📚 Summary and Next Lecture Preview

Today's Lecture: Unsupervised Learning
Discovering patterns without labels

⬤ Clustering
K-Means, DBSCAN, Hierarchical, GMM - each has trade-offs

Dimensionality Reduction
PCA, t-SNE, UMAP - visualization and compression

⚠️ Anomaly Detection
Statistical methods, Isolation Forest - identify outliers

🎯 Key Considerations
Scaling, evaluation metrics, interpretability

🚀 Next Lecture

Advanced Topics in Deep Learning

🧠 Deep Autoencoders

🎨 Generative Adversarial Networks (GANs)

🔄 Self-Supervised Learning

💻 Practice Assignment
Apply these algorithms to real-world datasets