# INTERVIEW QUESTIONS PART 1

## TYPES OF MAHCINE LEARNING

1. SUPERVISED LEARNING
2. UNSUPERVISED LEARNING
3. REINFORCEMENT LEARNING
4. TRANSFER LEARNING
5. MULTI TASK LEARNING

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## SUPERVISED LEARNING:

*(Forecasting outcome of new data)*

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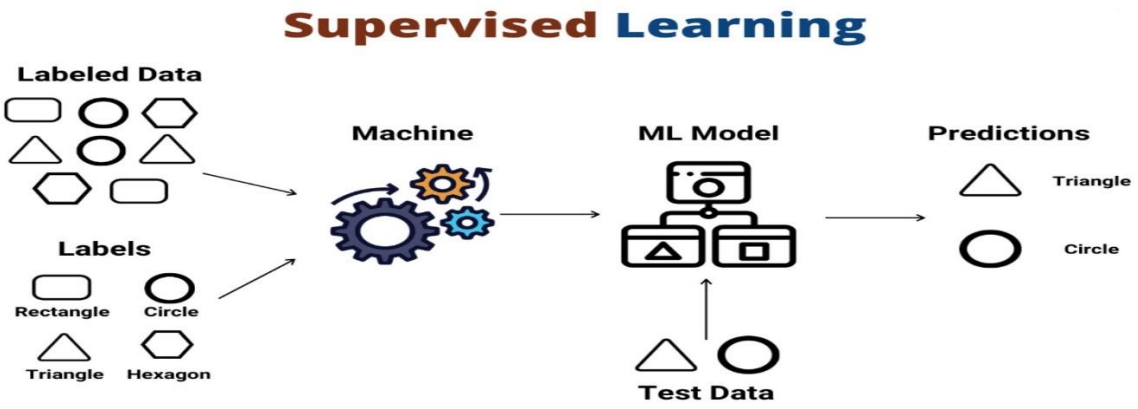
Supervised Learning Model is trained using data which is already tagged with the correct answer.

(Or)

In a Supervised Learning Model, the algorithm learns on a labeled dataset, to generate reasonable predictions for the response to new data. (Forecasting outcome of new data).




- We have supervised learning for:
  - ❖ Regression
  - ❖ Classification

## Supervised learning Algorithms:

- ➢ Linear Regression
- ➢ Logistic Regression
- ➢ Support Vector Machine
- ➢ K Nearest Neighbor
- ➢ Decision Tree
- ➢ Random Forest
- ➢ Naive Bayes

## Supervised learning applications:

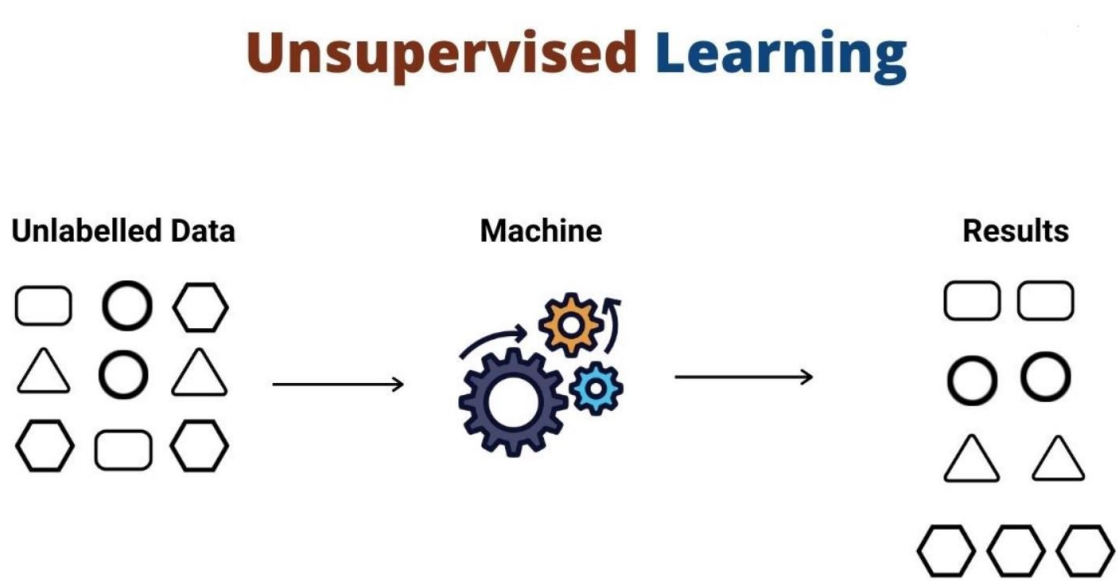
- ❑ Used for solving classification and regression problems
- ❑ Few of the top supervised learning applications are weather predictions, sales forecasting, and stock price analysis.

