M.sc(Cs)-1 Sem-1 2021-2022

# Machine Learning.

*By:*

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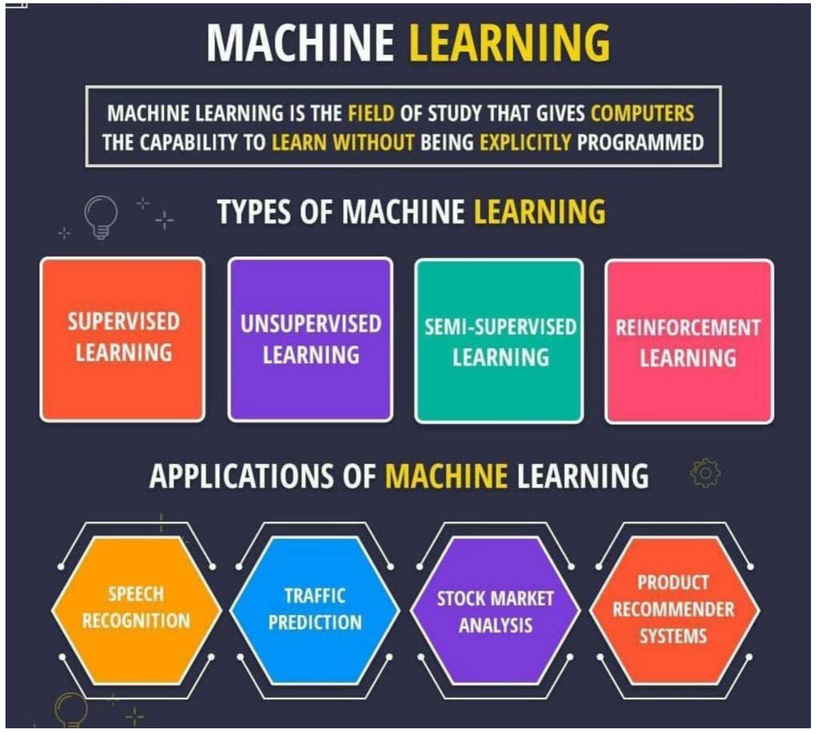
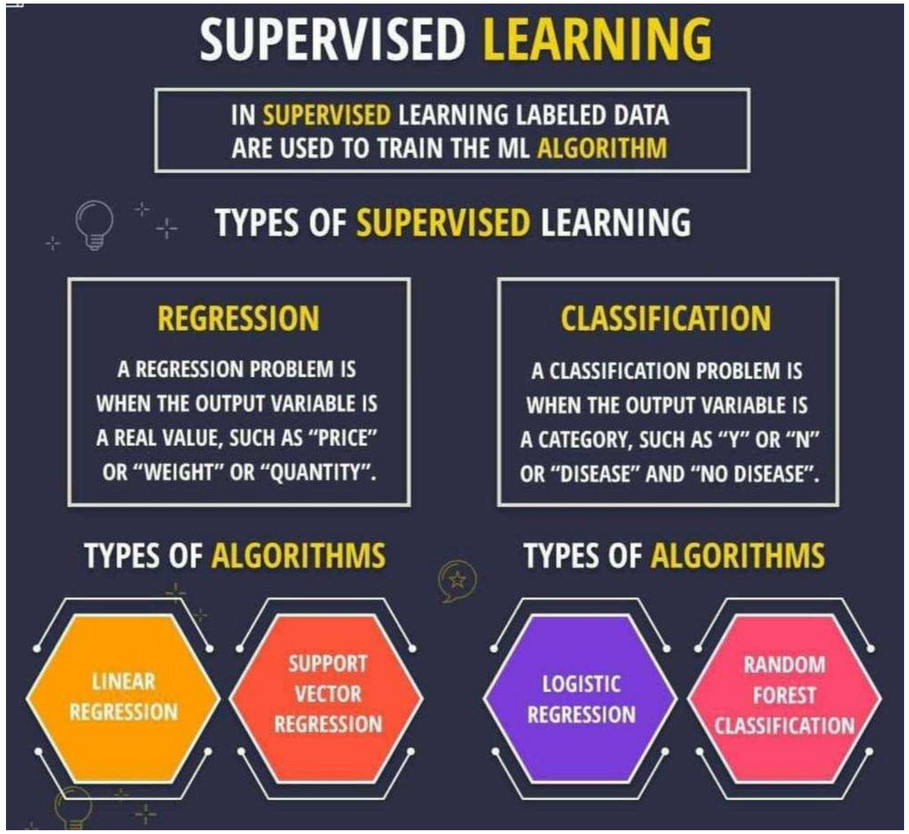


