

Training Day 10 Report:

Introduction

Supervised learning is a core technique in machine learning where a model learns from labeled data. Each training example includes an input and its corresponding correct output. The model uses this data to learn patterns and make predictions on new, unseen data.

Concept

In supervised learning, the system is "supervised" because it receives feedback in the form of correct answers. The goal is to minimize the difference between the predicted output and the actual output by adjusting internal parameters.

Types of Problems

- **Classification:** Predicting a discrete label (e.g., spam or not spam).
- **Regression:** Predicting a continuous value (e.g., price of a house).

Workflow

1. Collect and label data.
2. Split data into training and testing sets.
3. Train the model using the training data.
4. Evaluate model performance on testing data.
5. Tune parameters and retrain if needed.

Advantages

- Produces accurate models when sufficient labeled data is available.
- Easier to evaluate performance due to known outputs.
- Applicable to a wide range of real-world problems.

Conclusion

Supervised learning plays a vital role in predictive modeling. From classification to regression, it forms the backbone of many AI systems. Its effectiveness depends on the quality and quantity of labeled data, making data preparation a crucial step in the process.