

# 25 AI TERMS EXPLAINED





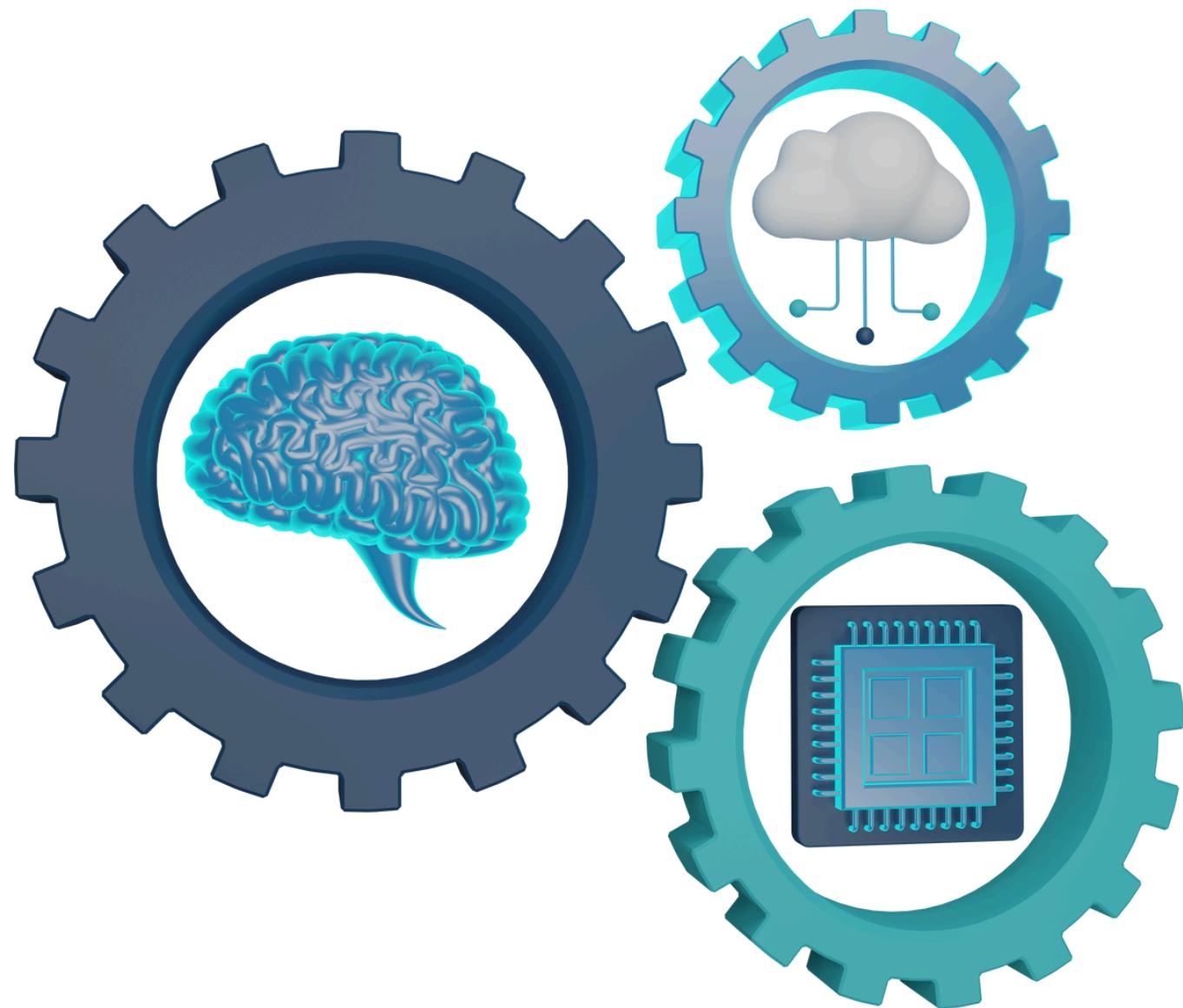
# Artificial Intelligence



**Artificial Intelligence** is the simulation of **human intelligence** in **machines**, allowing them to perform tasks like learning, reasoning, decision-making, and problem-solving autonomously.



# Machine Learning



**Machine Learning** is a **subset of AI** that focuses on teaching machines to learn from data and improve their performance over time without explicit programming.



