

Supervised

Unsupervised

Week 12 Summary:

# Machine Learning Classifications

*by Lexi Brock*

# Supervised

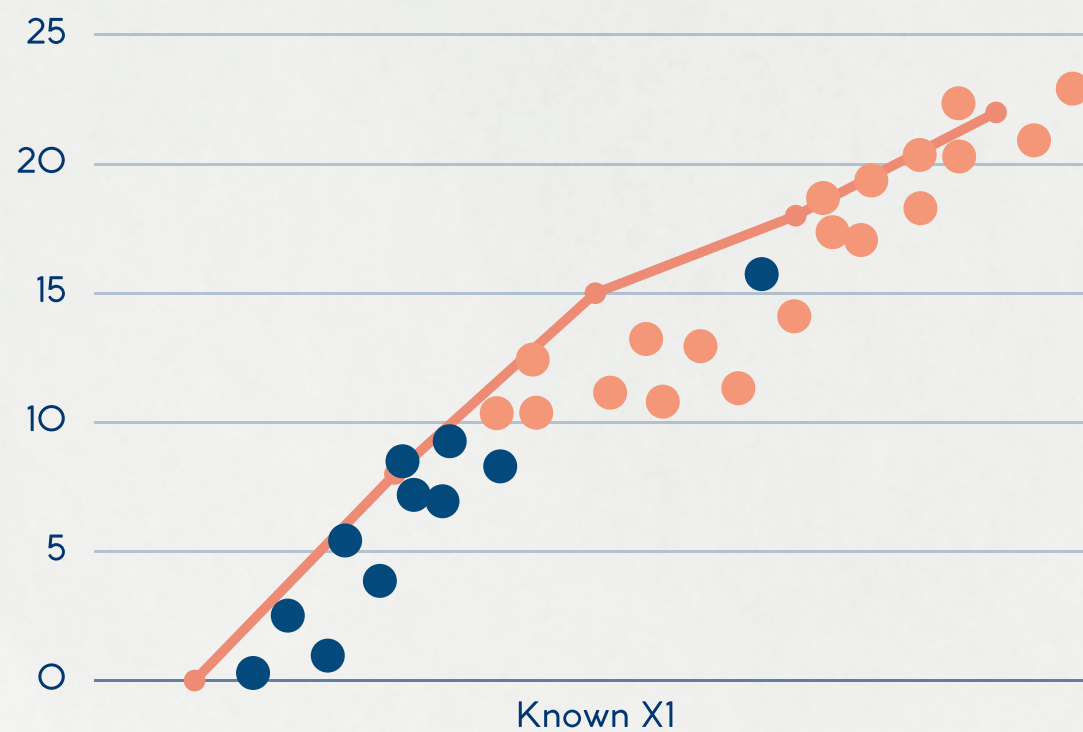
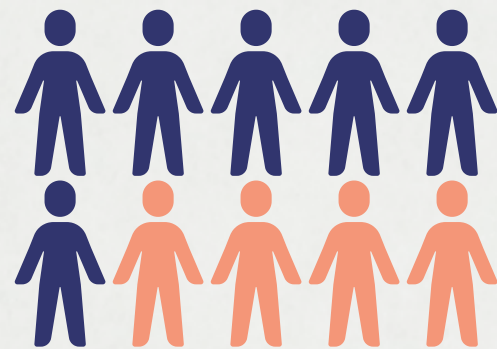
Goal: make predictions and develop predict models  
+ known and labeled inputs AND outputs  
- human intervention  
+ accuracy

## Training Set

with many (X,y)