# UNSUPERVISED LEARNING

Unsupervised learning model is trained using data that is neither classified nor labelled and allowing the model to act on that information without guidance.

(Or)

An Unsupervised model, in contrast, provides unlabeled data that the algorithm tries to make sense of by extracting features, co-occurrence and underlying patterns on its own.




- We have unsupervised learning for:
  - ❖ Clustering
  - ❖ Anomaly Detection
  - ❖ Association
  - ❖ Auto Encoders

## Unsupervised learning Algorithms:

- K Means Clustering
- Hierarchical Clustering
- DBSCAN
- Principal component Analysis

## Unsupervised learning applications:

- Used for solving Clustering and association Problems
- Customer Segmentation and churn rate analysis.

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# Reinforcement Learning

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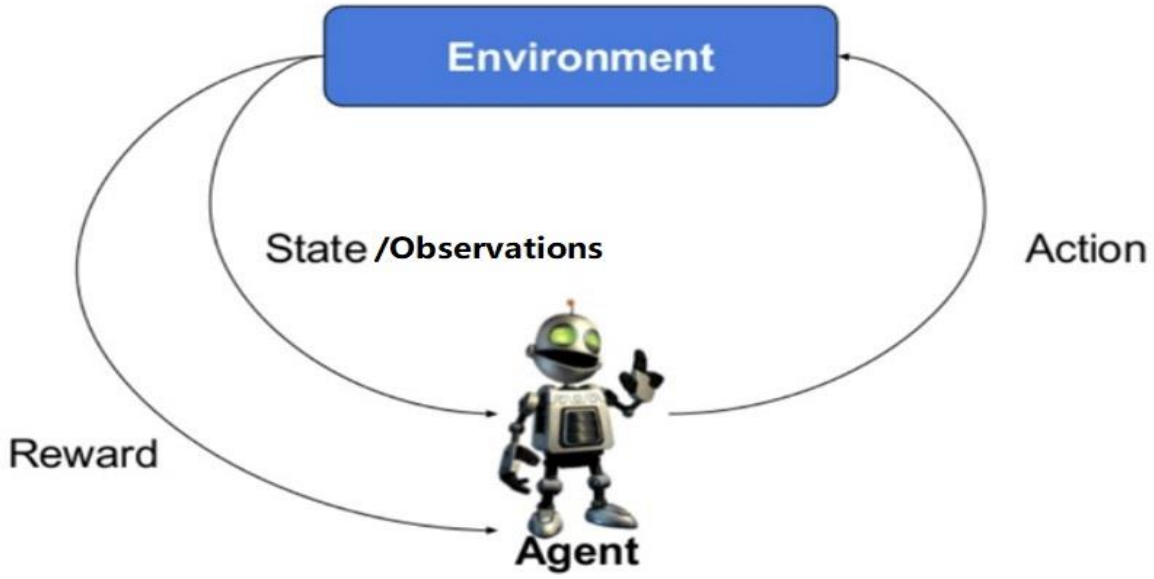
It enables an agent to learn in an interactive environment by trial and error using feedback from its own actions and experiences.

(Or)

Reinforcement Learning is less supervised and depends on the learning agent in determining the output solutions by arriving at different possible ways to achieve the best possible solution.




