# Machine learning

1. Supervised learning
2. Unsupervised learning
3. Reinforcement learning
4. Deep learning

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## Supervised learning

- **Regression**
  Linear regression : used to predict an numerical value that doesn't belong to a certain categorical form like predicting the price of a product based on its description ( material , marketing , shipping ,etc)

- **Classification**
  1- Logistic regression : kinda like linear regression but the range of output is categorized like predicting if a person had heart disease, the output here is either 0 or 1, 0 being no heart disease, 1 being unlucky.
  2- SVM : it classify a set of labeled data by idenfing separating hyperplane.

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## Unsupervised learning

A type of machine learning where the model is trained on unlabeled dataset aiming to identify patterns or relationships within the data.

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## Reinforcement learning

It’s a type of machine learning that focuses on learning optimal behavior in a given environment. In reinforcement learning, an agent interacts with an environment by taking actions and receiving rewards or penalties based on its actions basicly like training a dog or like school systems.

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## Deep learning

It’s a type of machine learning that focuses on learning data through neural networks with multiple layers. The key advantage of deep learning is the ability to automatically learn complex features from raw data, which can be used for tasks such as image recognition, natural language processing, and speech recognition.

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