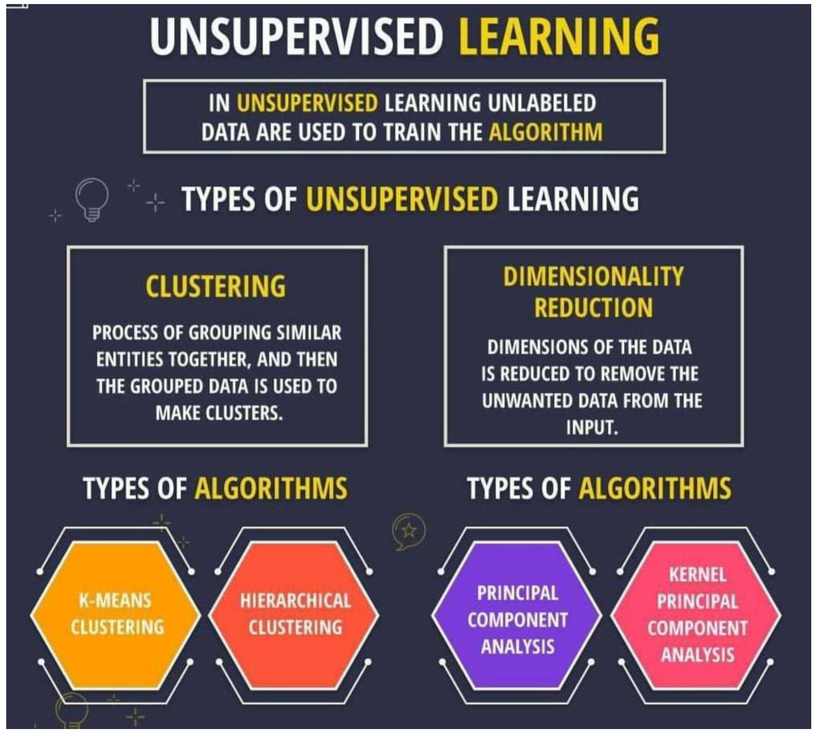

# What is Machine Learning?

the use and development of computer systems that are able to learn and adapt without following explicit instructions, by using algorithms and statistical models to analyse and draw inferences from patterns in data..

# what is Supervised Learning?

It is called supervised learning because the process of an algorithm learning from the training dataset can be thought of as a teacher supervising the learning process. We know the correct answers, the algorithm iteratively makes predictions on the training data and is corrected by the teacher. Learning stops when the algorithm achieves an acceptable level of performance.






# What is Unsupervised Learning?

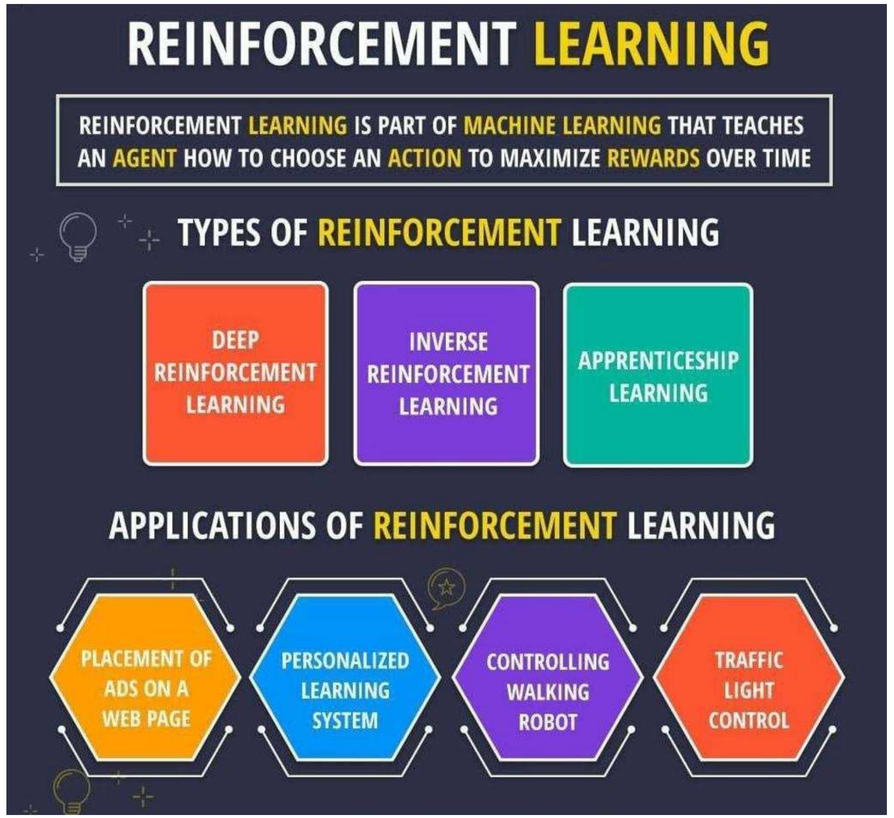
Unsupervised learning is where you only have input data (X) and no corresponding output variables.