## Reinforcement learning Algorithms:

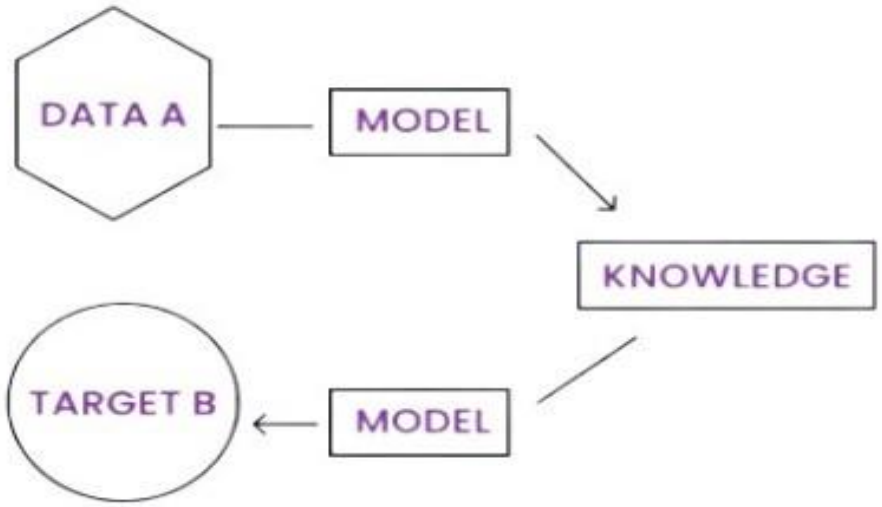
- Q-learning
- Sarsa
- Monte carlo
- Deep Q network

## Reinforcement learning Applications:

- Used in the gaming industries to build games. It is also used to train robots to do human tasks.

## Transfer learning

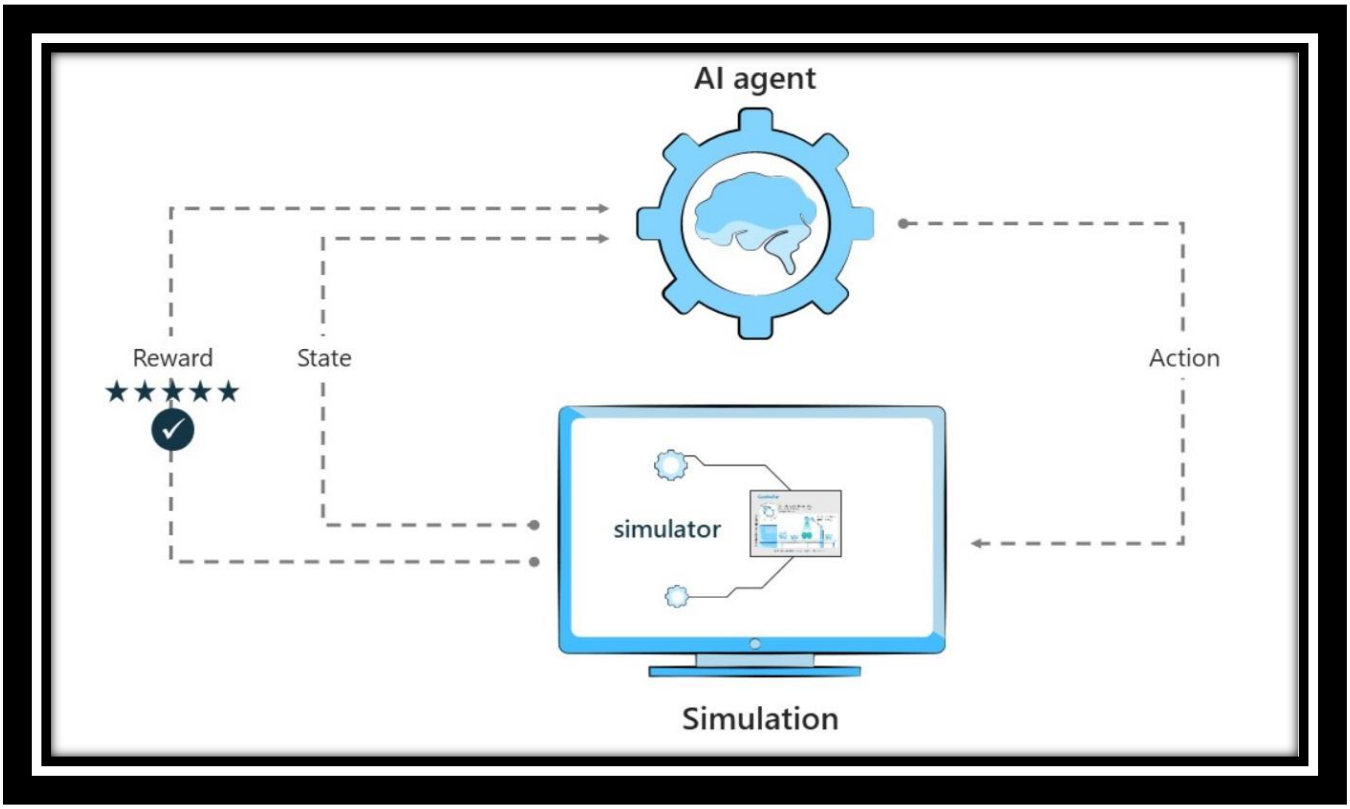
Transfer learning enables us to utilize knowledge from previous learned tasks and apply them to related ones.