## Test Set

Compare actual to determine accuracy



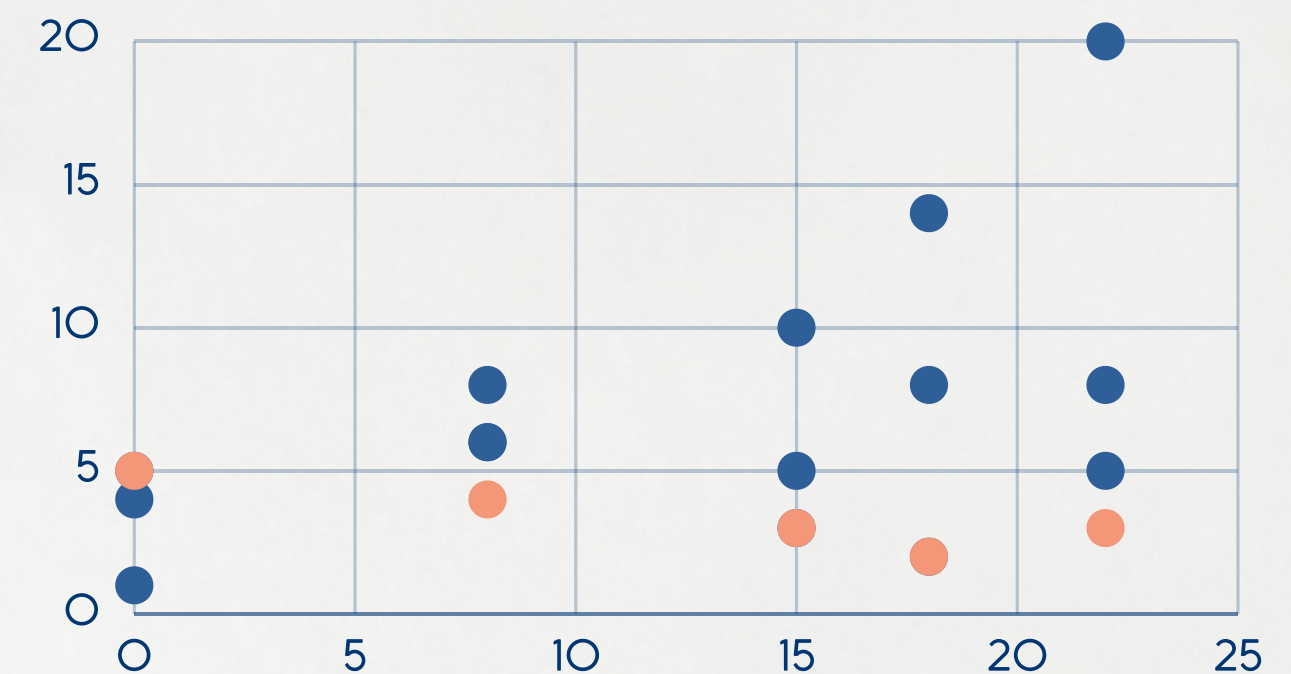
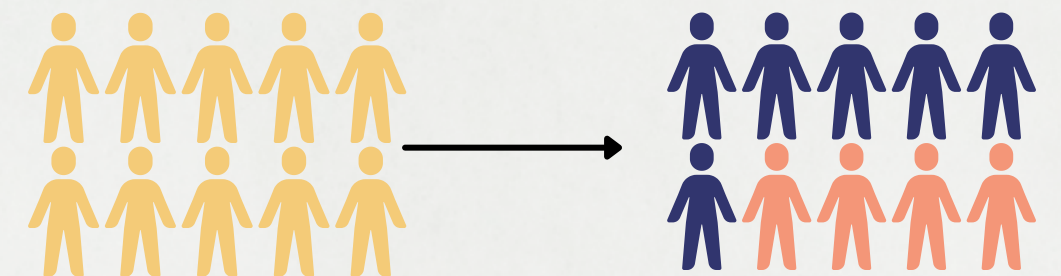
## Machine Learning Processes

# Unsupervised

Goal: pattern and structure recognition  
+ Real-time analysis  
+ known class numbers  
+ qualitative evaluation

## Training Set

with many (X)



