

Predicting with Machine Learning



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Overview

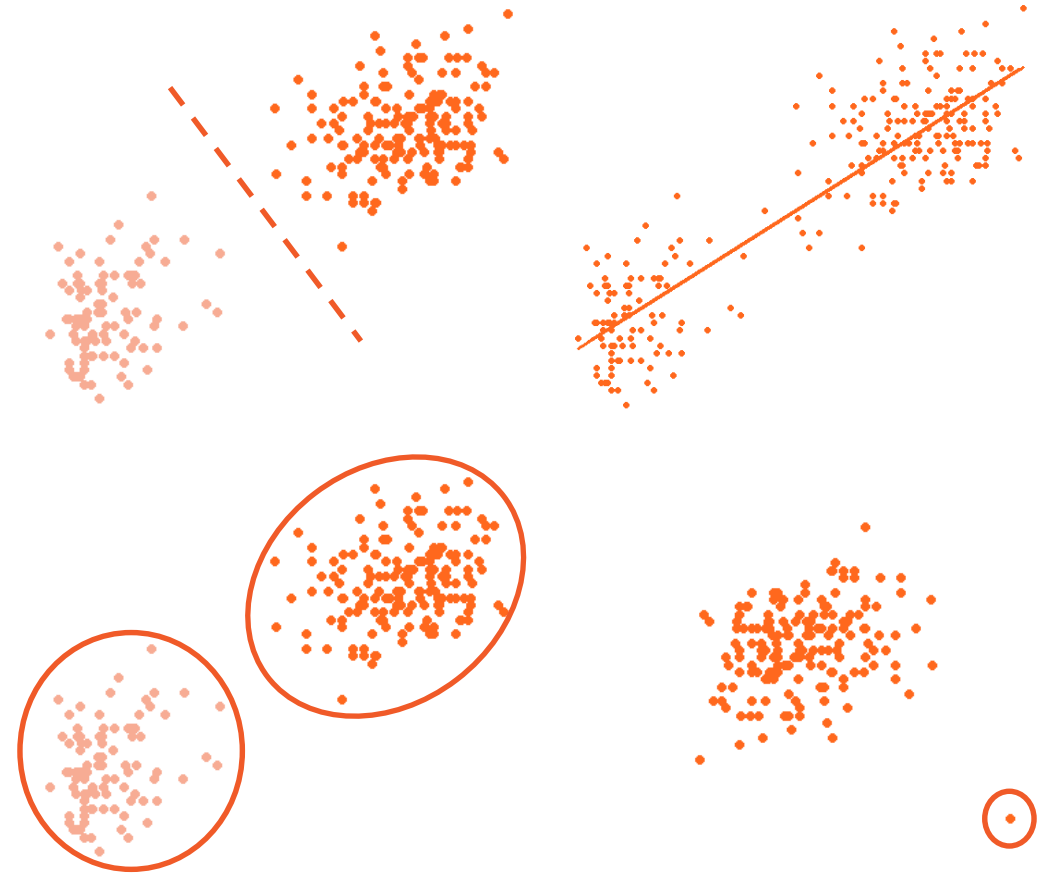


Predicting with Machine Learning Demo

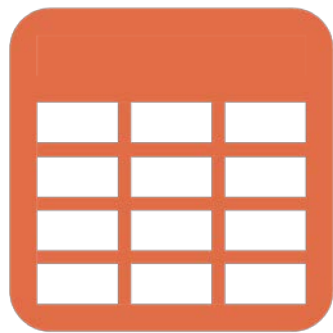


What Is Machine Learning?

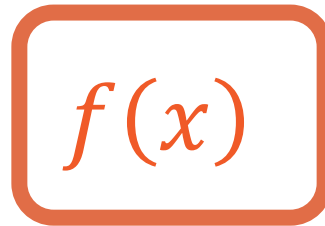
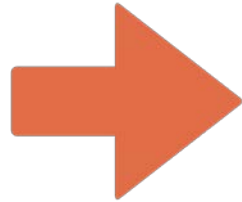
Subfield of AI
Learning tasks
Without programming



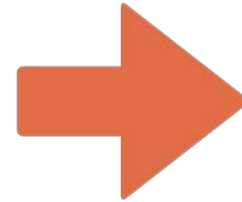
What Is Machine Learning?



