Chapter 1.

AI Fundamentals

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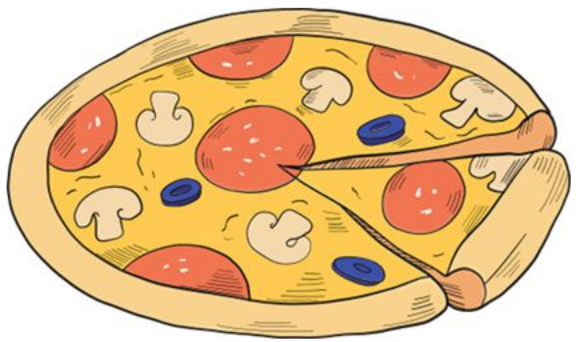
AI - Analogy

A FOODY PERSON



INPUTS

OUTPUTS

AN UNTRAINED BRAIN

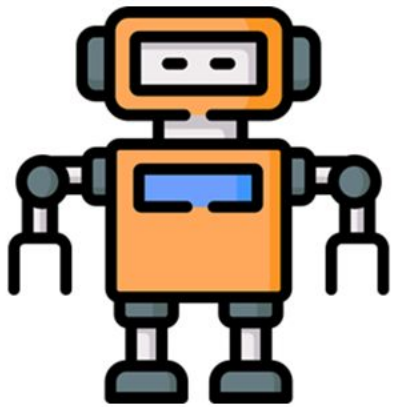
GAIN THE KNOWLEDGE WHILE GETTING INPUTS & OUTPUT

LOGIC

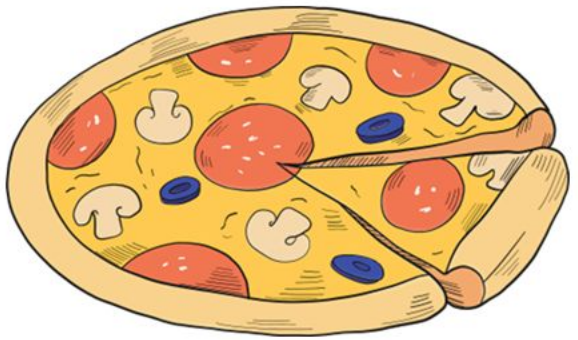
INPUTS

OUTPUT

A TRAINED BRAIN



A NAIVE MACHINE



Define Terminology

What is Artificial Intelligence?

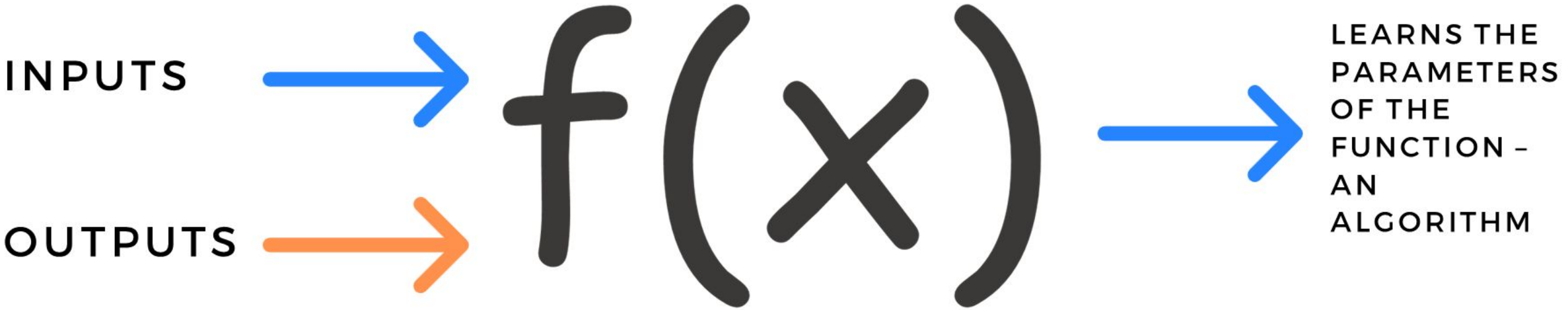
Artificial Intelligence is a branch of computer science dedicated to creating intelligent machines that work and react like a human or animal brain and simulate its intelligence.

What is Machine Learning?

Machine Learning is a subfield of artificial intelligence that involved the development of self-learning algorithms to gain knowledge from that data in order to make predictions.

