**Deep Learning:**

Deep learning uses deep neural networks to analyze data and identify complex patterns that reveal relationships .Deep learning models can be taught to perform classification tasks and recognize patterns in photos, text, audio and other types of data. Deep learning is also used to automate tasks that normally need human intelligence.

**Neural Network and its Types:**

Neural networks are computational models that mimic the way biological neural networks in the human brain process information. They consist of layers of neurons that transform the input data into meaningful outputs through a series of mathematical operations.

1. Feedforward Neural Networks

2. Convolutional Neural Networks

3. Recurrent Neural Networks (RNNs)

4. Radial Basis Function Networks

5. Generative Adversarial Networks (GANs)

6. Gated Recurrent Units (GRUs)

7. Long Short-Term Memory Networks

**CNN:**

A Convolutional Neural Network is a type of artificial intelligence that helps computers "see" and understand images. Think of it as a digital brain trained to recognize patterns in pictures, just like how humans can identify objects by their shapes and colors.

**4)Project pipeline**

Data Collection: Gathering relevant data from various sources (databases, APIs, web scraping, manual entry) to train models effectively.

Data Loading: The process of importing collected data into a machine learning pipeline, ensuring proper formatting and preprocessing.

Image Processing: Enhancing and analyzing images by applying techniques such as filtering, and transformation to improve quality and extract useful features.

Image Augmentation: A technique to artificially expand a dataset by applying modifications like rotation, flipping, cropping, scaling, and color adjustments to images.