Data

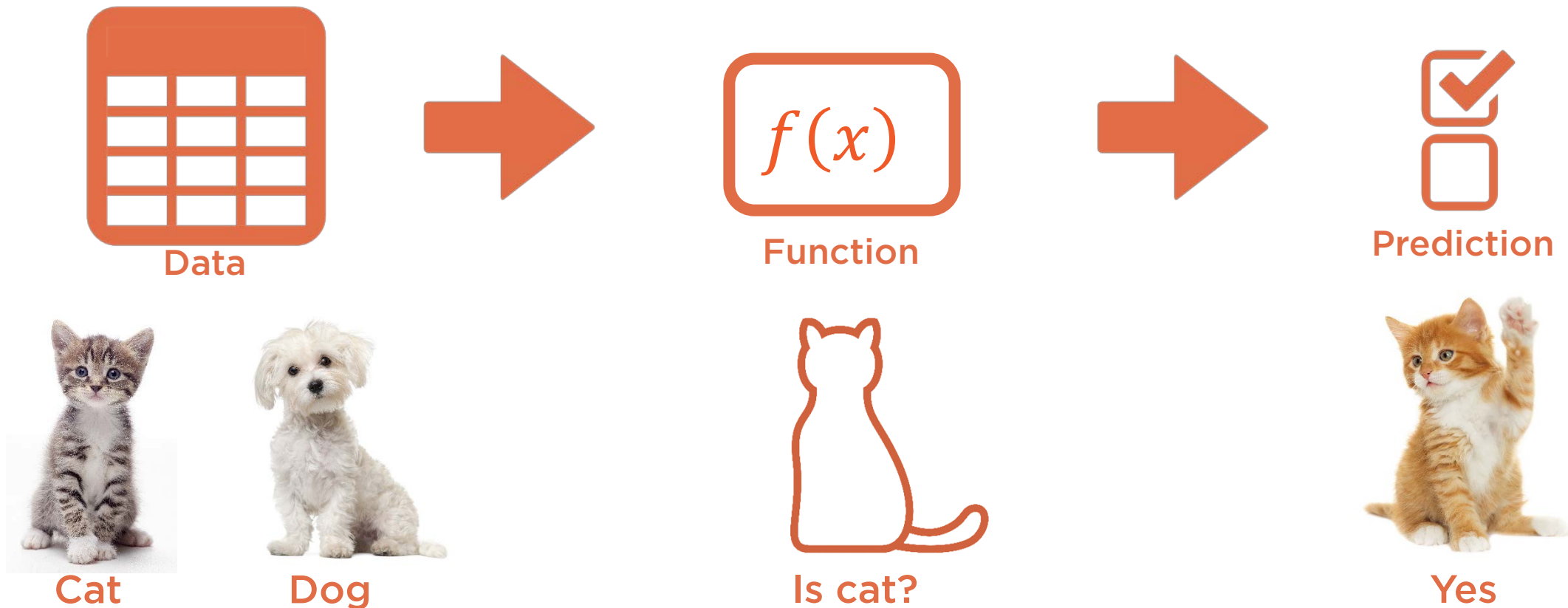


Function



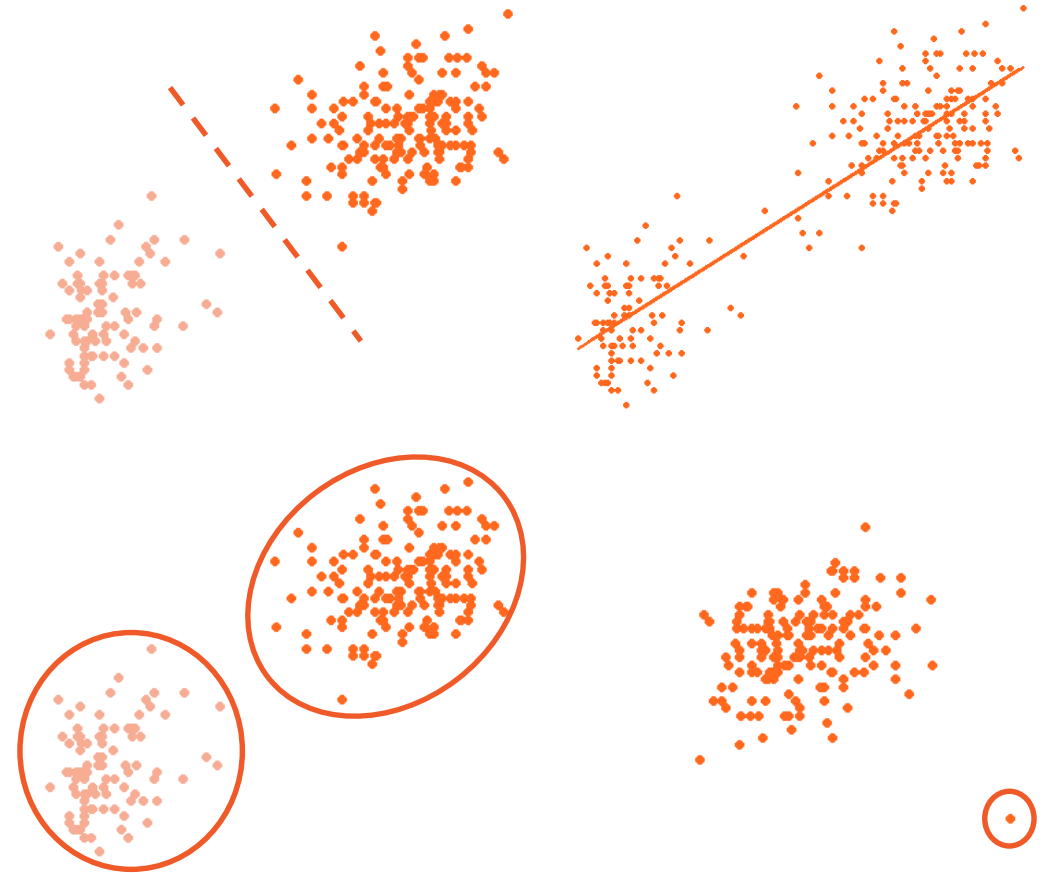
Prediction

What Is Machine Learning?