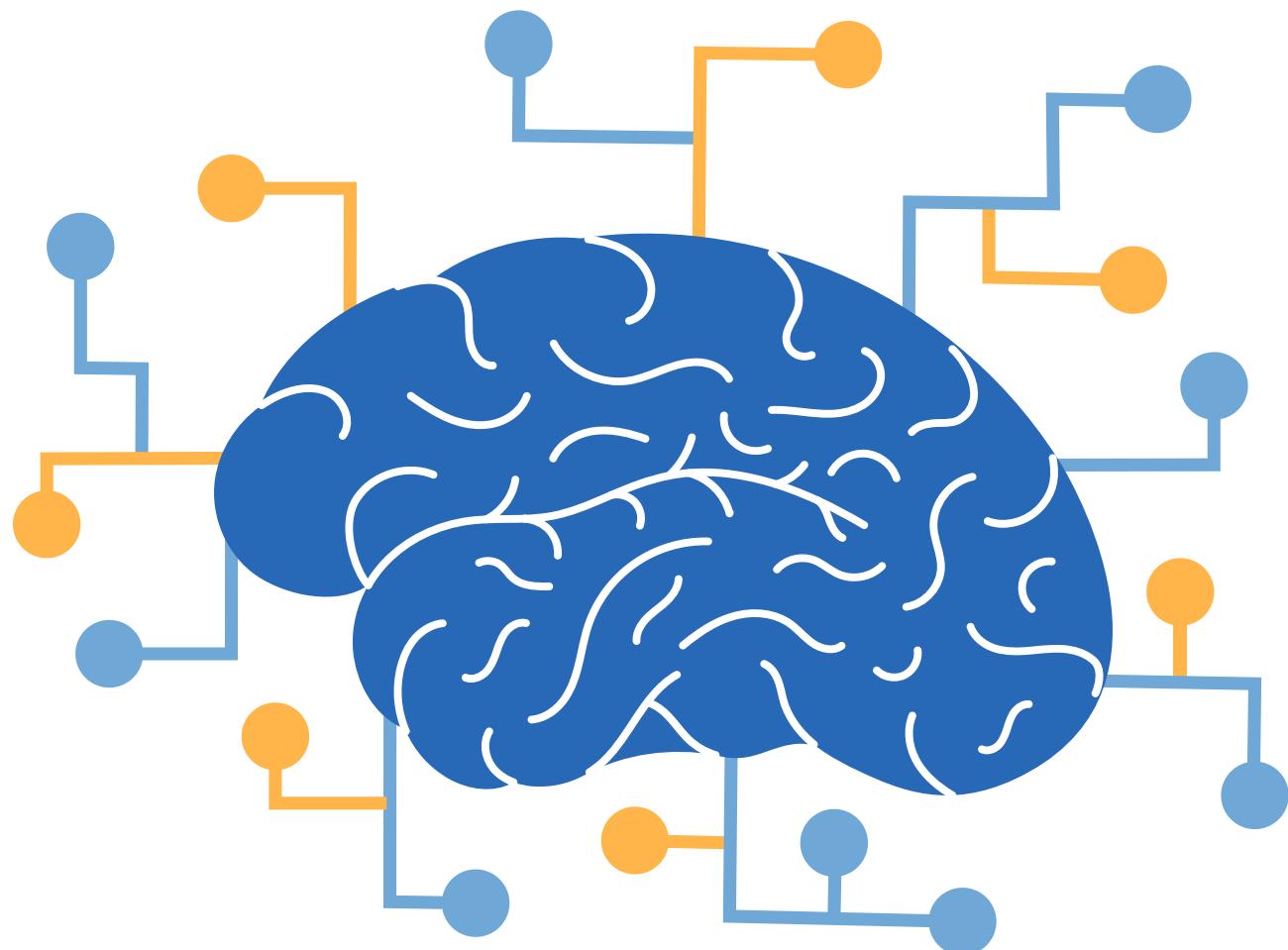
# Deep Learning



**Deep Learning** is a type of machine learning that uses neural networks with many layers (deep networks) to analyze complex patterns in large datasets.



# Neural Network



**Neural Network:** A series of algorithms that mimic the human brain's structure and function, used to recognize patterns and solve complex problems in data.



# Natural Language Processing (NLP)



**Natural Language Processing (NLP)** is a field of AI that enables machines to understand, interpret, and generate human language, facilitating human-computer interactions.

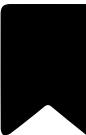


# Computer Vision



**Computer Vision:** A field of AI that trains machines to interpret and understand visual information from the world, such as images and videos.

Swipe →



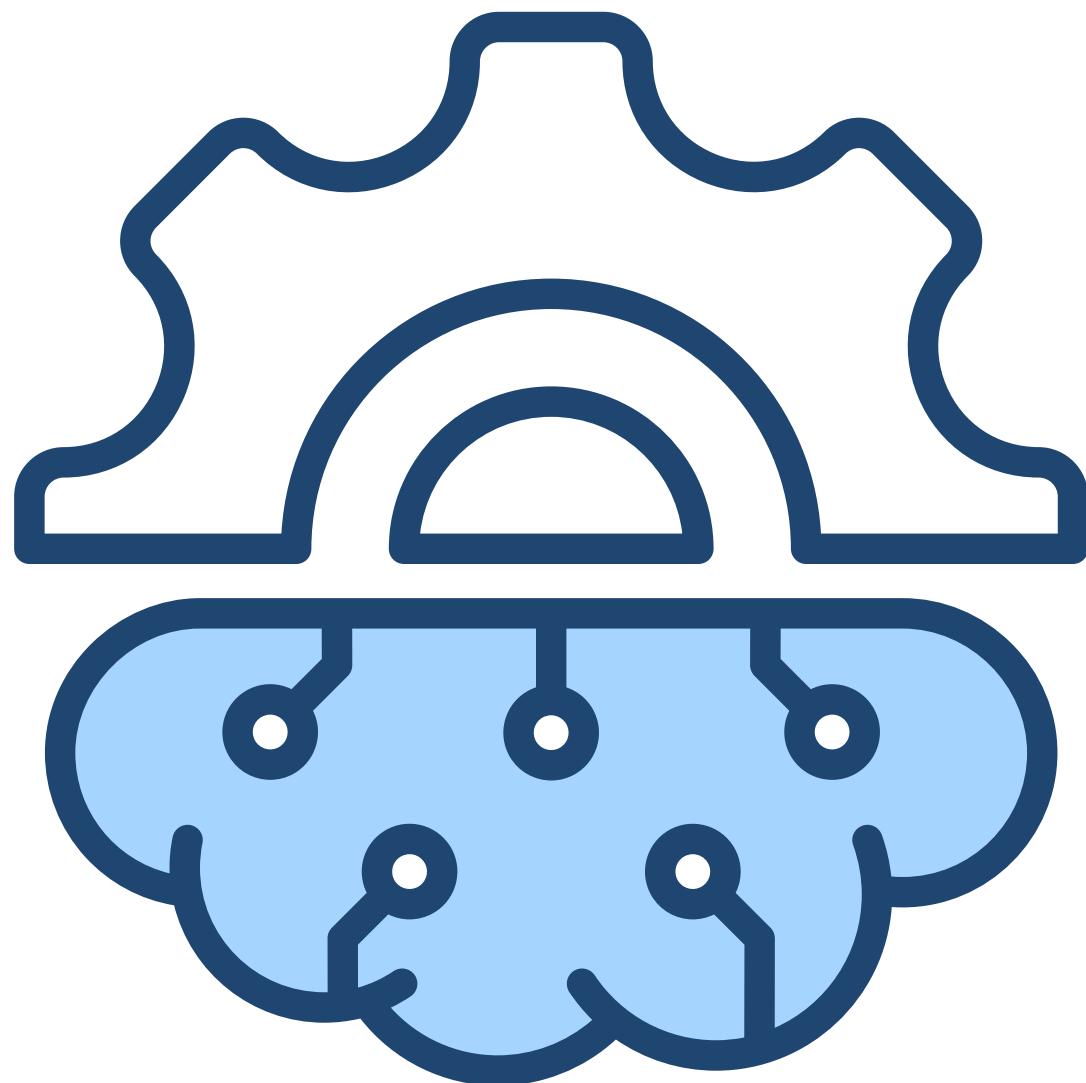
# Supervised Learning



**Supervised Learning** is a type of machine learning where the model is trained on labeled data, meaning the input data is paired with the correct output.