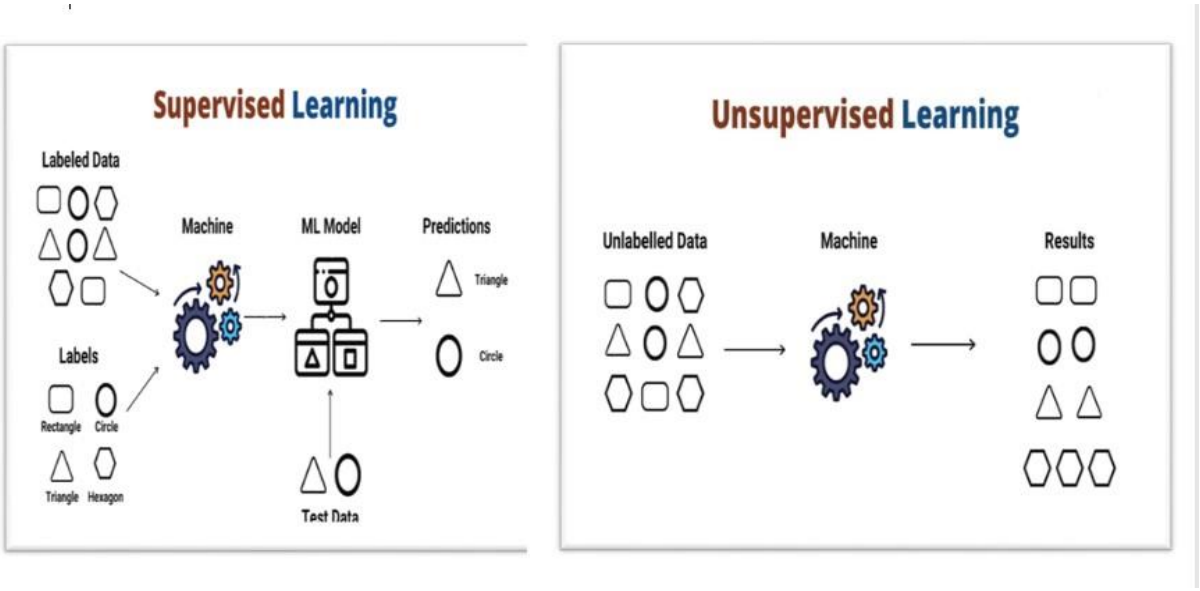

## Multi-Task learning

It is a machine learning approach in which we try to learn multiple tasks simultaneously, optimizing multiple loss functions at once.


## Reinforcement learning



# Supervised Vs Unsupervised learning




## Unsupervised Learning