What Is Machine Learning?

Prefers lots of data
Involves statistics
Similar to data mining



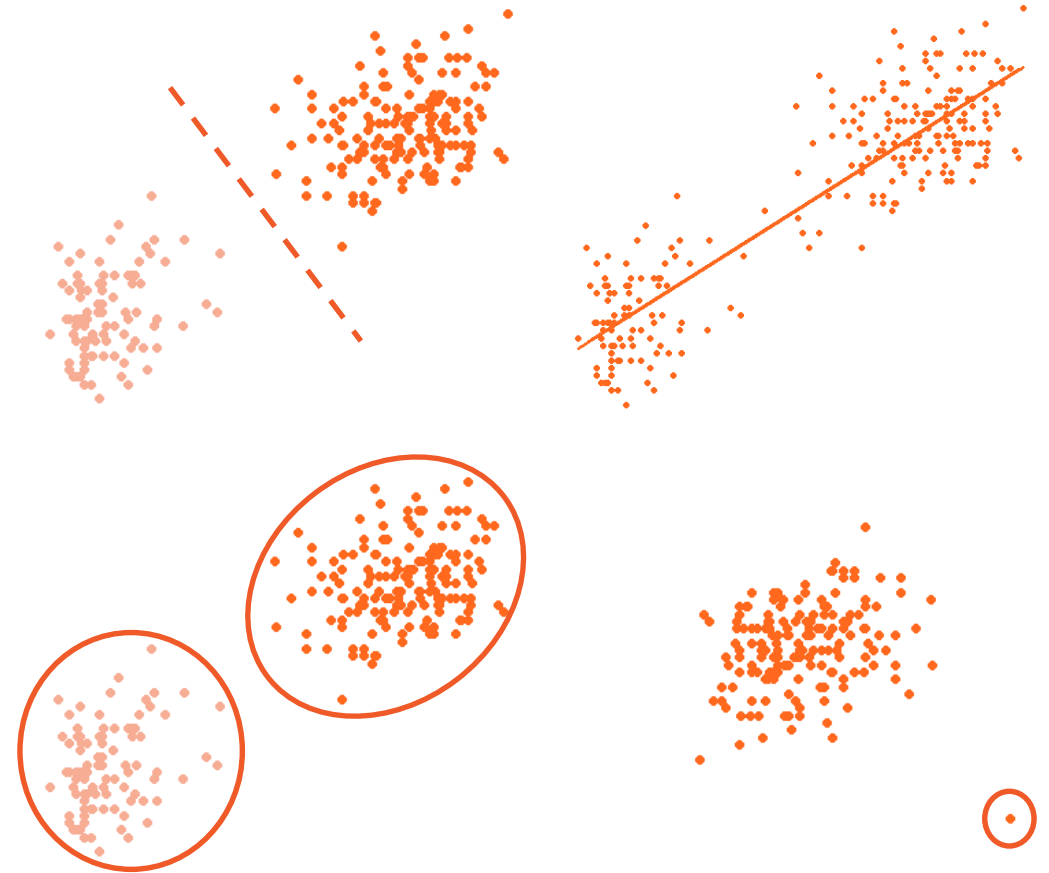
How Does Machine Learning Work?