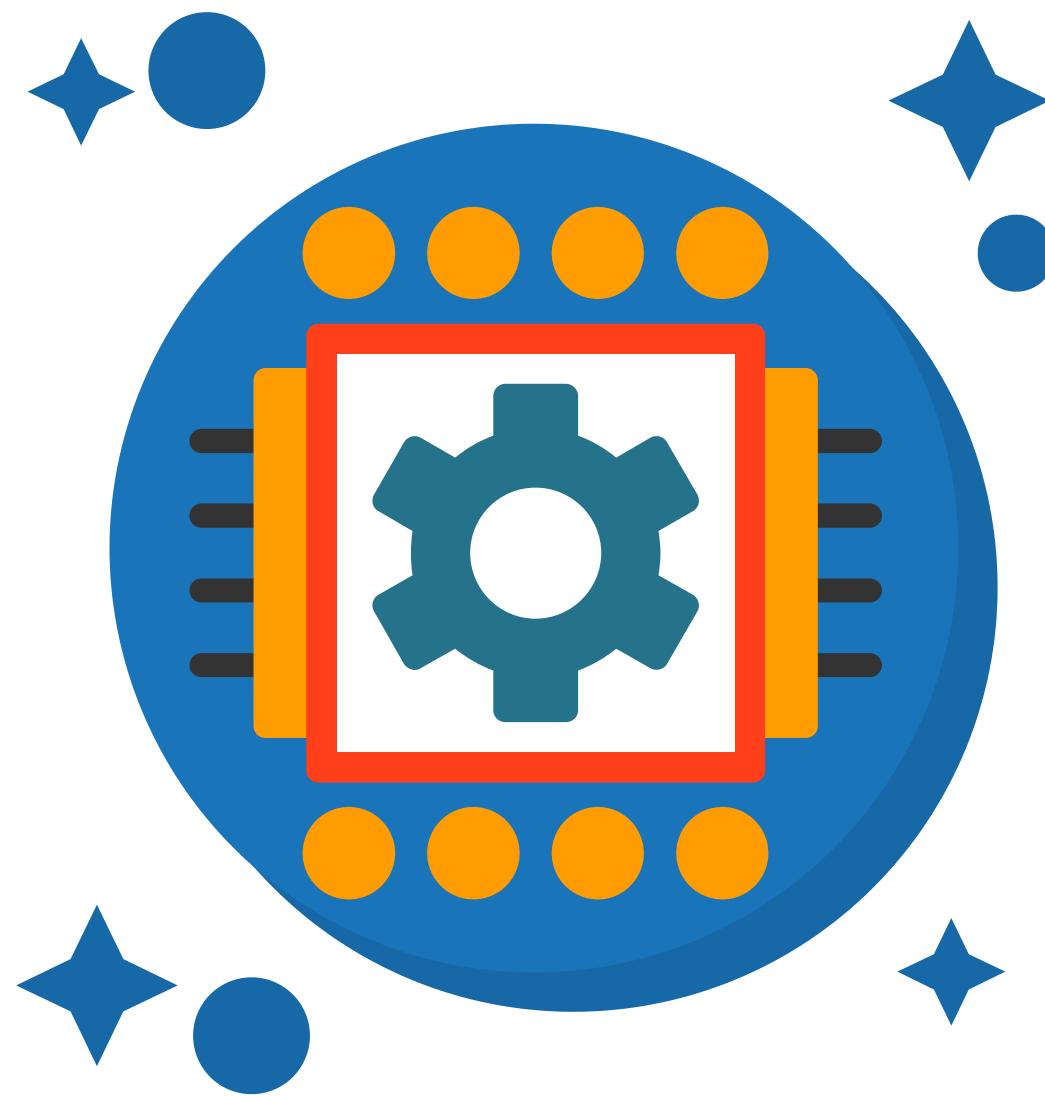
# Unsupervised Learning



**Unsupervised Learning** is a type of machine learning where the model is trained on unlabeled data and must find patterns and relationships in the data on its own.



# Reinforcement Learning



**Reinforcement Learning:** A type of machine learning where an agent learns to make decisions by receiving rewards or penalties for its actions in an environment.



# Data Mining



**Data Mining** is the process of discovering patterns and insights from large datasets using techniques from statistics, machine learning, and database systems.



