Basics of AI, ML, DL, CV, Cloud and Version Control Systems

1. AI

-AI is nothing but to make intelligent machines.

-Machines learn based on previous experiences or iterations

1. ML

ML is creating algorithms which help machines to solve problems.

Learning + decision making = intelligence i.e machine learning algorithm.

normal distribution:

area under the curve shows the probability of the points in that area.

1. Computer Vision:

-CV is nothing but giving computers the ability to visualize the world like humans

-computer vision's main tasks are:

driverless cars and robots doing work

-previously, the images taken by a phone used to be blurred if the phone moved a little.

-But nowadays that does not happen,

because the images get optimized and edge detection takes place.

-So their quality is not affected even if the phone is moved while taking the photo.

-This happens because google has the data of all the images of all the things

-So with the help of this previous data, it optimizes the images

-Control is the most important thing

-That's why data is the most important

Cloud:

-most important aim of cloud is storage!

-space is not a problem in cloud

bandwidth storage memory----ec2 instance

-Cloud computing is nothing but a virtual laptop

-Watching movie on a laptop and running an application on cloud is similar

OS (important things)-- process, file, memory management, networking(protocols)

**-process** is the running instance of a program

-we use files for organizing

-files are organized with the help of file descriptor

-files are lying on the memory(RAM)

-machine learning models are also nothing but a system

aws and azure and other cloud services create the data replica

as soon as you create an instance it creates a copy of the data

Version control systems-

versions

instances

replicas

previously it was difficult and risky to collaborate together for writing a code

That's why version control systems comes into practice which allows efveryone to collaborate with their own replica

and we can always go back to the previous version

so a small error in the code wont destroy all the code

algorithm is an organized steps to solve a problem

algorithm is the best thing in computer science

p, np complete, np hard

non deterministic polynomial

travelling salesman problem is a non deterministic problem

recursion is one of the hardest oldest problems which is also solvable in 3 steps

most of the ml algorithms have maximum 6-8 steps

-any equation ALWAYS represents the pattern or generalized behaviour

-Similarly, linear regression equation always represents a line, ie data is always in linear form

-so, there is a pattern in that

-so the value of the dependent variable will change linearly with respect to independent variables