Model has parameters

Algorithm trains model

Trained with existing data

Model is used for prediction



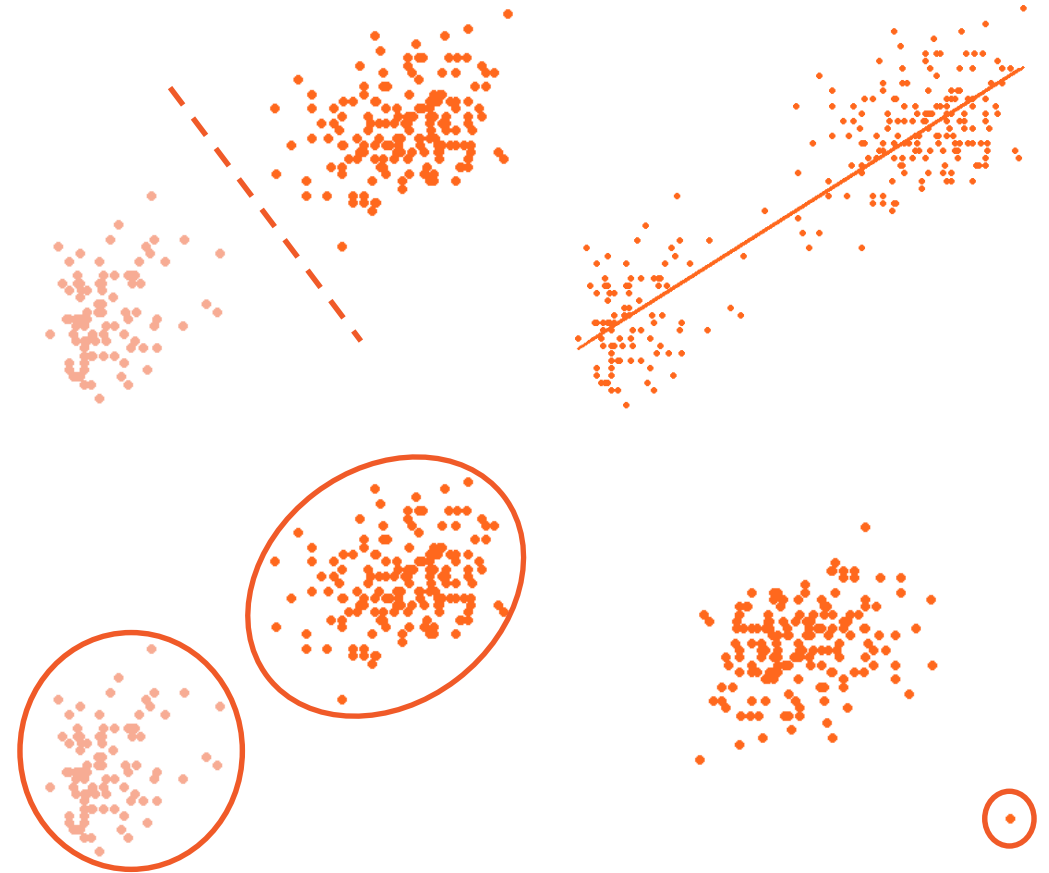
What Can Machine Learning Do?