ML Explained

To minimize the difference between predicted output & actual output



A CHOSEN STATISTICAL FUNCTION

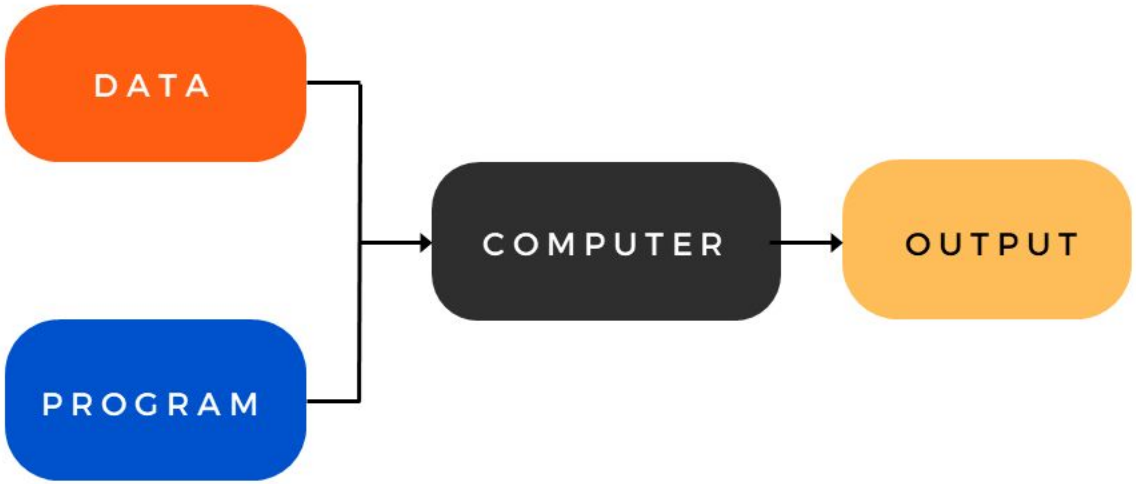
To minimize the difference between predicted output & actual output

A CHOSEN STATISTICAL FUNCTION

Traditional vs. Machine Learning

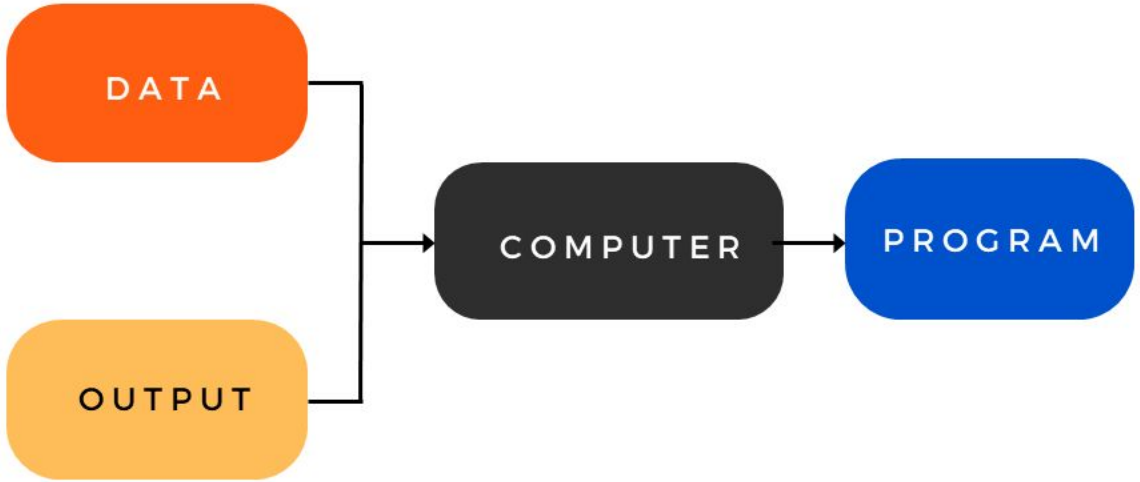
Traditional Programming

Data and program is run on the computer to produce the output.

