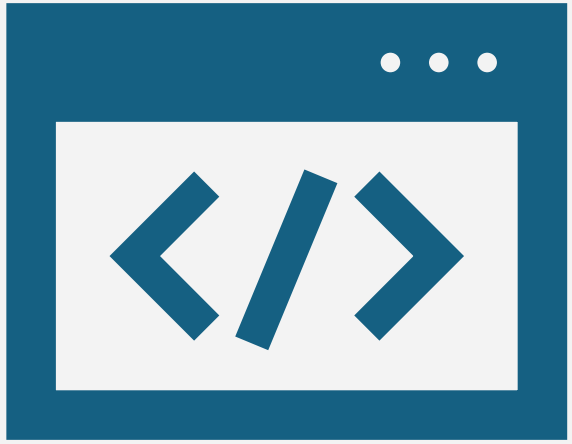
Machine learning

By Yenuka Herath



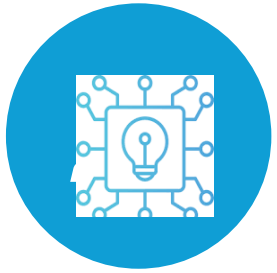
What is Machine learning and how is programming used in this field?

Traditional computer programming is a manual process. A programmer creates the program, but without anyone programming the logic, one must develop or program the rules manually. However, in machine learning algorithms automatically develop or program the rules from the data that is collected. Machine learning is an automated process.

Types of Machine Learning

SUPERVISED LEARNING

UNSUPERVISED LEARNING

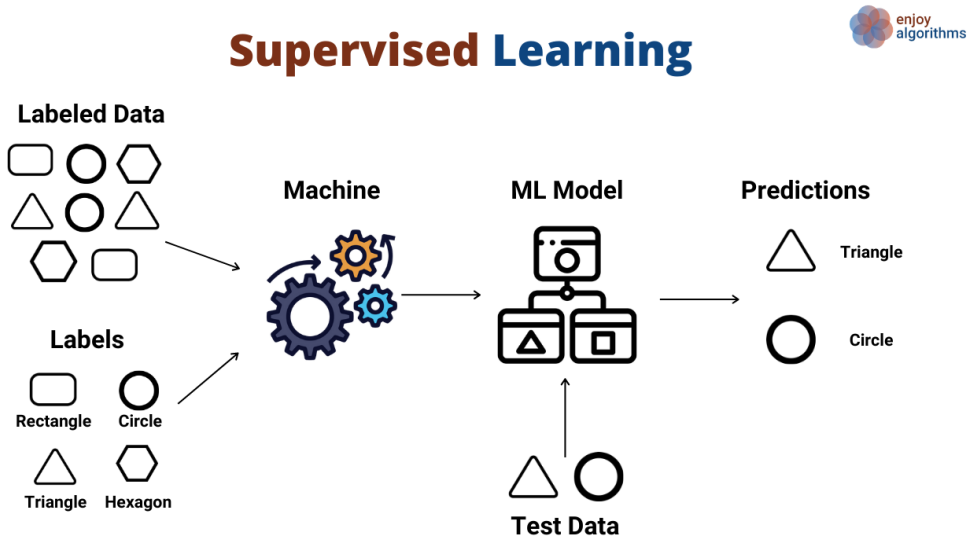


REINFORCEMENT LEARNING

SEMI SUPERVISED LEARNING

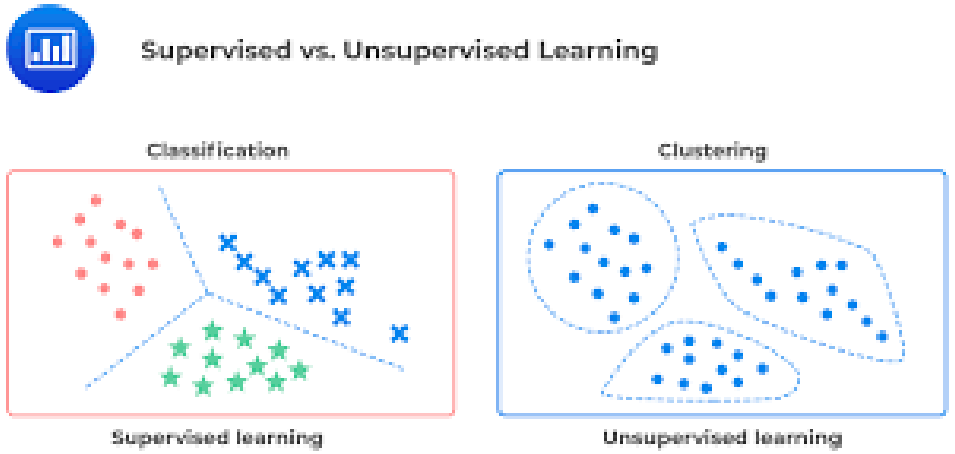
Supervised Learning

Supervised machine learning is where the model is trained on a database. Supervised learning is used for task such as risk assessment, image recognition and fraud detection.