Classification

Regression

Clustering

Anomaly detection

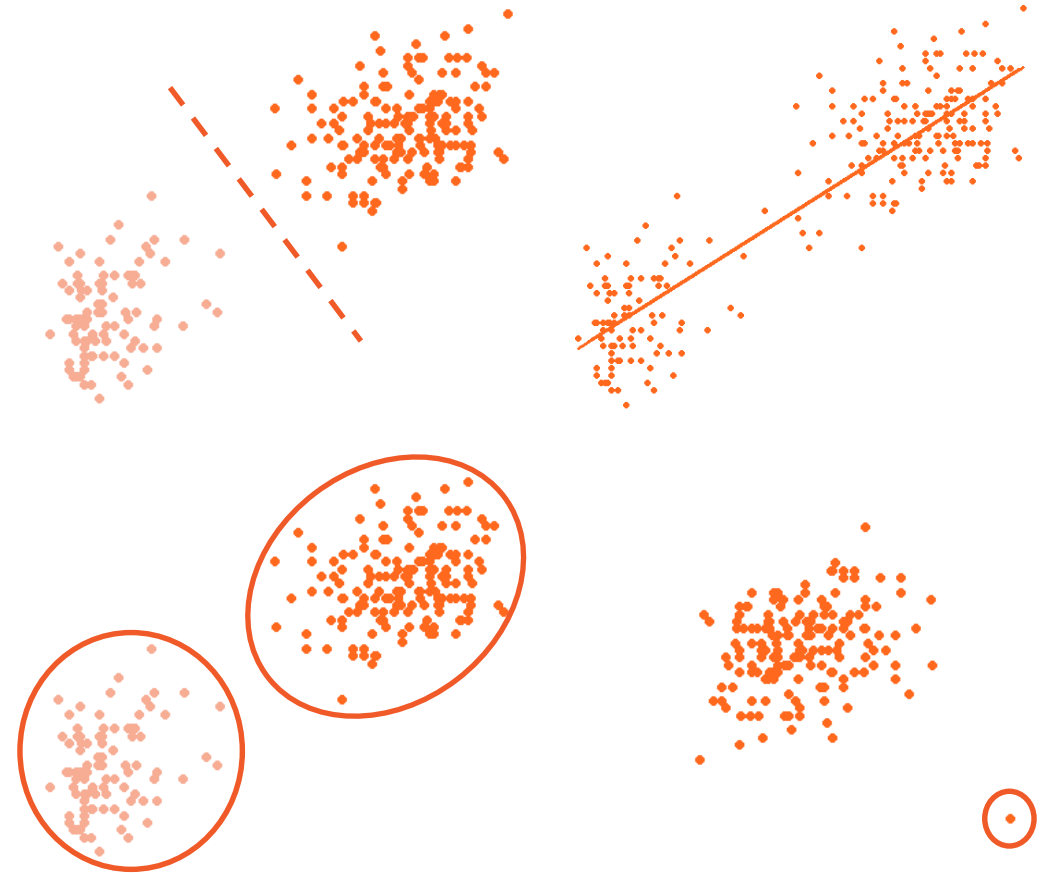


Types of Machine Learning

Supervised

Unsupervised

Reinforcement



Types of Machine Learning Algorithms

Decision Tree Classifier

Naïve Bayes Classifier

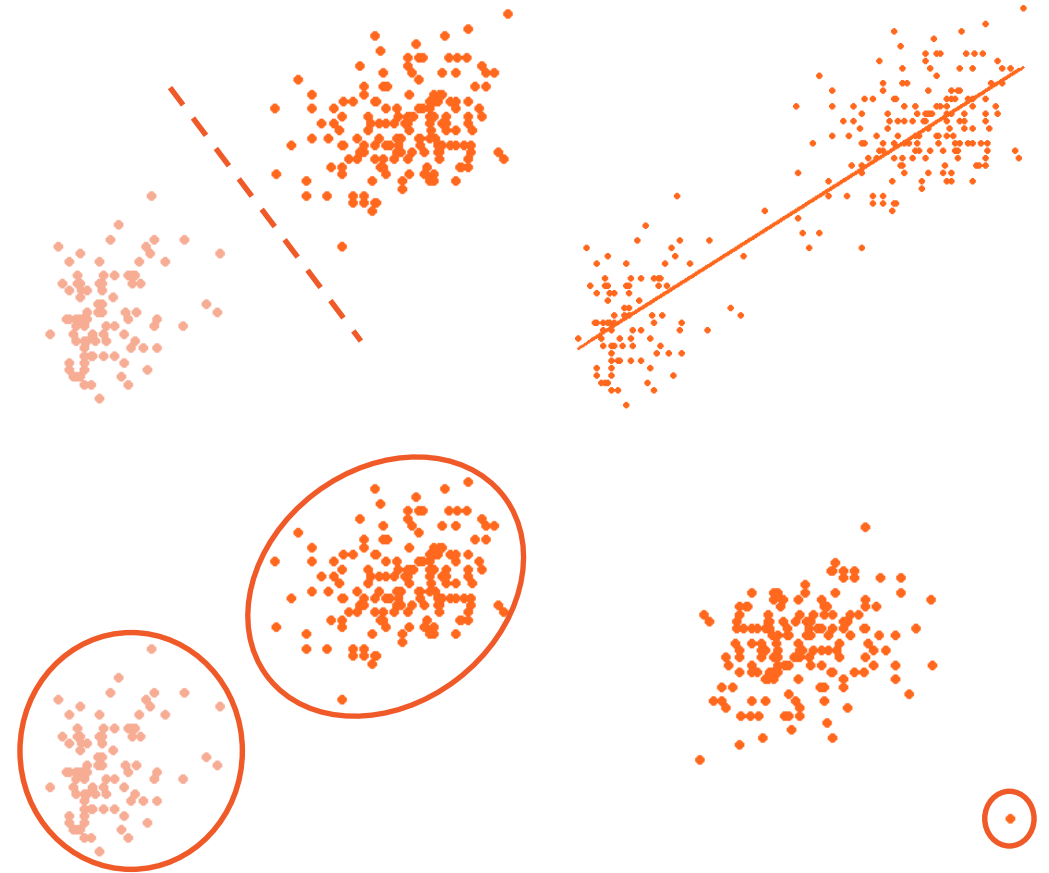