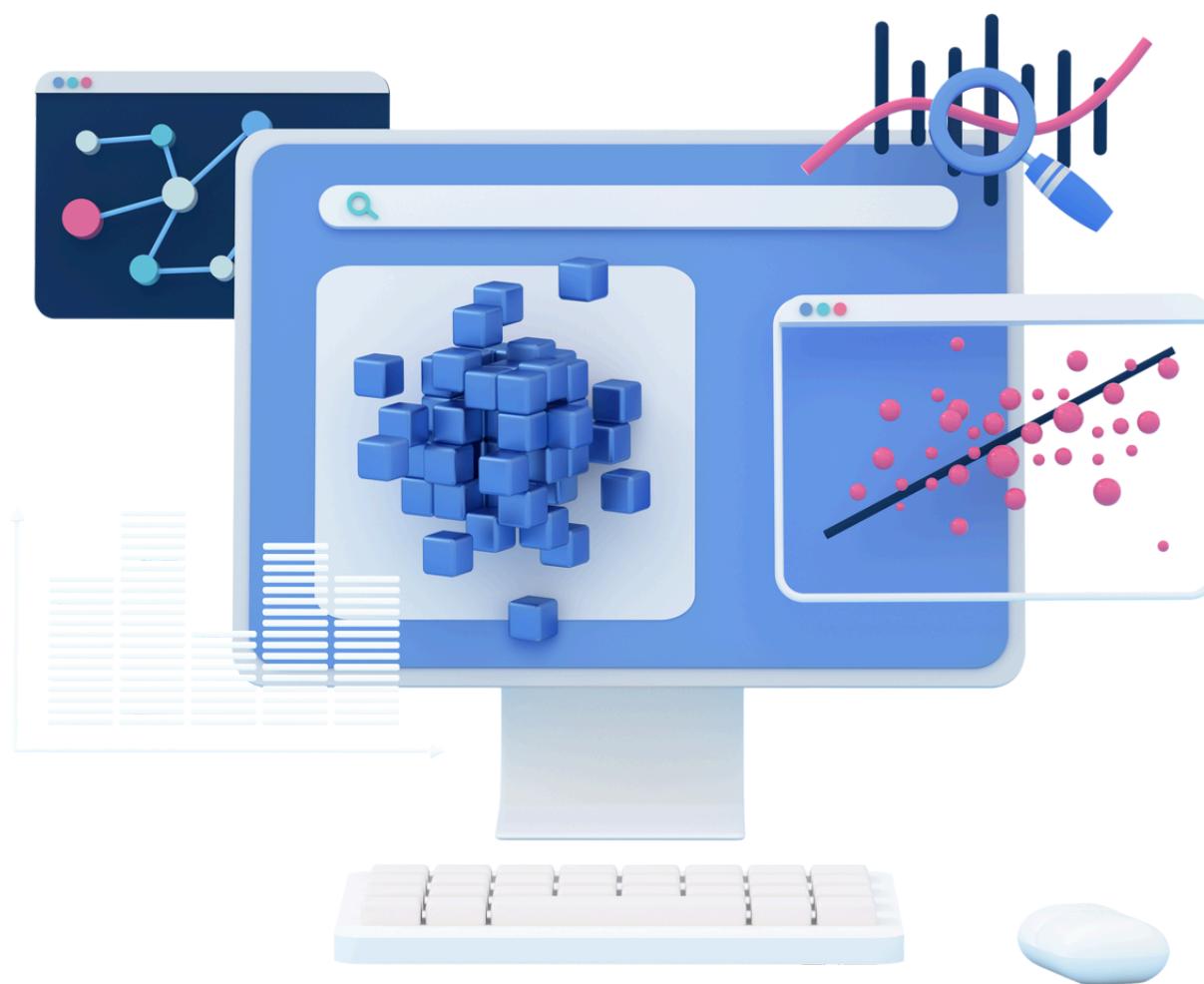
# Algorithm



A step-by-step procedure or formula for solving a problem, often used in computer programming and AI to perform calculations or process data is called **Algorithm**.



# Training Data



**Training Data:** The dataset used to train a machine learning model, helping it learn patterns and make accurate predictions or decisions on new data.



# Model



**Model:** A mathematical representation of a real-world process, trained using data to make predictions or decisions based on learned patterns.



# Overfitting



**Overfitting:** A modeling error that occurs when a machine learning model learns the training data too well, including its noise, leading to poor performance on new data.



# Underfitting



**Underfitting:** A modeling error that occurs when a machine learning model is too simple to capture the underlying patterns in the data, leading to poor performance.



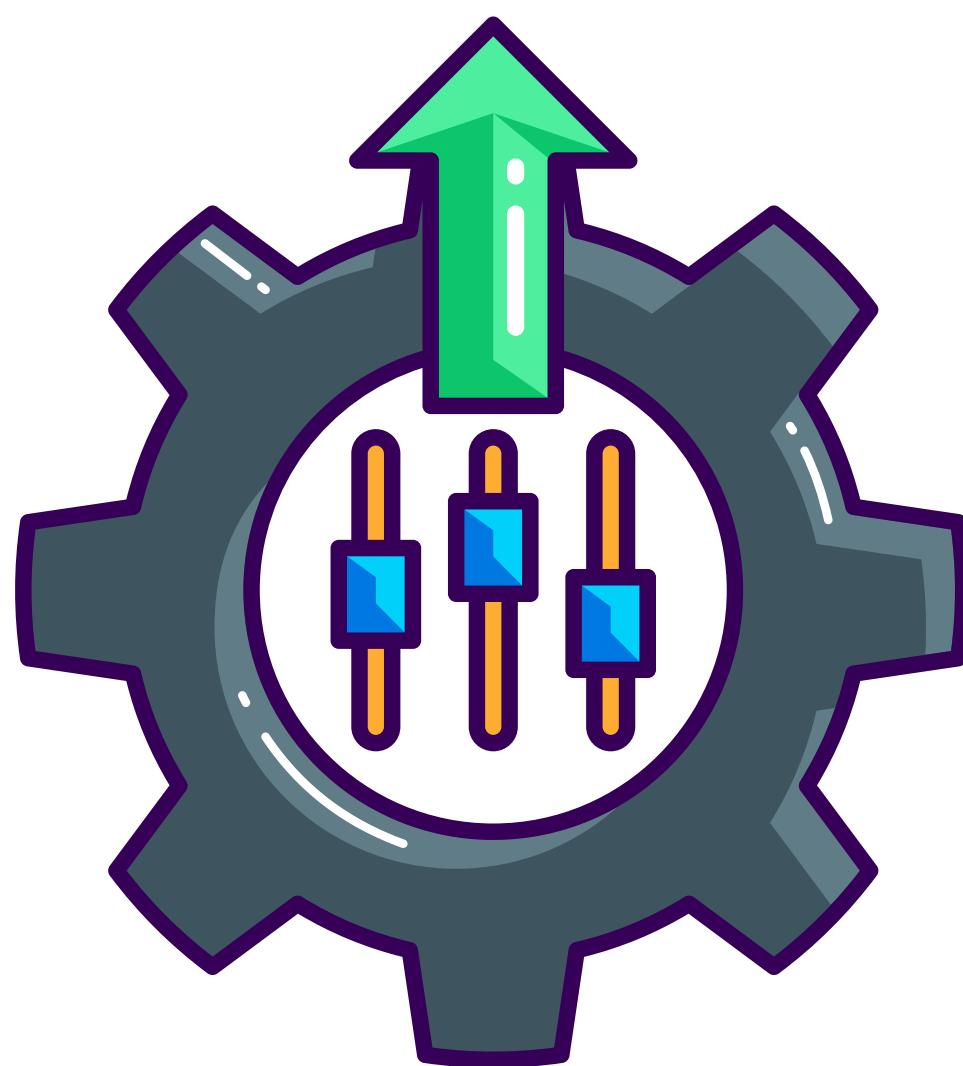
# Feature



**Feature** is an individual measurable property or characteristic of a dataset, used as input in building and training a machine learning model.