The goal for unsupervised learning is to model the underlying structure or distribution in the data in order to learn more about the data.

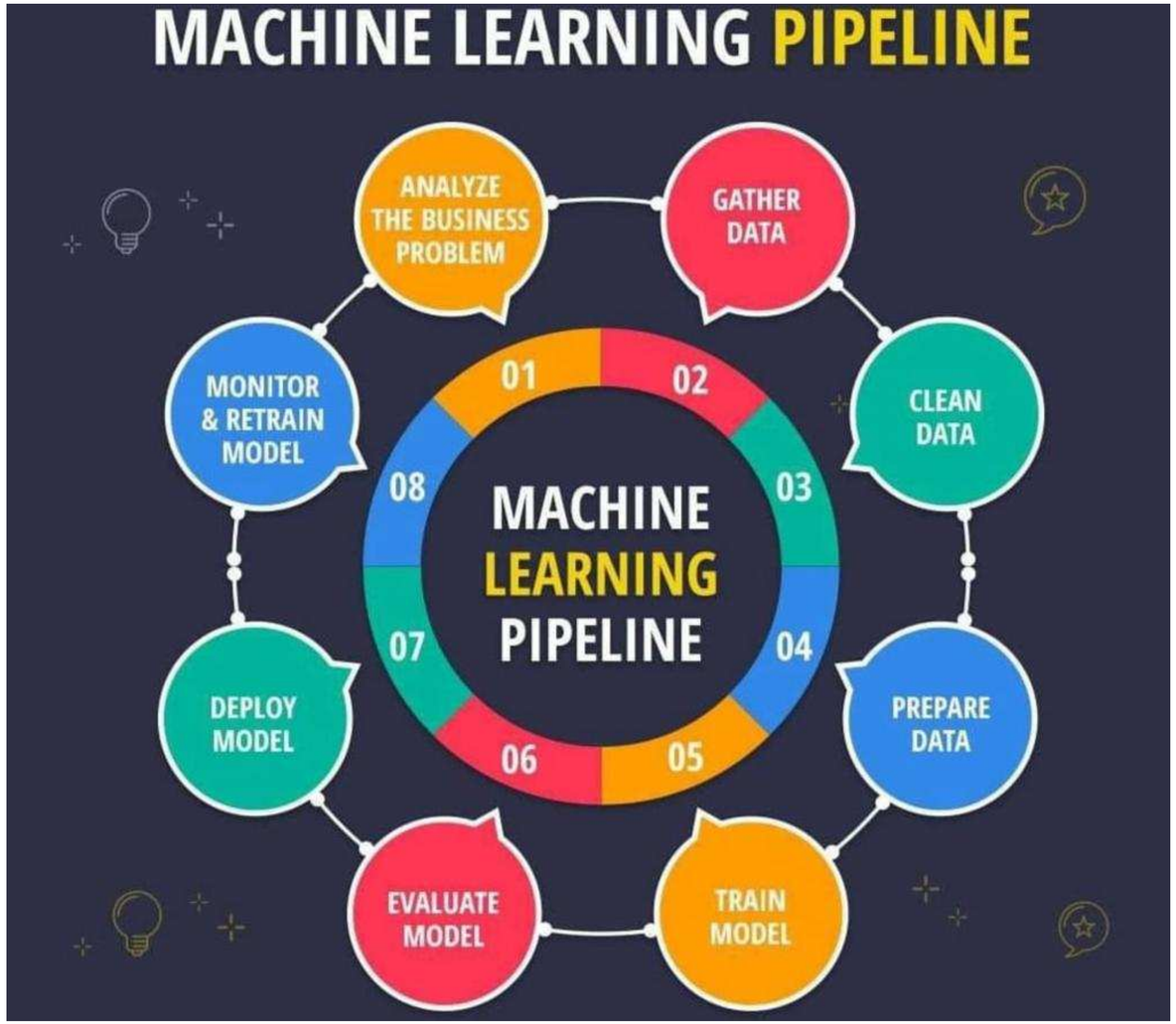
These are called unsupervised learning because unlike supervised learning above there is no correct answers and there is no teacher. Algorithms are left to their own devises to discover and present the interesting structure in the data.