Linear Regression

Support Vector Machine

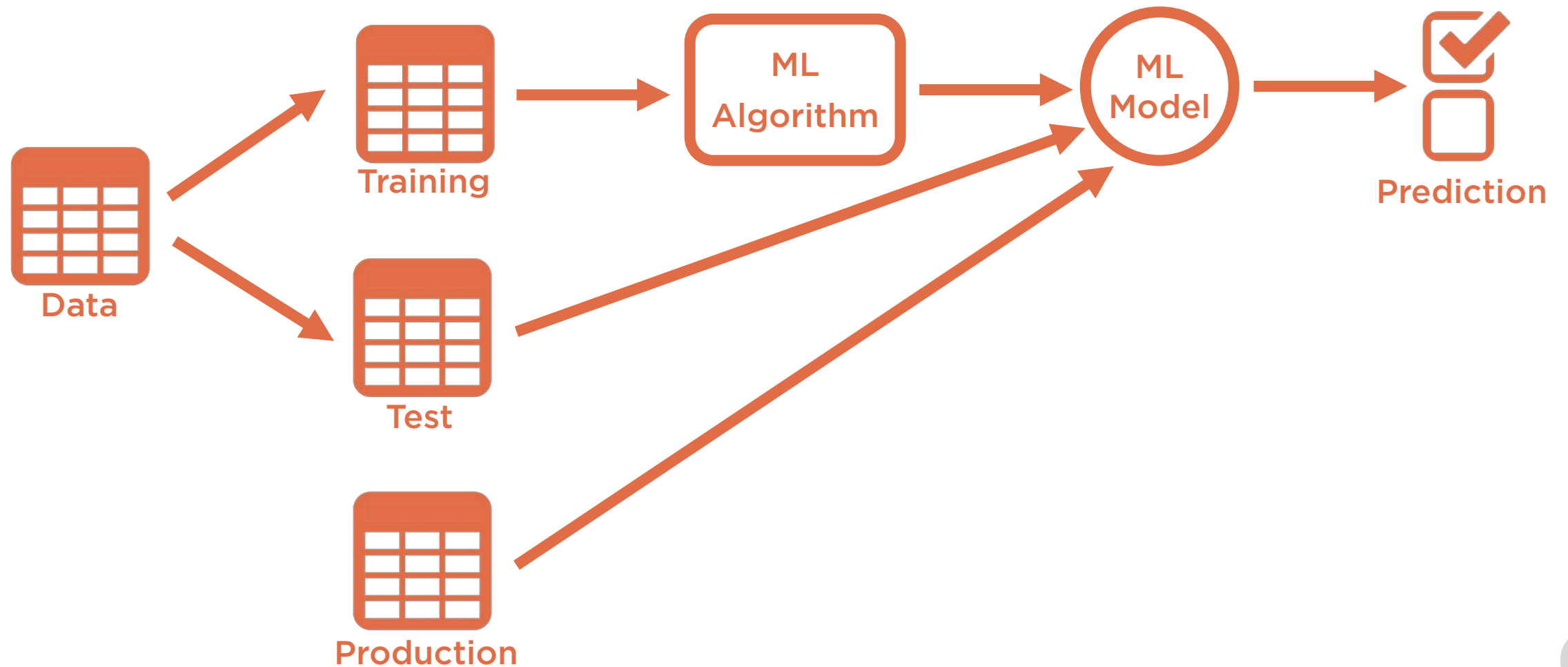
Neural Network

K-Means Clustering

Ensemble Learning



The Machine Learning Process



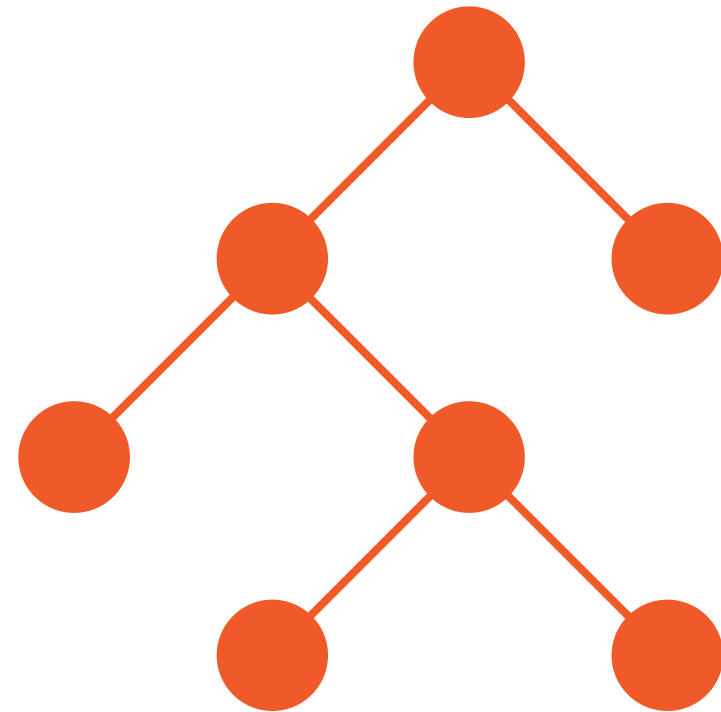
Decision Tree Classifier

Supervised learning