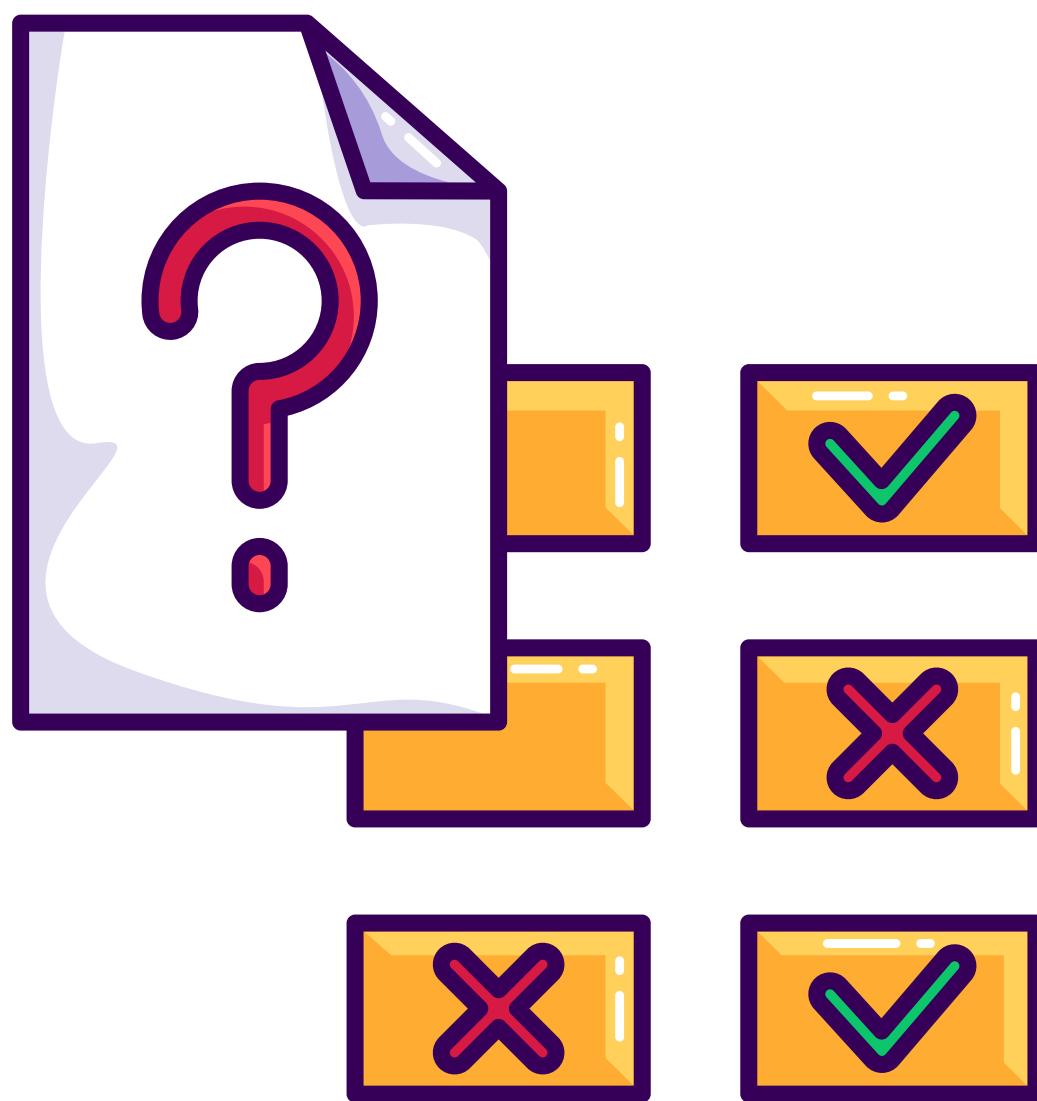
# Hyperparameter



**Hyperparameter** is an External settings for machine learning algorithms that need to be set before training and significantly affect the model's performance and accuracy.