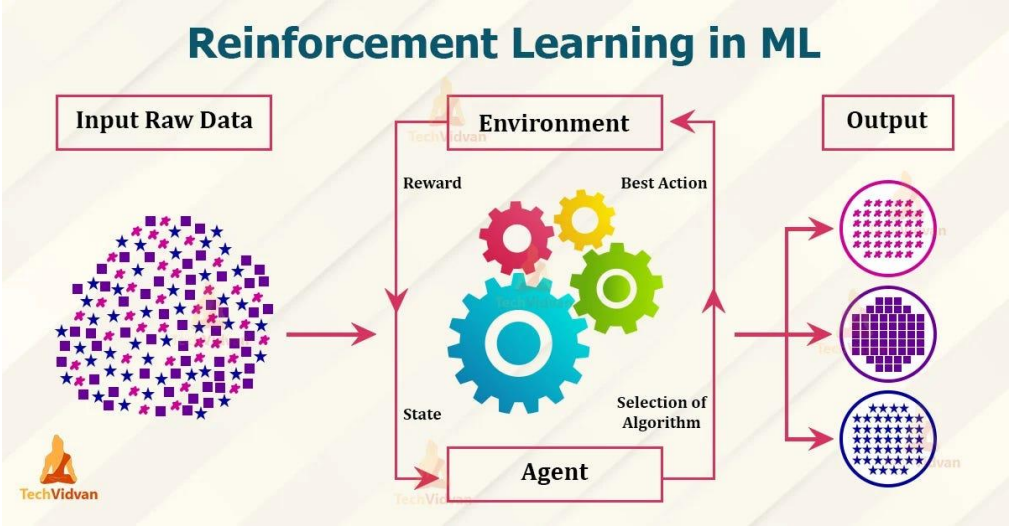
Unsupervised Learning

Unsupervised learning uses machine learning algorithms to analyze and cluster unlabeled data sets. These algorithms discover hidden patterns without human intervention.



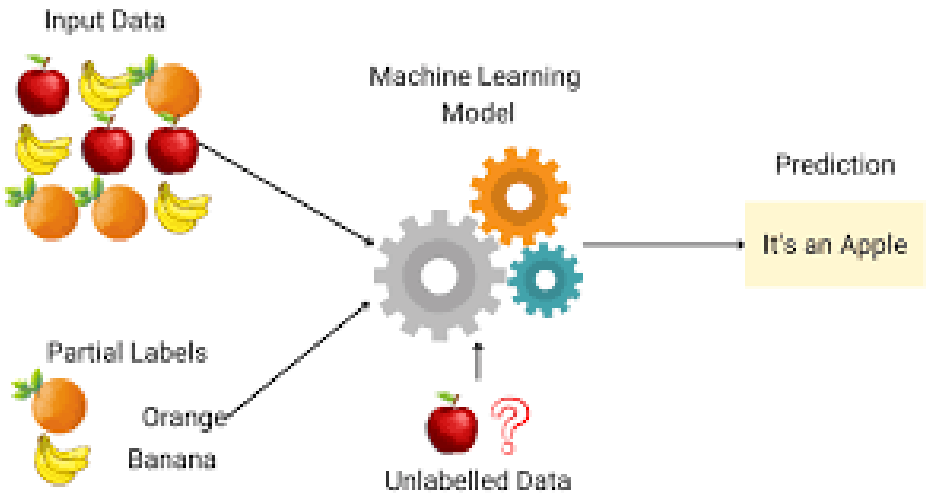
Reinforcement Learning

Reinforcement learning is a type of programming that trains the algorithms using a system of reward and punishment.