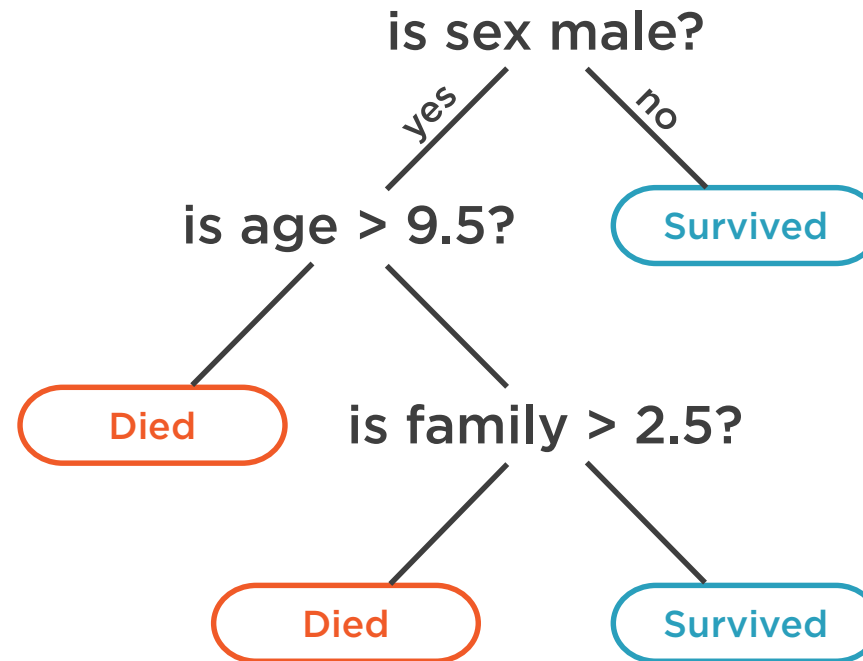
Tree of decisions

Easy to understand

Transparent



Decision Tree Classifier







1. What is the species of iris flower?
2. What is the prediction accuracy?



Set Up



Sample Training Indexes



Create Training and Test Data Sets



Create Decision Tree



