Supervised Learning

Machine Learning with Labeled Data

What is Supervised Learning?

- Supervised learning is a type of machine learning that uses labeled data to train models. The model learns the mapping between input features (X) and output labels (Y).

Key Components

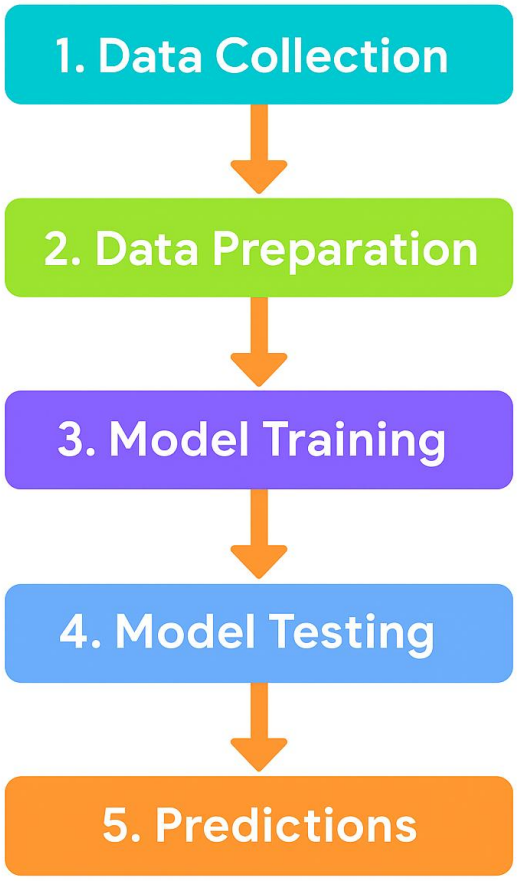
- Features (X): Input variables
- Labels (Y): Output variable
- Model: Learns the mapping

- Example: Predicting house prices based on size, location, and number of rooms.

Types of Supervised Learning

1. **Classification**: Predicts categories (e.g., spam or not spam)
2. **Regression**: Predicts continuous values (e.g., house prices)

SUPERVISED LEARNING WORK FLOW



Examples in Real Life

- Email spam filtering
- Medical diagnosis
- Stock price prediction
- Weather forecasting

Advantages & Limitations

✓ Advantages:

- High accuracy with enough data

- Widely applicable

✗ Limitations:

- Requires labeled data

- Can be time-consuming