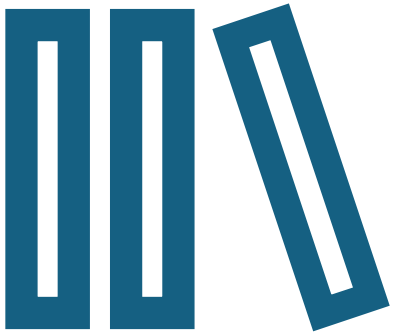
Semi supervised Learning

Semi supervised learning are algorithms that train themselves on unlabeled data. These algorithms learns one part of the input from another part, automatically generating labels and transforming unsupervised problems into supervised ones.



Programming languages used in Machine learning

- Python Libraries and frameworks : Keras , PyTorch , Pandas, NumPy and Matplotlib
- R Libraries: caret , randomForest , nnet and xgboost
- Java Libraries: Weka, DeepLearning4j and MOA
- C++ Libraries: Delib and SHARK
- Julia Libraries: Spark MLlib
- JavaScript Libraries: TensorFlow.js and Brain.js

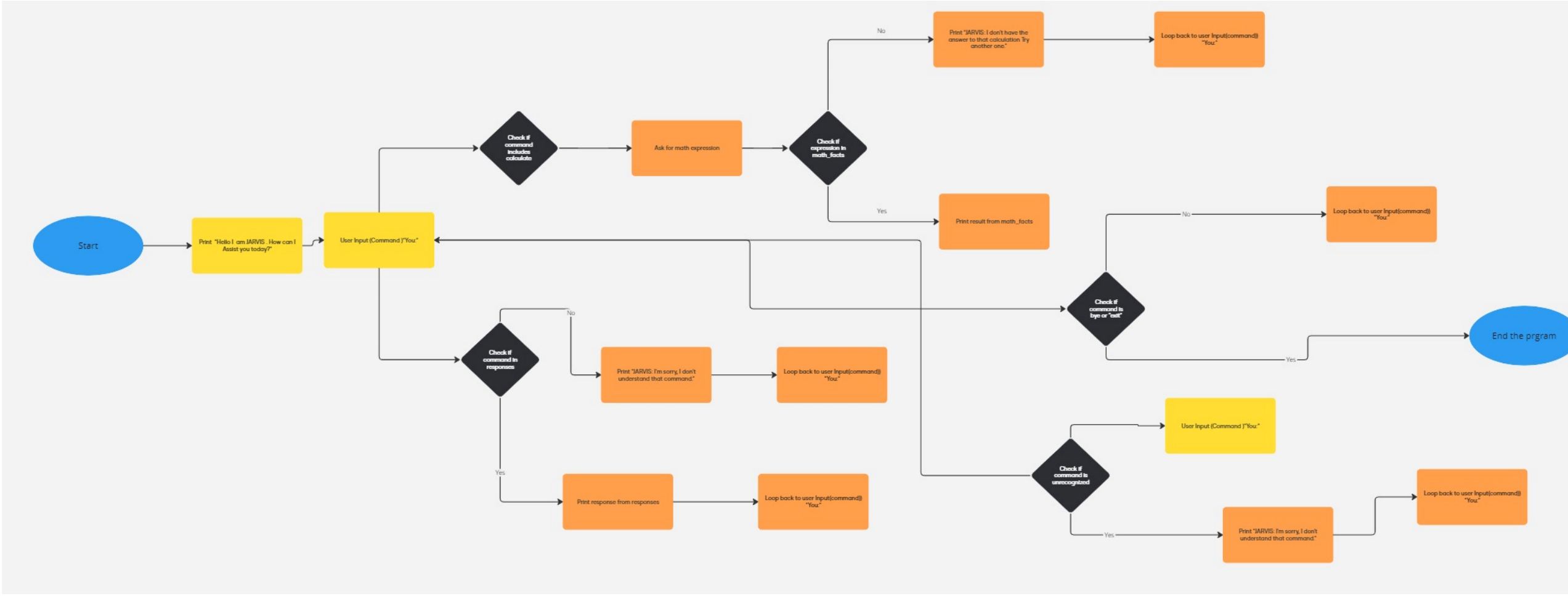


Real world problems solved by Machine learning

- Speech recognition
- Customer service
- Computer vision
- Recommendation engines
- Face recognitions
- Fraud detecting
- Automated stock trading
- Health care advancement
- Email automation and spam filtering

Flowchart

https://miro.com/welcomeonboard/UEJxemxVVWl3UXZYdm96djZDcXZVdDNZWTNWa291QzJTdmt2N3hXOXN2WDB6YXgwYlc1VDlXWVRLTzlQVjdNMnwzMDc0NDU3MzY0NjkwOTY5NzQ2fDI=?share_link_id=169118586311



Sources

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