Summarize the Model



Visualize the Model



Visualize the Decision Boundaries



Make Predictions



Create Misclassification Table

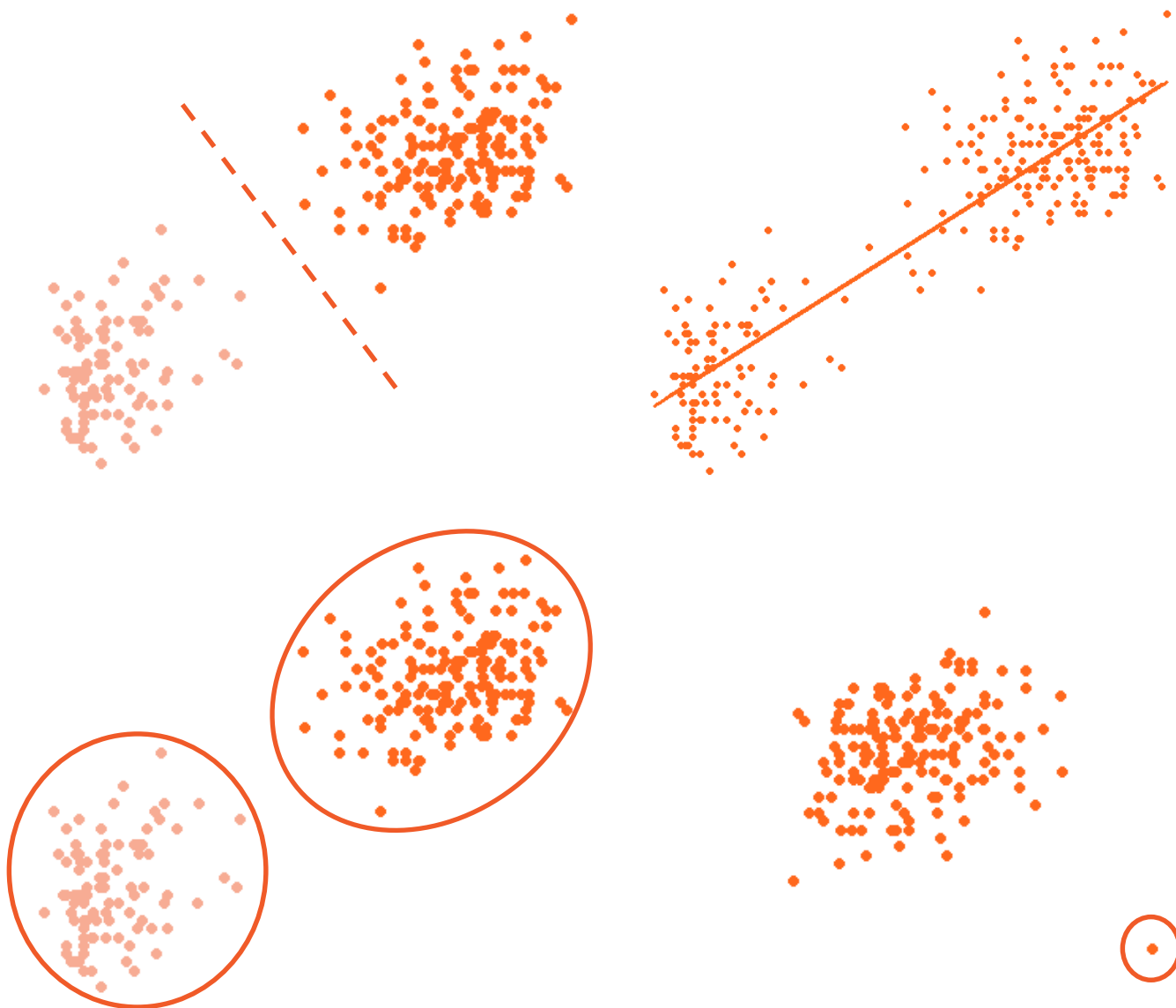


Summarize Prediction Accuracy



Save the Model





Summary



Predicting with Machine Learning Demo

