Machine Learning in Python

Unsupervised Learning - Clustering and Dimensionality Reduction

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Outline

1. Introduction to Unsupervised Learning

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What is Unsupervised Learning? Definition

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Definition

In contrast to supervised learning, unsupervised learning does not use labeled data. Instead, it identifies patterns and structures in the data without predefined labels. This is particularly useful for clustering similar data points or reducing the dimensionality of the data.

Types of Unsupervised Learning

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- Dimensionality Reduction: Techniques that reduce the number of features while preserving the essential structure of the data.
- Clustering: Algorithms that group similar data points together based on their features.
- Anomaly Detection: Identifying rare items, events, or observations that raise suspicions by differing significantly from the majority of the data.