Continuous

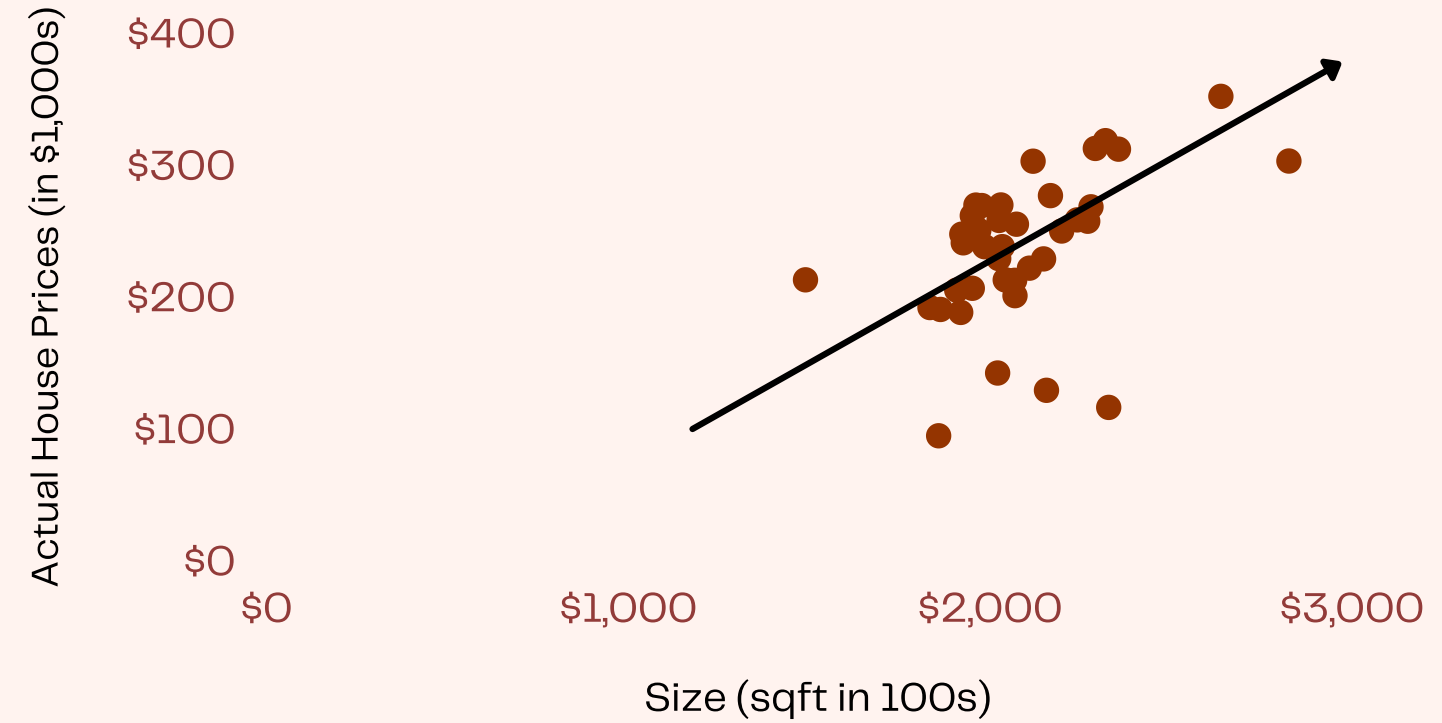
# Supervised

## Regression

Decision Trees

Linear

Frequency



## NUMERICAL TECHNIQUES & ALGORITHMS

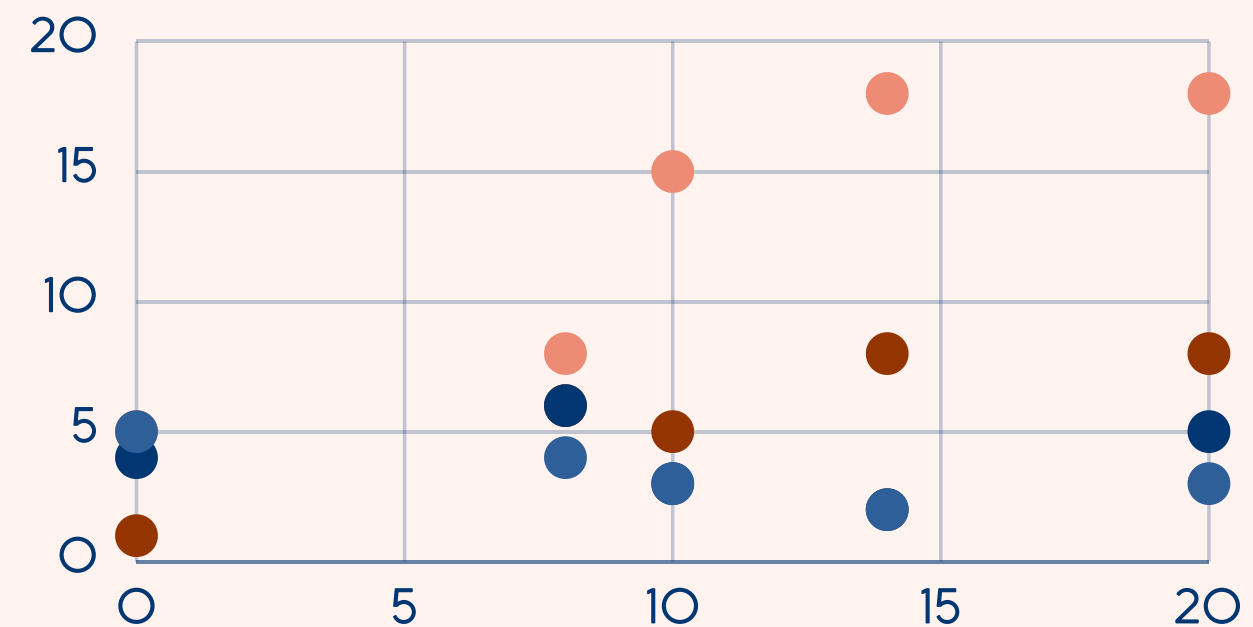
Discrete

## Classification

K – Nearest Neighbor

Image Classification

Customer Retention





# Reading: Why Use K-Means for Time Series Data?

Solving Anomaly Detection Problems:

- Measure error between actual and prediction; threshold around moving average, standard deviation, IQR

## Unsupervised

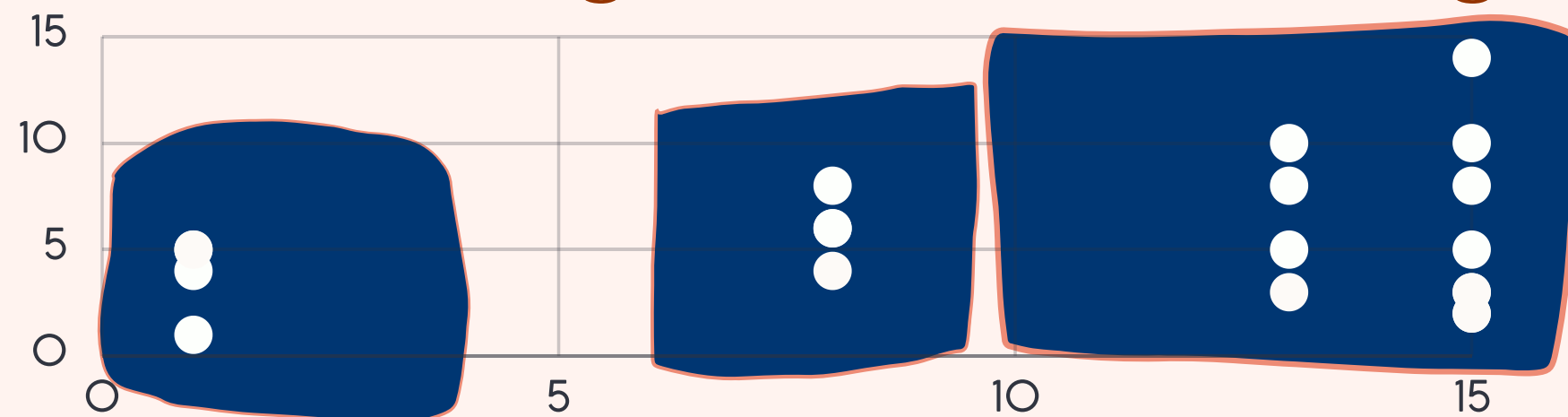
### Association

Dimensionality  
Reduction

Continuous

## NUMERICAL TECHNIQUES & ALGORITHMS

### Simulation: Visualizing K-Means Clustering



### Cluster

K-Means

- Customer  
Segmentation
- Hierarchical

Discrete