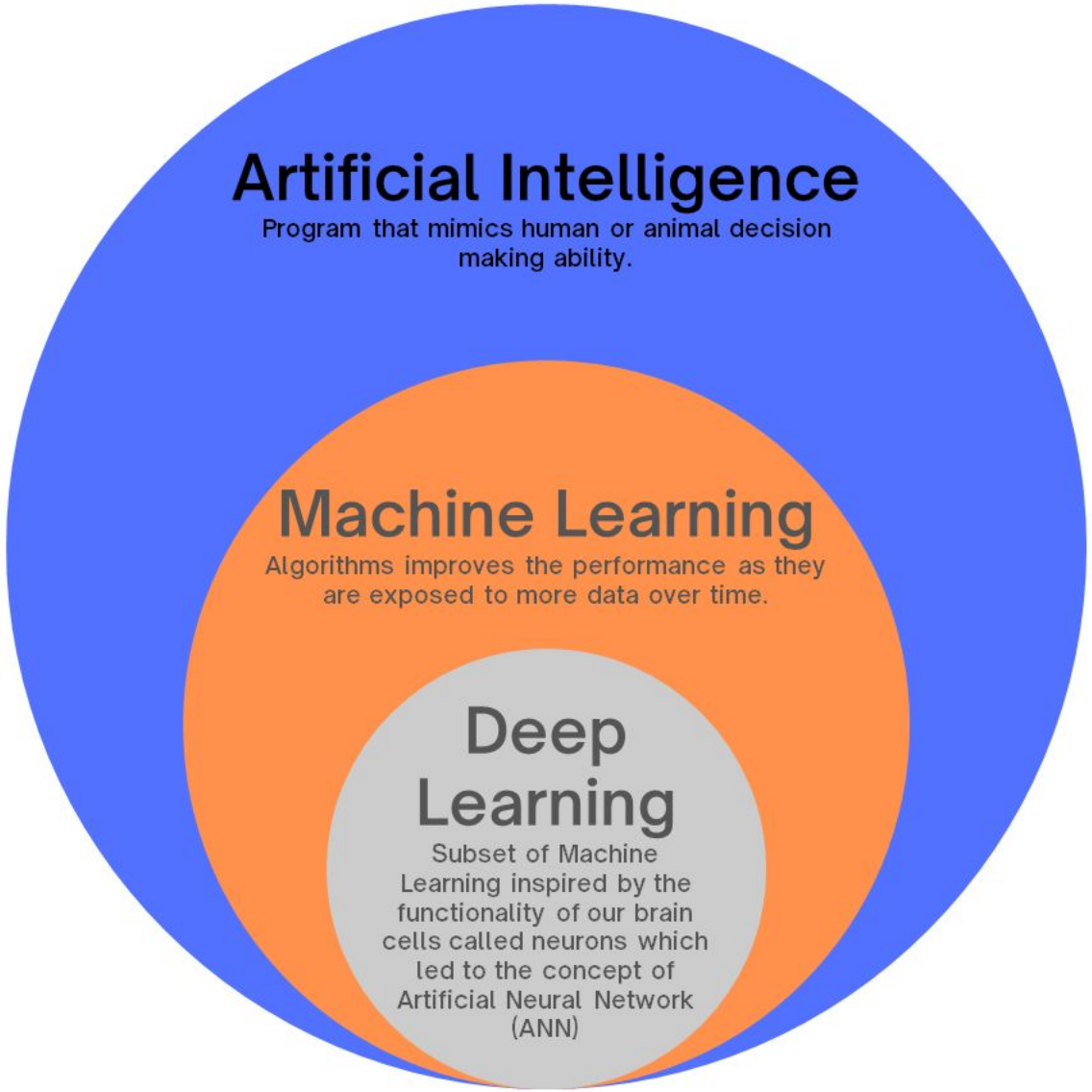


Machine Learning

Data and output is run on the computer to create a program.



AI vs. ML vs. DL



Uses Cases..

HUMANOID ROBOT

SOPHIA

Sophia — The Humanoid Robot: Sophia is a social humanoid robot developed by Hong Kong-based company Hanson Robotics. Sophia is the first humanoid robot which is being granted a ‘robot citizenship’ by Saudi Arabia.

