in a given data which could be numerical or categorical.
DL on the other hand is the subset of Ml where we tends to create a neural network such like of our brain to solve complex algorithms. It works on large set of data and is capable of automatically recognizing features and functionalities as we feed more and more data.

Types of ML ?

Supervised ML
Here, we are already provided with the input and the output data to work on
Supervised learning is of two types based on the type of data :
Regression: here the output data is Numerical. age
Classification : here the output data is Categorical. Weather

Unsupervised ML
Here, we are not provided with any output initially.
Unsupervised learning is of Four types:
1.Clustering : here when the data is visualized take for instance a 2d graph of IQ CGPA there exists different sets of points within the graph that starts forming group like structure and thus creating a cluster, there can also exist Hierarchical clustering.
2.Dimensionality Reduction : in this technique, if there exists a very large amount of input columns, we merge the similar columns to create a single one.
3.Anomaly detection : take for an example a graph of a stock within 5 months, there may exist a peak that must be higher or lower comparison to the other peaks , this results in the creation/Detection of an anomaly.
4.Association Rule : providing things that are in most demand near to each other. BEER AND DIAPERS (WALMART).

Semi-Supervised
Fusion/Hybrid

Reinforcement ML
In reinforcement learning we are not provided with anything and we need to work by hit and trial methodology.
Here we are given with an agent that takes actions based on its policies and it gets rewarded and penalties based on its action through which it learns on its own.