# What is Reinforcement Learning?

Reinforcement machine learning algorithms is a learning method that interacts with its environment by producing actions and discovers errors or rewards. Trial and error search and delayed reward are the most relevant characteristics of reinforcement learning. This method allows machines and software agents to automatically determine the ideal behavior within a specific context in order to maximize its performance. Simple reward feedback is required for the agent to learn which action is best; this is known as the reinforcement signal.

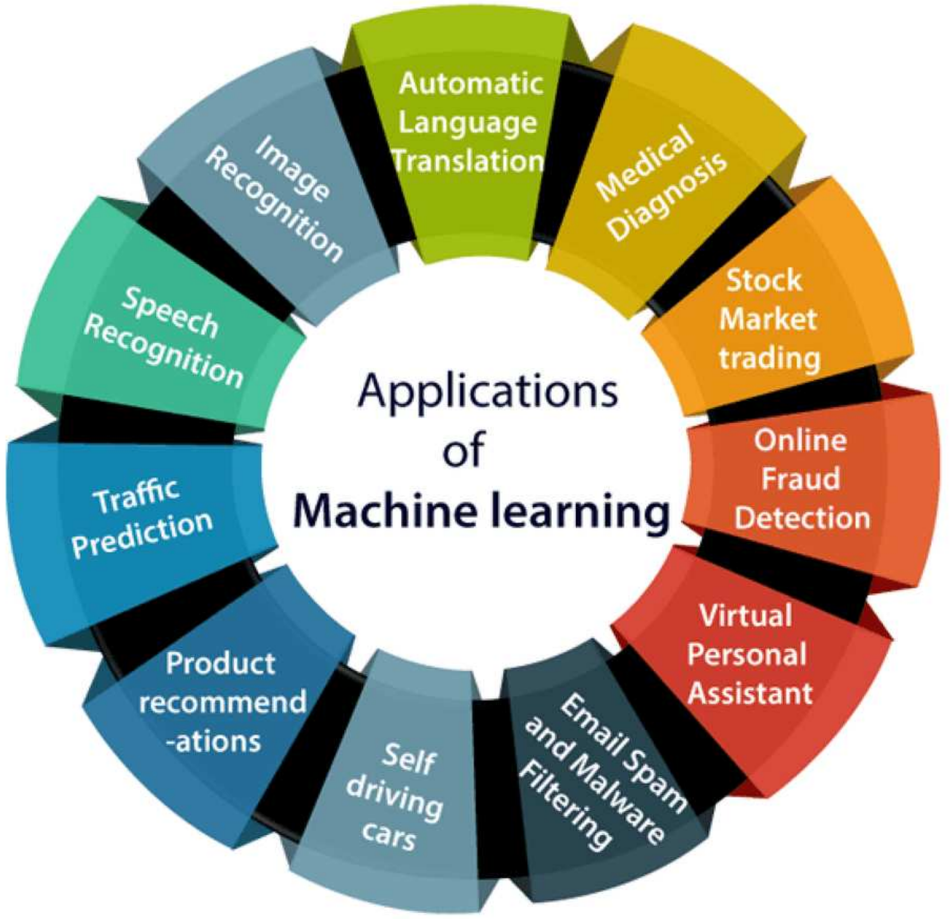


# Machine Learning Pipeline.



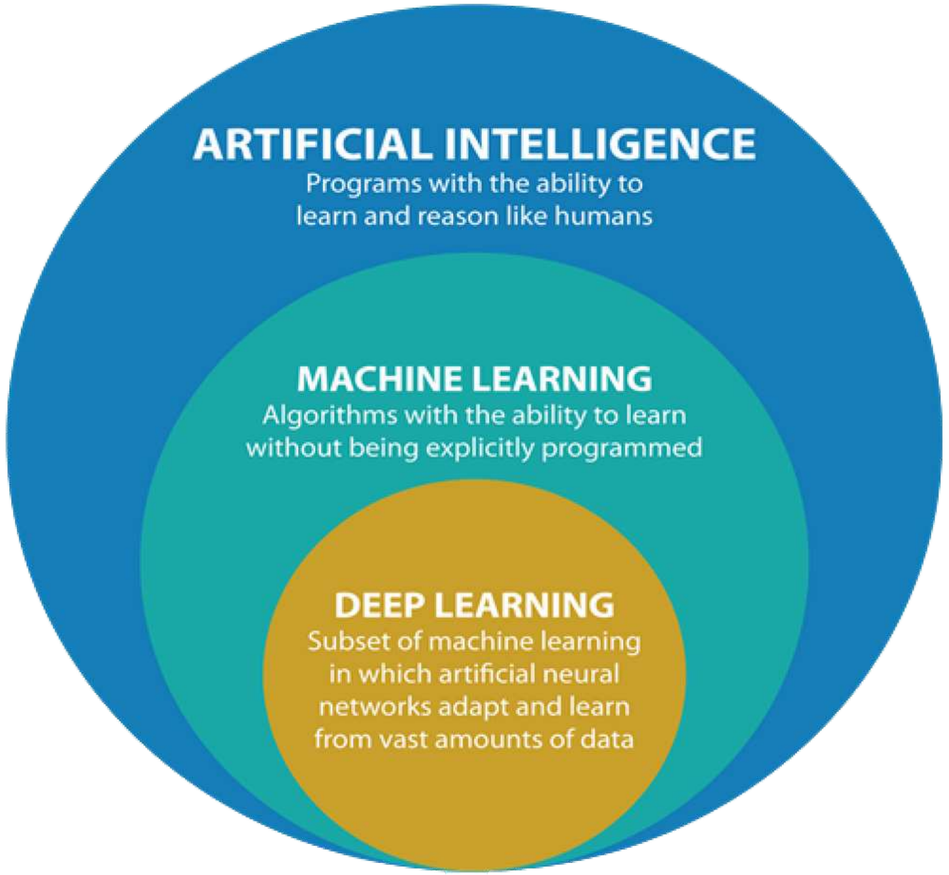
# Machine Learning Applications.

Applications for machine learning extend far beyond games. In fact, IBM used Watson to tackle other projects: assisting in the treatment of lung cancer patients at New York's Memorial Sloan-Kettering Cancer Center; conversing with kids via smart toys; teaming up with education company Pearson to tutor college students; even helping H&R Block customers file their taxes.