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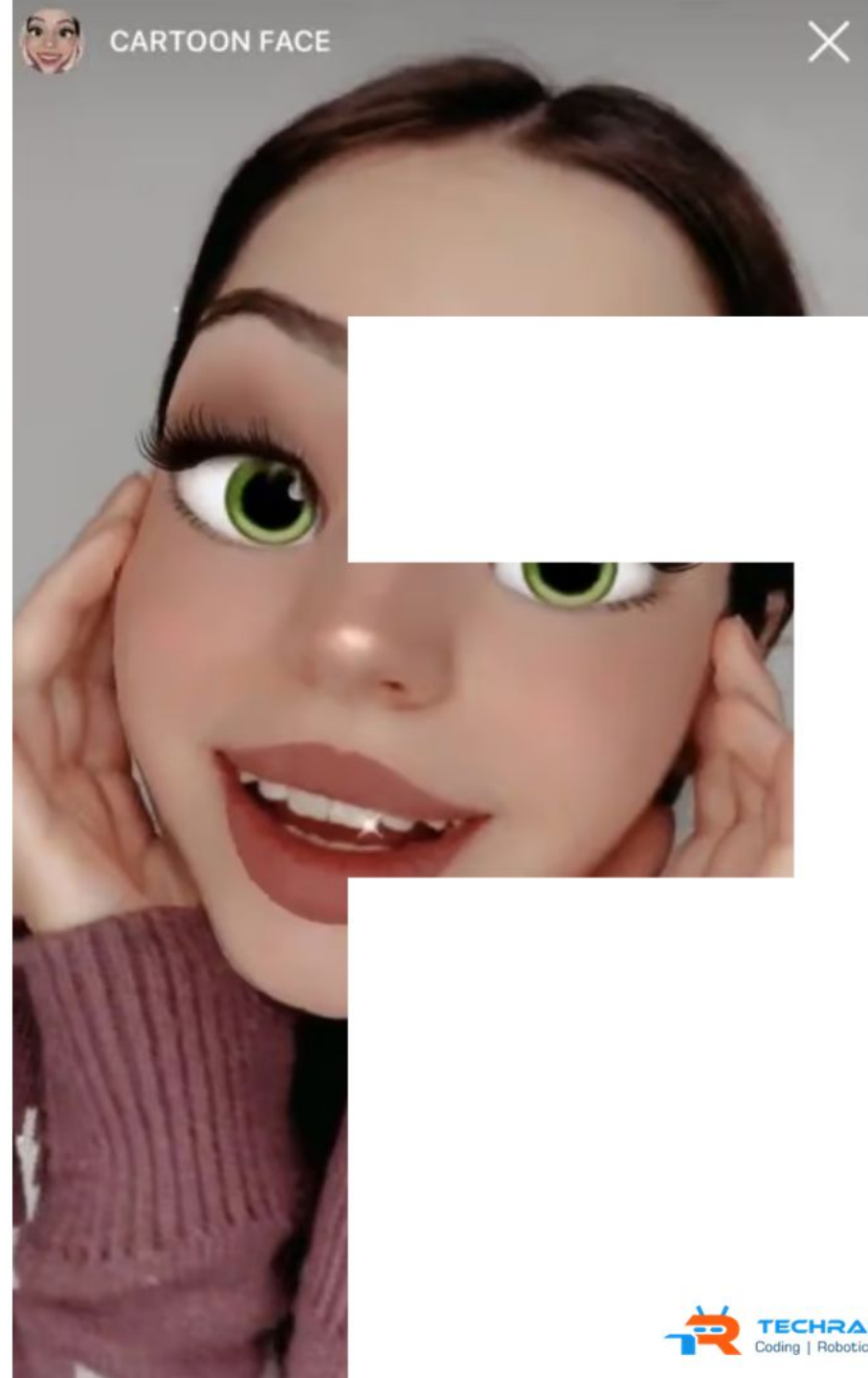
CAMERA FILTERS

SNAPCHAT/ INSTAGRAM

Snapchats filters use augmented reality and machine learning for your flower crowns selfies, cartoon filters.



