**Task #22**

**Supervised Machine Learning**

Supervised learning is the types of machine learning in which machines are trained using well "labelled" training data, and on basis of that data, machines predict the output. The labelled data means some input data is already tagged with the correct output.

**Unsupervised Machine Learning**

In the above topic, we learned supervised machine learning in which models are trained using labeled data under the supervision of training data. But there may be many cases in which we do not have labeled data and need to find the hidden patterns from the given dataset. So, to solve such types of cases in machine learning, we need unsupervised learning techniques.

**Self-Supervised Learning**

Self-supervised learning is a machine learning process where the model trains itself to learn one part of the input from another part of the input. It is also known as predictive or pretext learning.

In this process, the unsupervised problem is transformed into a supervised problem by auto-generating the labels. To make use of the huge quantity of unlabeled data, it is crucial to set the right learning objectives to get supervision from the data itself.

**Reinforcement Learning**

* Reinforcement Learning is a feedback-based Machine learning technique in which an agent learns to behave in an environment by performing the actions and seeing the results of actions. For each good action, the agent gets positive feedback, and for each bad action, the agent gets negative feedback or penalty.
* In Reinforcement Learning, the agent learns automatically using feedbacks without any labeled data, unlike [supervised learning.](https://www.javatpoint.com/supervised-machine-learning)
* Since there is no labeled data, so the agent is bound to learn by its experience only.
* RL solves a specific type of problem where decision making is sequential, and the goal is long-term, such as **game-playing, robotics**, etc.
* The agent interacts with the environment and explores it by itself. The primary goal of an agent in reinforcement learning is to improve the performance by getting the maximum positive rewards.