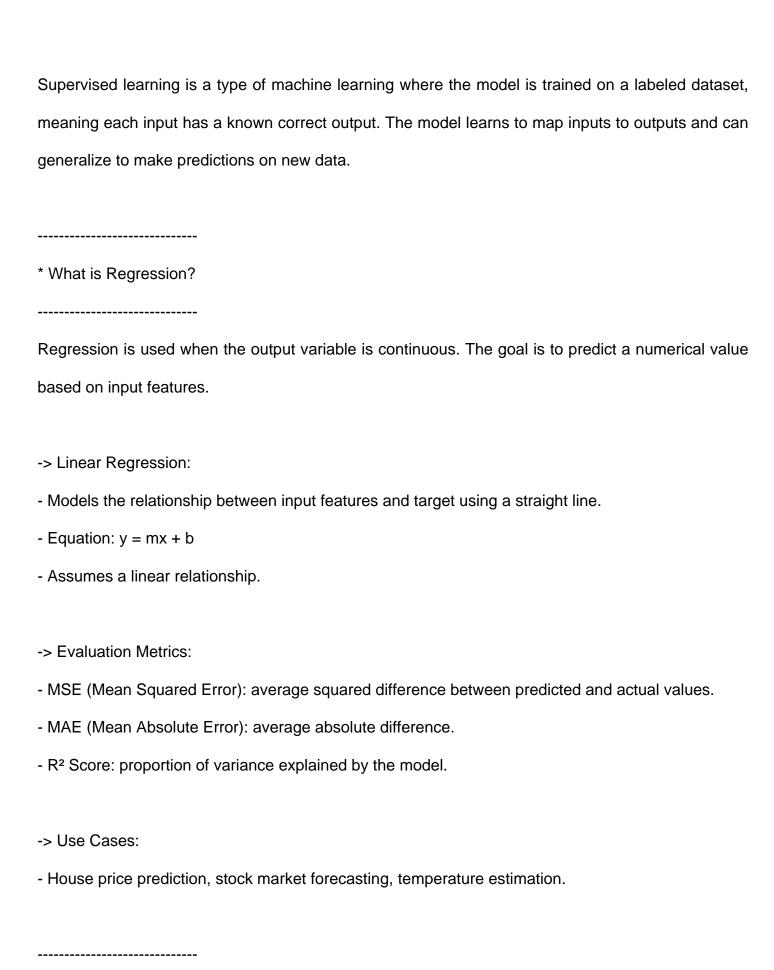
Day 06: Supervised Learning Basics - Regression & Classification



* What is Classification?
Classification is used when the output variable is categorical. The model learns to assign inputs to
one of several predefined classes.
-> Logistic Regression:
- Despite the name, it's used for classification.
- Outputs a probability that a given input belongs to a certain class.
- Uses the sigmoid function.
-> Other Models:
- Decision Tree: Flowchart-like structure for decision making.
- k-NN (k-Nearest Neighbors): Classifies based on majority class among nearest data points.
-> Evaluation Metrics:
- Accuracy: Percentage of correctly classified instances.
- Precision: Correct positive predictions / total predicted positives.
- Recall: Correct positive predictions / actual positives.
- F1 Score: Harmonic mean of precision and recall.
- Confusion Matrix: Summarizes true vs predicted classifications.
-> Use Cases:
- Spam detection, image recognition, medical diagnosis.
* Summary

Supervised learning is essential for making predictions when labeled data is available. Regression handles continuous outputs, while classification deals with categories.

Use scikit-learn ('sklearn') to quickly build and test these models in Python.