

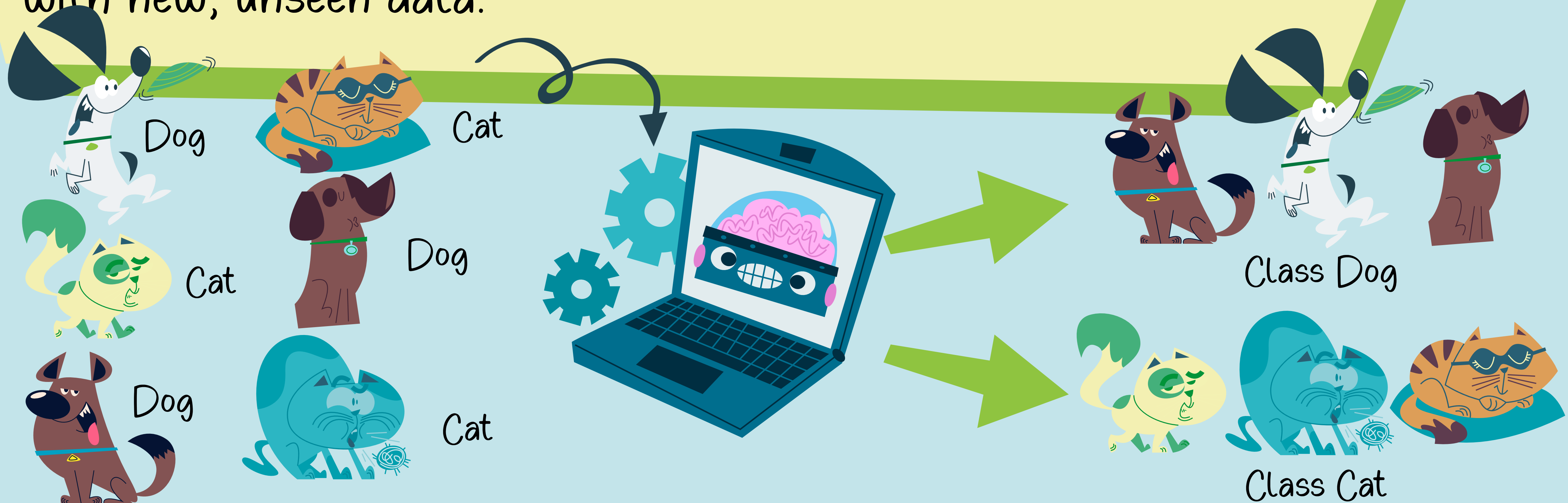
WHAT ABOUT MACHINE LEARNING CLASSES?



Machine learning classes encompass various algorithms and techniques designed to enable computers to learn from data and make predictions or decisions without explicit programming. These classes cover a range of approaches, including:

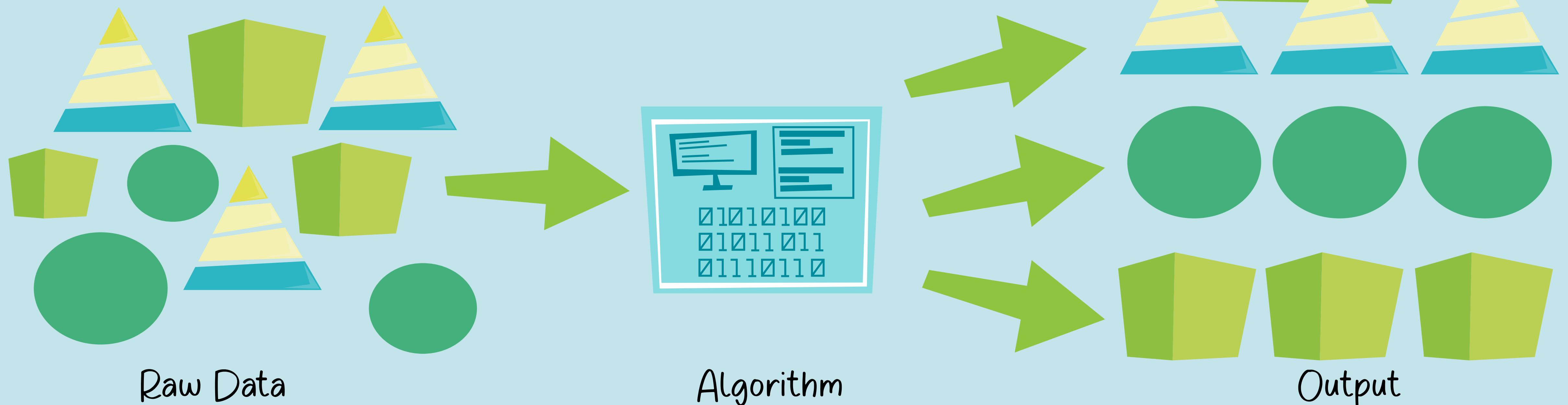
SUPERVISED LEARNING

In this class, algorithms are trained on labeled datasets, learning patterns and relationships to make predictions when presented with new, unseen data.



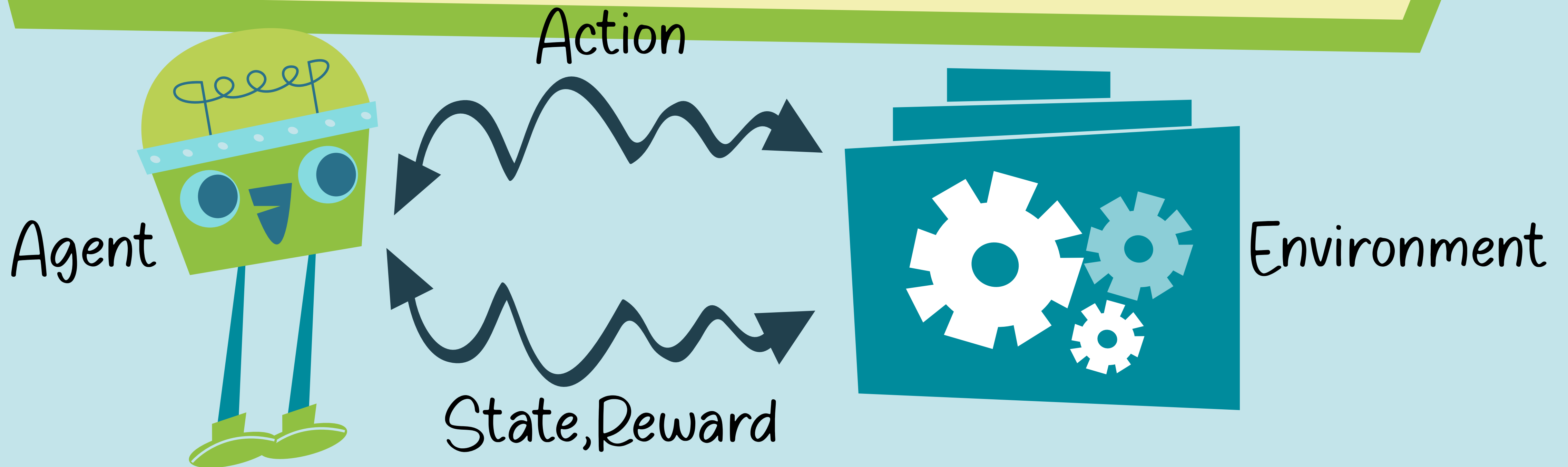
UNSUPERVISED LEARNING

Algorithms in this class work with unlabeled data, discovering patterns and structures without predefined outcomes, often used for clustering or association tasks.



REINFORCEMENT LEARNING

This class involves training algorithms to make decisions within an environment, learning from positive or negative feedback to optimize their behavior over time.



SUPERVISED VS UNSUPERVISED LEARNING

Supervised Learning and Unsupervised Learning are two fundamental paradigms in machine learning:

Supervised Learning:

INVOLVES LABELED TRAINING DATA WITH INPUT-OUTPUT PAIRS.

