Introduction

AI Definitions

- The study of how to make programs/computers do things that people do better.
- [Machine + human]
- The study of how to make computers solve problems which require knowledge and intelligence.
- AI can cause a machine to work like a human.
- AI = Artificial - Man made

    Intelligence – Power of thinking
- AI is a set of technologies implemented *in* a system to enable it to reason, learn, and act to solve a complex problem.

Reasons of boost in AI

1) Software/device can be made to solve real time problems.

2) Creation of virtual assistant.

   ex: SIRI, CORTANA

 3) Robot development (to work in unpredictable/dangerous situations)

 4) Eliminate the man power.

Goals of AI

1) Replication of human intelligence

2) Solving problems that require knowledge

3) Building a machine that can do human intelligence task.
   ex: chess, automated car driving

 4) Intelligent communication b/w perception and action

Applications of AI

1) Gaming
2) NLP
3) Health care
4) Data security
5) Expert system
6) Computer vision
7) Speech recognition
8) Robotics
9) E-commerce

Difference b/w AI and ML

- AI and ML are not quite the same thing, they are closely connected. The simplest way to understand how AI and ML relate to each other is:

- AI is **the broader concept** of enabling a machine or system to sense, reason, act, or adapt like a human.

- ML is **an application of AI** that allows machines to extract knowledge from data and learn from it autonomously.

- The difference between machine learning and AI is to imagine them as umbrella categories. AI is the overarching term that covers a wide variety of specific approaches and algorithms. ML sits under that umbrella, but so do other major subfields, such as deep learning, robotics, expert systems, and natural language processing.

- While AI encompasses the idea of a machine that can mimic human intelligence, ML does not. ML aims to teach a machine how to perform a specific task and provide accurate results by identifying patterns.

AI is comprised of

1) Computer science
2) Biology
3) Neuron science
4) Maths
5) Psychology
6) Sociology

- Reasoning
- Learning
- Problem solving
- Language understanding

Classification of AI

1) Weak/Narrow AI

2) Strong/General AI

3) Evolutionary AI

4) Super AI

Weak/Narrow AI

- Able to perform dedicated task with intelligence.
- Cant perform beyond its task or intelligence.
- Not concerned with how tasks are performed but with performance and accuracy.
- Ex: Flying machine, SIRI, Using logic

Strong AI

- It is the study and design of machine that simulate human mind to perform intelligent task.

- It includes:

- Borrowing ideas from psychology and neuro science.

- Forgetting things

Evolutionary AI

- It is the study and design of machines that simulate simple creatures and attempt to evolve.

- Ex: Algo on ants and bees

Super AI

- It is a hypothetical concept.
- To create a machine which is better than human.

Comparison of Weak and Strong AI

Weak AI	Strong AI
Limited to perform specific tasks	Perform intelligent human level activities
Programmed for fixed function	Have the ability to learn, think and perform new activities like humans
It doesn't have any consciousness or awareness of its own.	It poses creativity, common sense and logic like humans.
They have a goal to complete a task with creative and accurate solutions.	They have a goal to solve problems at a faster pace.
Examples of weak AI include Alexa, Siri and Google Assistant.	There are no real examples of strong AI because it is a hypothetical theory. Some fictional examples are Wall-E and Big Hero 6.

AI Agent

- AI system is composed of:

1. Agent

2. Environment

AI Agent:

- It is responsible for any work output obtained from the system.
- It can perceive the information from the system and perform the action. Tasks includes like gathering info and tale decisions.
- AI agent can be a person, firm or a software.

- AI agent works like:
- Percieving the environment through sensors.
- Acting upon that environment through actuators.