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SELF DRIVING CAR

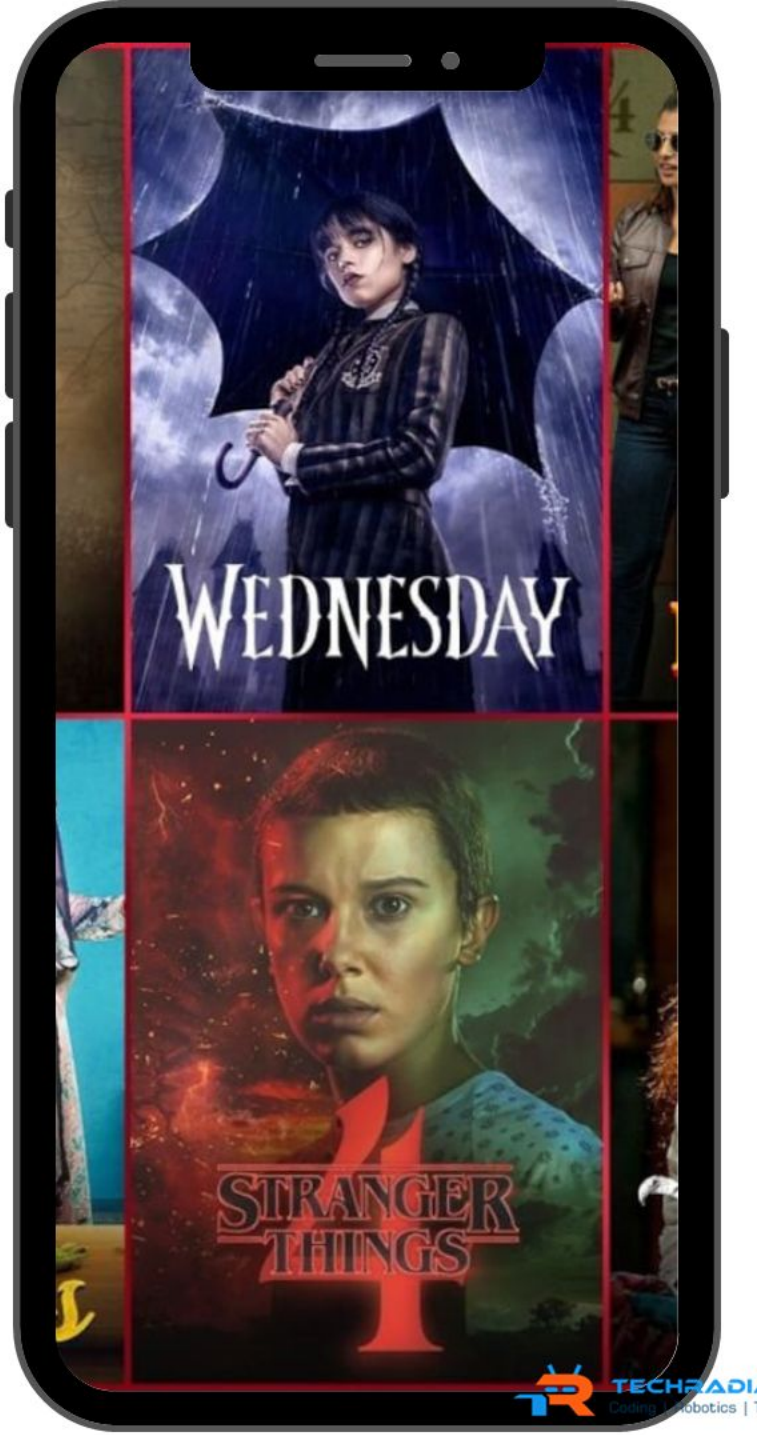
TESLA/ GOOGLE

Artificial Intelligence (AI) can be used to create a fully autonomous car's to travel between destinations without a human operator.

OTT PLATFORMS

NETFLIX

Netflix — The Application that knows what you want: The Netflix recommendation system is powered by Machine Learning (ML) algorithms and that is what makes their system so good in predicting the movies that you are most likely to watch and hence show them as suggestions to you.