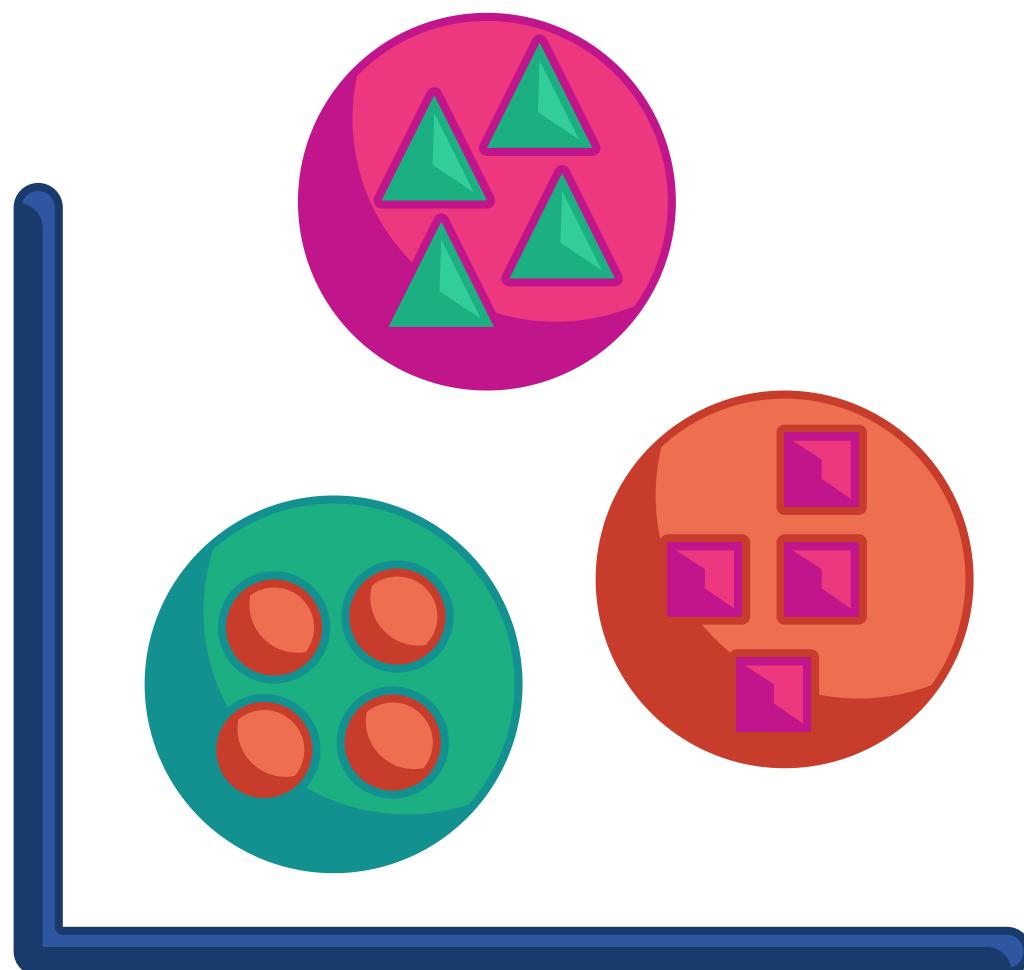
# Confusion Matrix



**Confusion Matrix:** A table used to evaluate the performance of a classification model by comparing the predicted and actual values, showing accuracy and errors.



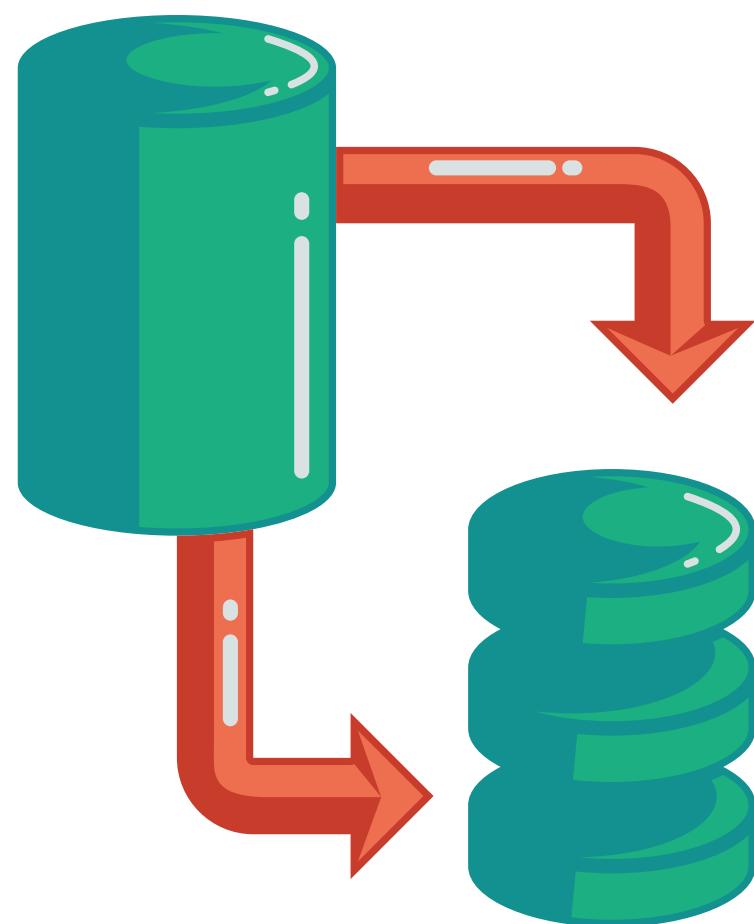
# Clustering



**Clustering:** An unsupervised learning technique that groups similar data points together based on their features, helping identify patterns and relationships.



# Dimensionality Reduction



**Dimensionality Reduction** are techniques used to reduce the number of input variables in a dataset, simplifying the model, improving performance, and making visualization easier.



