**BACK PROPOGATION**

Backpropagation is a critical algorithm in training neural networks, enabling them to learn from data by adjusting their weights to minimize errors.

It is used to compute the **gradient** of the loss function with respect to the network's weights efficiently, and it is a key component of gradient descent optimization.

1. **Gradient descent –**

Gradient Descent is an optimization algorithm used to minimize a function, commonly the loss function in machine learning and deep learning.

It adjusts parameters (like weights in a neural network) iteratively to find the values that minimize the loss function and improve the model's predictions.

Gradient Descent updates the model's parameters by moving them in the direction of the **negative gradient** of the loss function with respect to those parameters.

The gradient indicates the slope or rate of change of the loss function.

**Negative gradient :**

The **direction of the negative gradient** points toward the steepest decrease in the value of a function. In the context of optimization, such as minimizing a loss function in machine learning, the negative gradient shows the direction in which we should move the parameters to reduce the loss most efficiently.