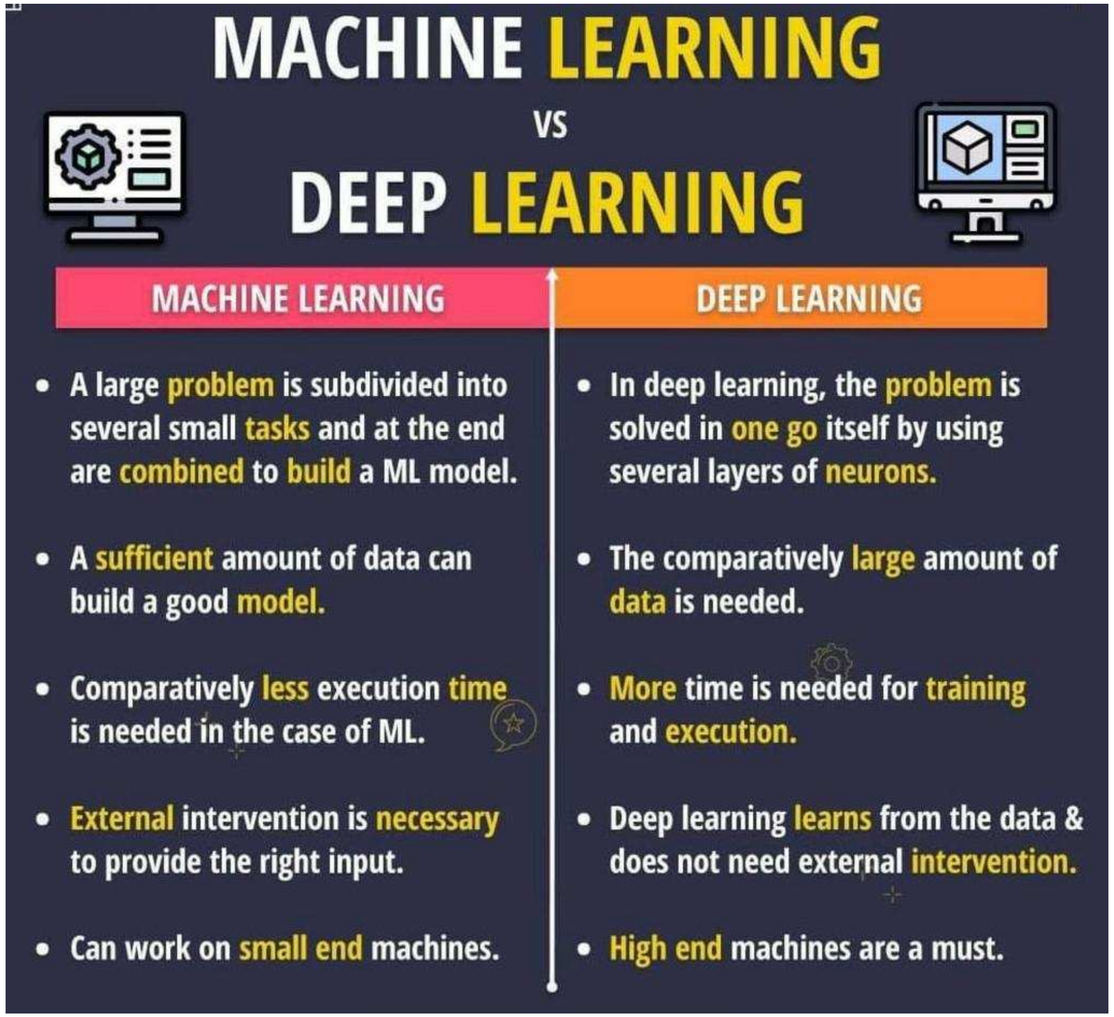


# What is Deep Learning?

Deep learning is a machine learning technique that teaches computers to do what comes naturally to humans: learn by example. Deep learning is a key technology behind driverless cars, enabling them to recognize a stop sign, or to distinguish a pedestrian from a lamppost. It is the key to voice control in consumer devices like phones, tablets, TVs, and hands-free speakers. Deep learning is getting lots of attention lately and for good reason. It's achieving results that were not possible before.

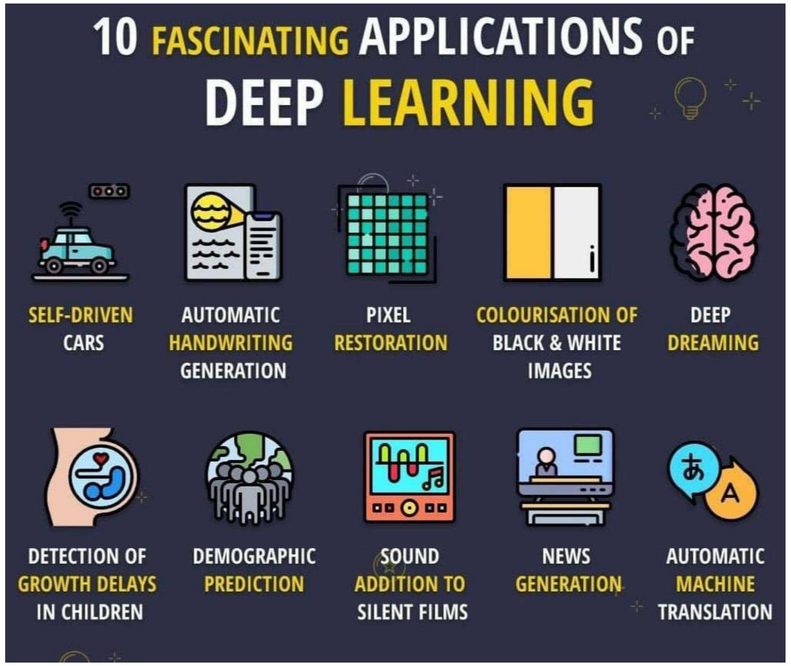


# Difference between Machine Learning and Deep Learning.



# Deep Learning Applications.

A few years ago, we would've never imagined deep learning applications to bring us self-driving cars and virtual assistants like Alexa, Siri, and Google Assistant. But today, these creations are part of our everyday life. Deep Learning continues to fascinate us with its endless possibilities such as fraud detection and pixel restoration.

# Thank You.