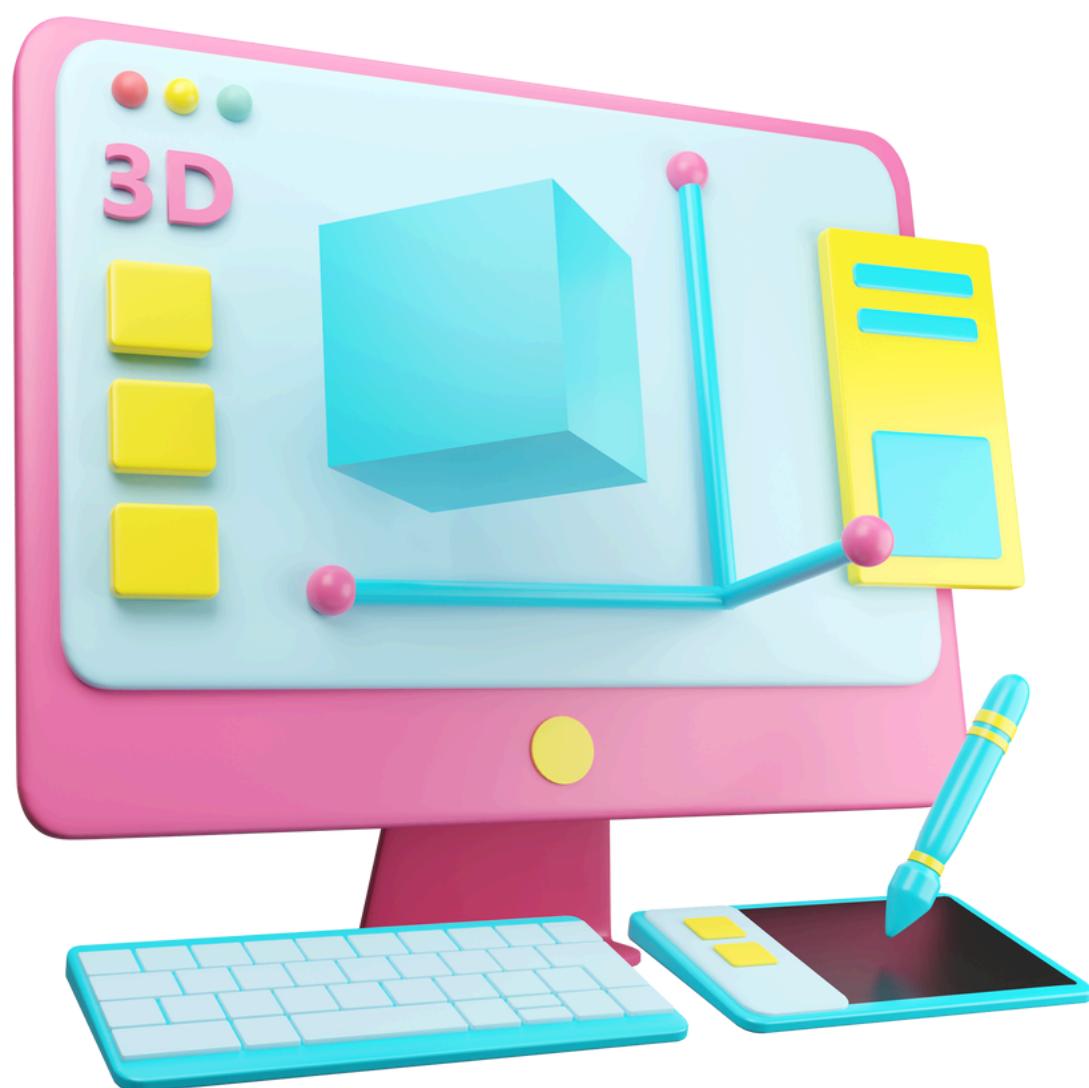
# Large Language Model



**Large Language Models (LLMs):** Extensive neural networks trained on vast amounts of text data, enabling them to generate and understand human-like text, like GPT-4.



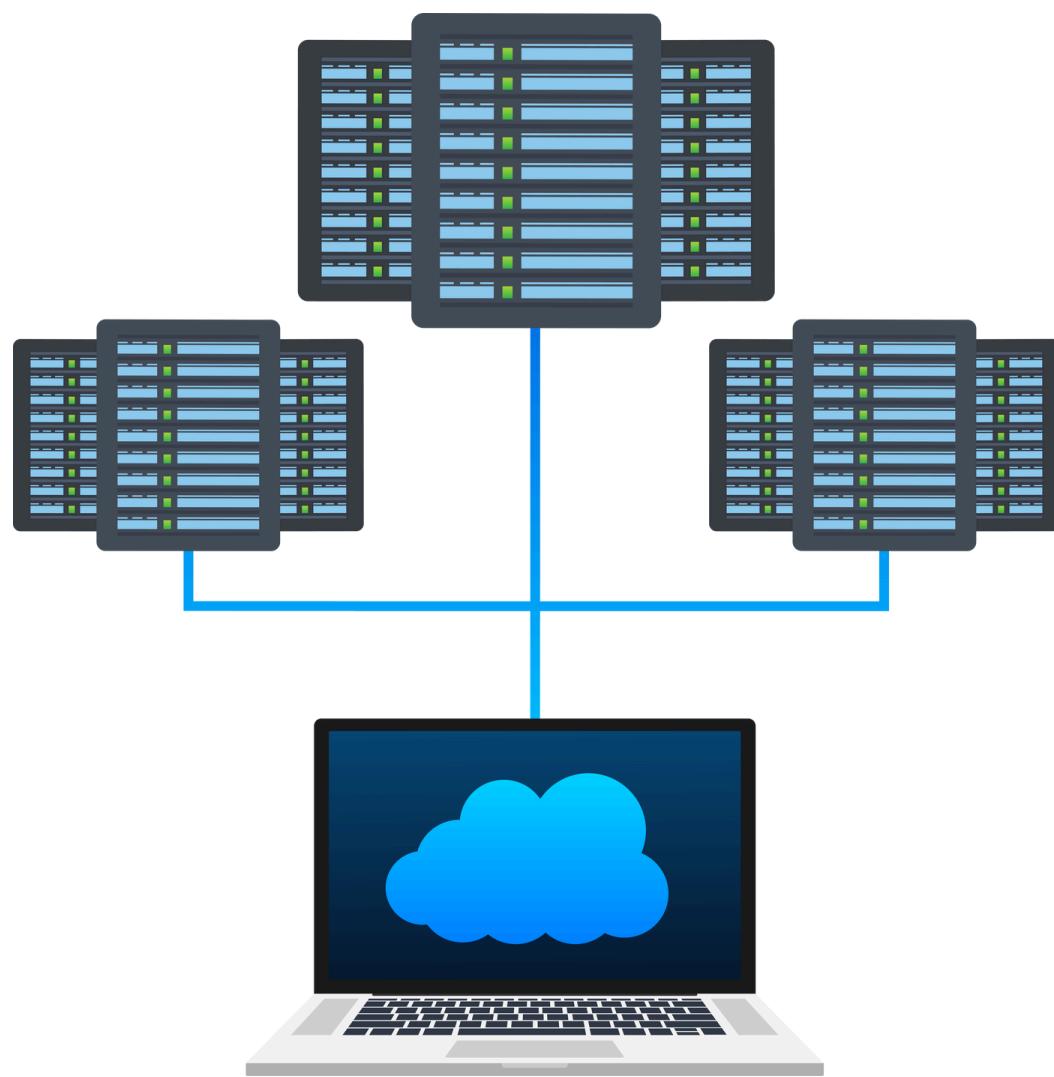
# Small Language Model



**Small Language Models (SLMs)** are more compact versions of language models that are optimized for specific tasks or resource constraints, balancing performance with efficiency.