VOICE ASSISTANTS

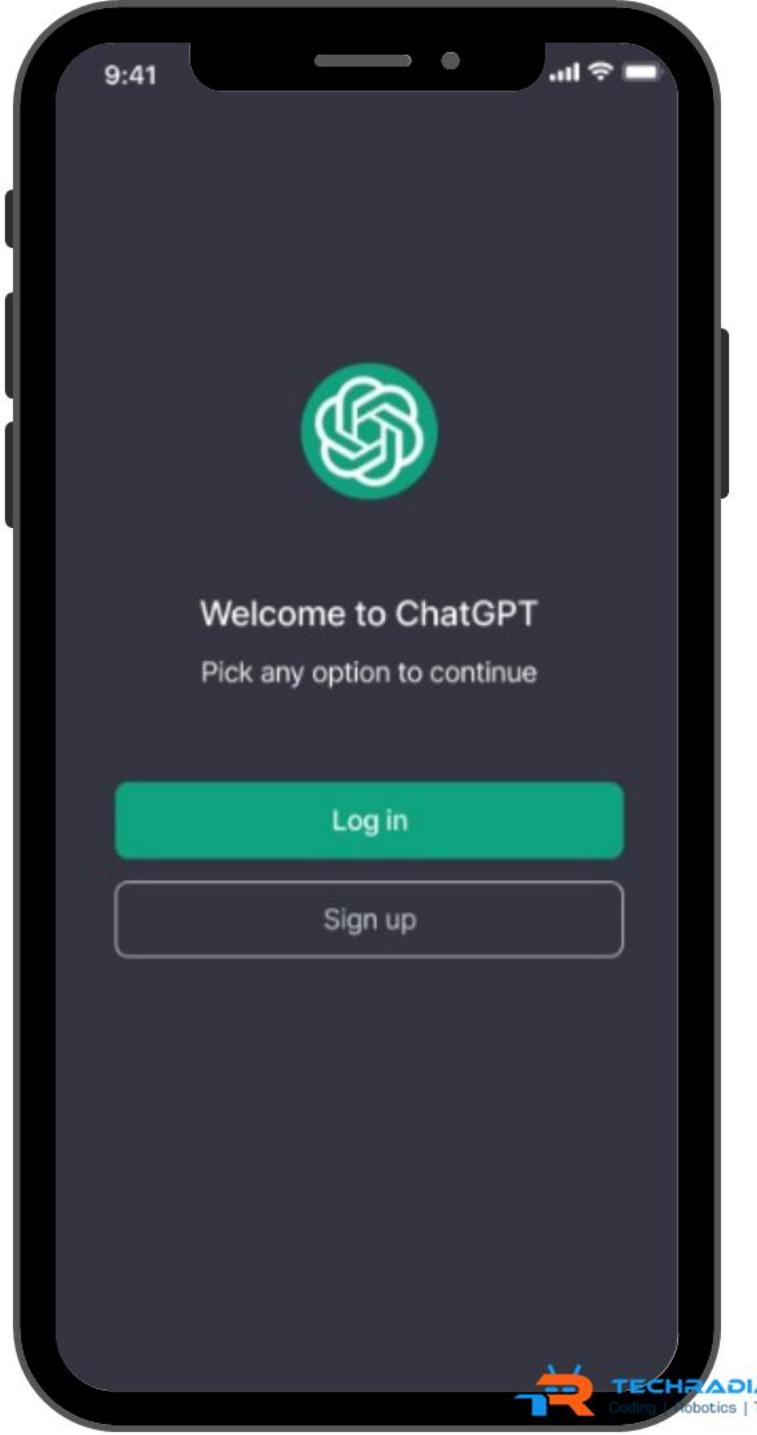
ALEXA/SIRI

Voice assistants are software agents that can interpret human speech and respond via synthesized voices. Apple's Siri, Amazon's Alexa, Microsoft's Cortana, and Google's Assistant are the most popular voice assistants and are embedded in smartphones or dedicated home speakers.

CHATBOT

CHATGPT

ChatGPT (Chat Generative Pre-trained Transformer) is a complex AI model that is able to carry out natural language generation (NLG) tasks. It allows you to have human-like conversations and much more like chatbot



Artificial Intellegence Applications

Sentiment Analysis

An approach to NLP that identifies the emotional tone behind a body of text.

Image Processing

Process of transforming an image into a digital form and performing tasks.

Healthcare

Medical imaging and diagnostics, Wearables, Risk analytics.

Artificial Intellegence Applications

Banking

Fraud detections, Credit Scoring and Risk management, Target marketing

Customer Service

Tourisms and travel, customer segmentation, Ratings & reviews predictions

Recommendation

Product recommendation in e-commerce, Food & Restaurant, News & Social media content

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Knowledge Check

1. Artificial Intelligence is _____

A. Intelligence displayed by machines that simulate human and animal Intelligence

B. Defined as field of computer science aiming to develop intelligent machines having decision making ability.

C. A field that aims to make humans more intelligent

D. Defined as field that aims to improve the security.

1. Artificial Intelligence is _____

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The correct answer is **A, C.**

Intelligence displayed by machines that simulate human and animal Intelligence

Defined as field of computer science aiming to develop intelligent machines having decision making ability.

2. Machine Learning is _____

A. An autonomous acquisition of knowledge through the use of algorithms

B. An autonomous acquisition of knowledge through the use manual programs.

C. A selective acquisition of knowledge through the use of computer programs.

D. A selective acquisition of knowledge through the use of manuual programs.

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The correct answer is **A.**

An autonomous acquisition of knowledge through the use of algorithms

3. What is difference between traditional programming and machine learning?

A. Traditional programming is based on permutations and combinations, whereas machine learning uses traditional analytics

B. Traditional programming considers output of the program to generate code, whereas machine learning uses data and program to generate output.

C. Traditional programming uses software programs, whereas machine learning uses hardware solutions.

D. Traditional programming uses hard-coded rules to make decisions, where as machine learning learns from data.

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The correct answer is **D.**

Traditional programming uses hard-coded rules to make decisions, where as machine learning learns from data.

Happy Learning