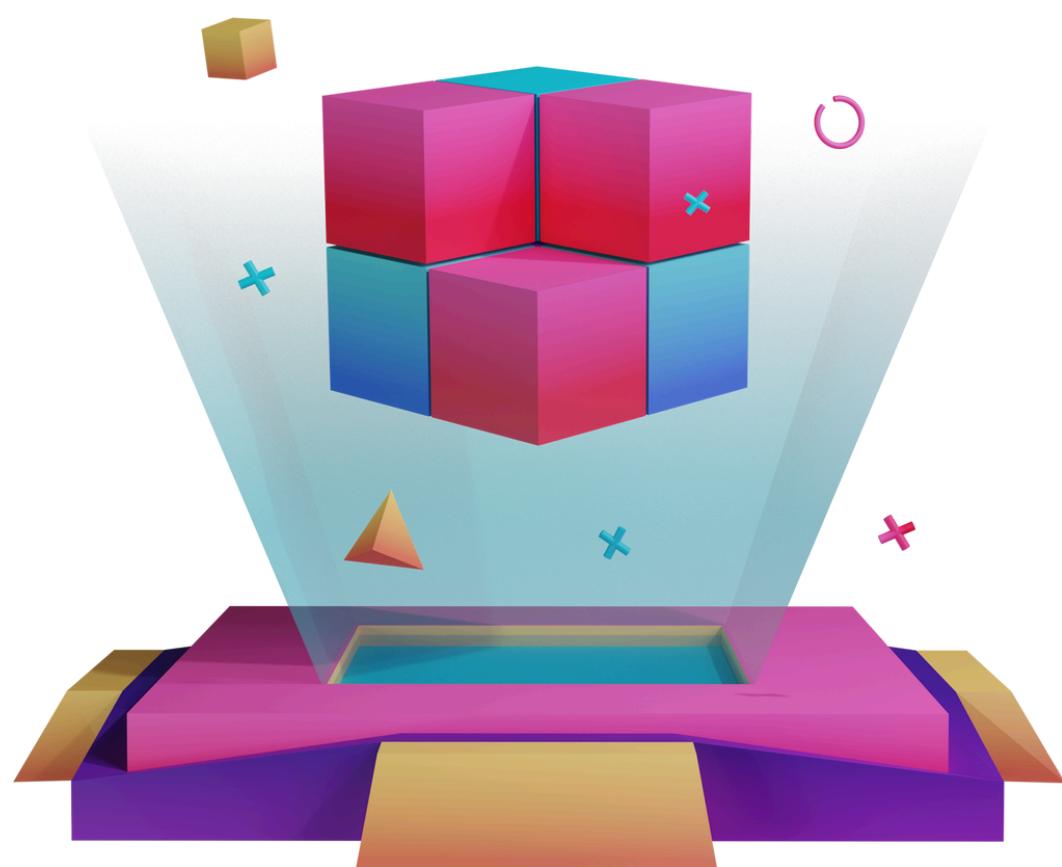
# Vector Database



**Vector Database:** A database designed to store and manage vector embeddings, facilitating efficient similarity searches and machine learning applications.



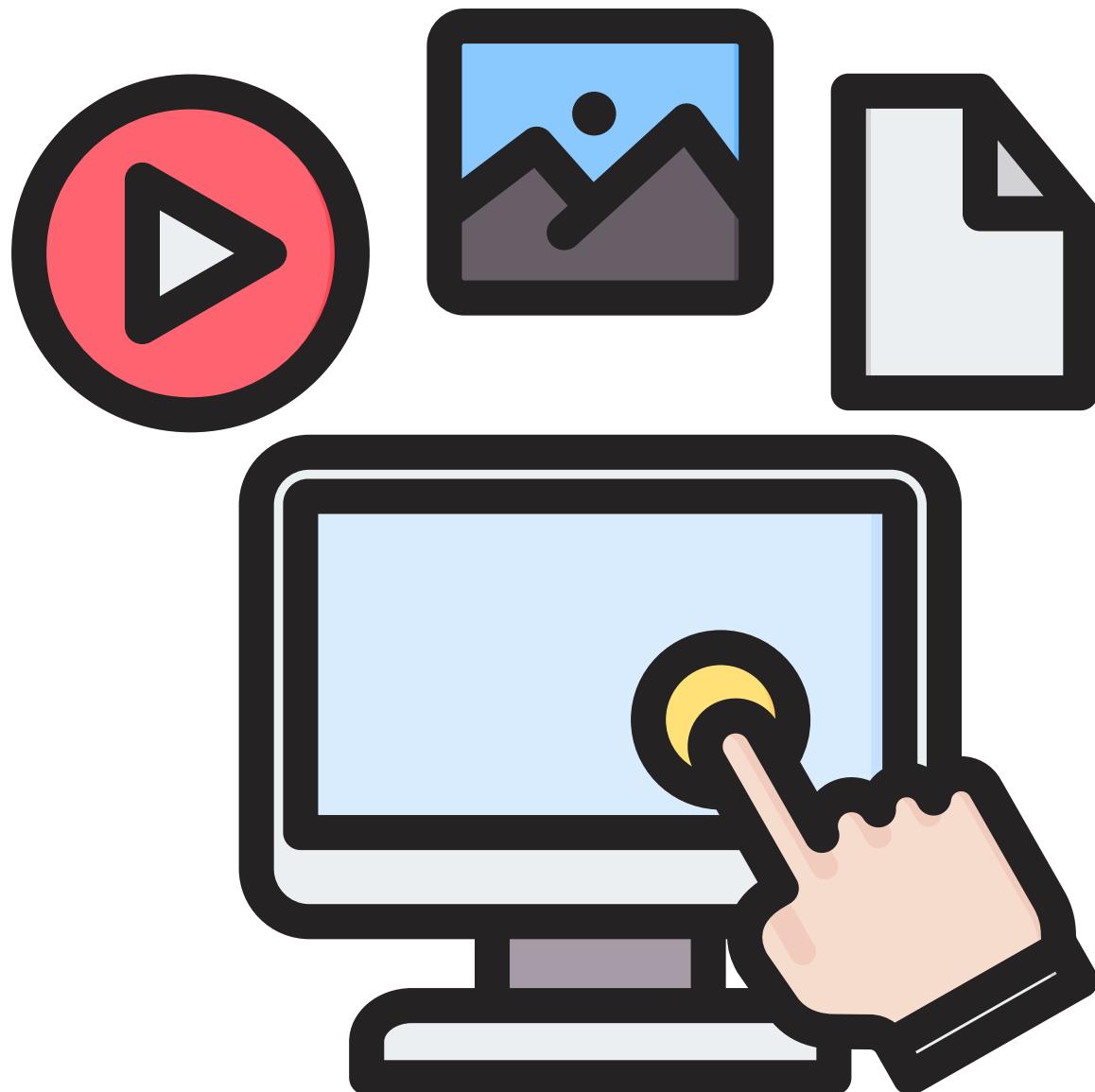
# Retrieval-Augmented Generation



**Retrieval-Augmented Generation (RAG):** A technique that combines retrieval of relevant documents with generative models to produce accurate and contextually relevant responses.



# Multimodality



**Multimodality** is the ability of AI systems to process and understand multiple types of data, such as text, images, and audio, simultaneously.

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