THE ALGORITHM LEARNS TO MAP INPUTS TO CORRESPONDING OUTPUTS.

COMMON APPLICATIONS INCLUDE CLASSIFICATION AND REGRESSION TASKS.

Unsupervised Learning:

DEALS WITH UNLABELED DATA, WHERE THE ALGORITHM DISCOVERS PATTERNS AND STRUCTURES.

THERE ARE NO PREDEFINED OUTPUT LABELS FOR THE ALGORITHM TO LEARN.

COMMON APPLICATIONS INCLUDE CLUSTERING AND DIMENSIONALITY REDUCTION.

These approaches cater to distinct learning scenarios, offering versatile solutions in the realm of machine learning.

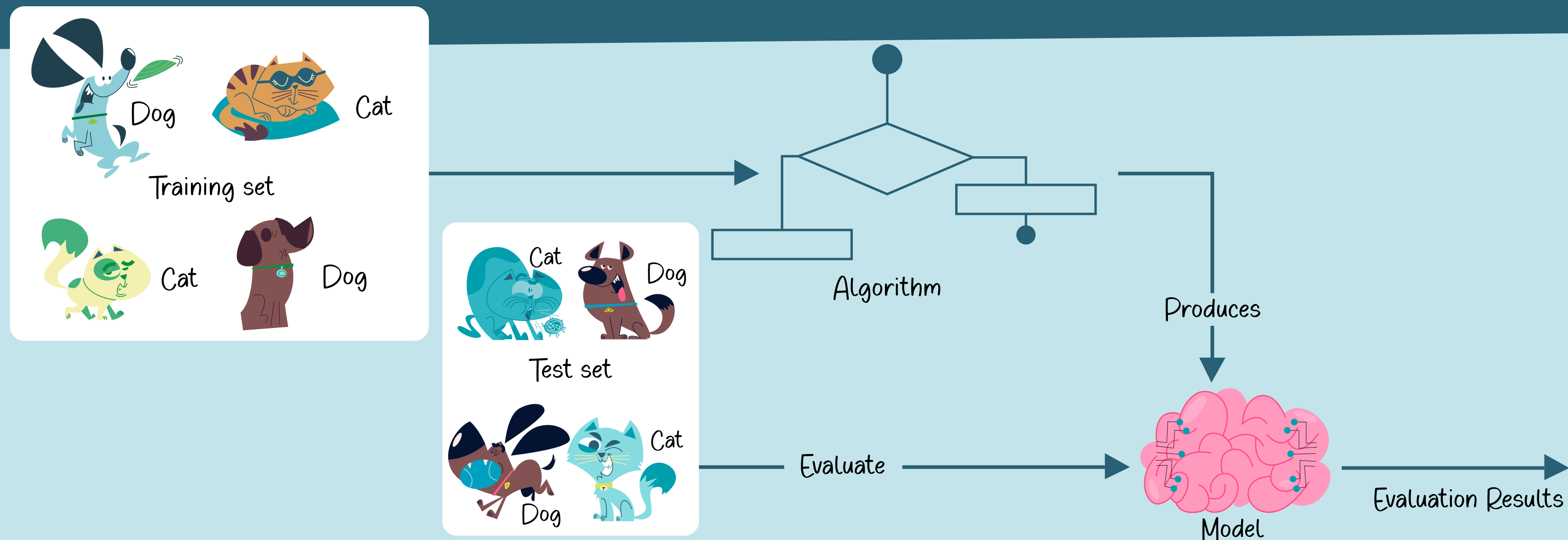
WHAT IS SUPERVISED MACHINE LEARNING?

In Supervised Learning, the output labels are known, and the algorithm is trained on input/output pairs, commonly known as "labeled data." The learning process involves an algorithm that strives to minimize the errors between the predicted output and the actual labels. This iterative learning enables the model to make accurate predictions when presented with new, unseen data.

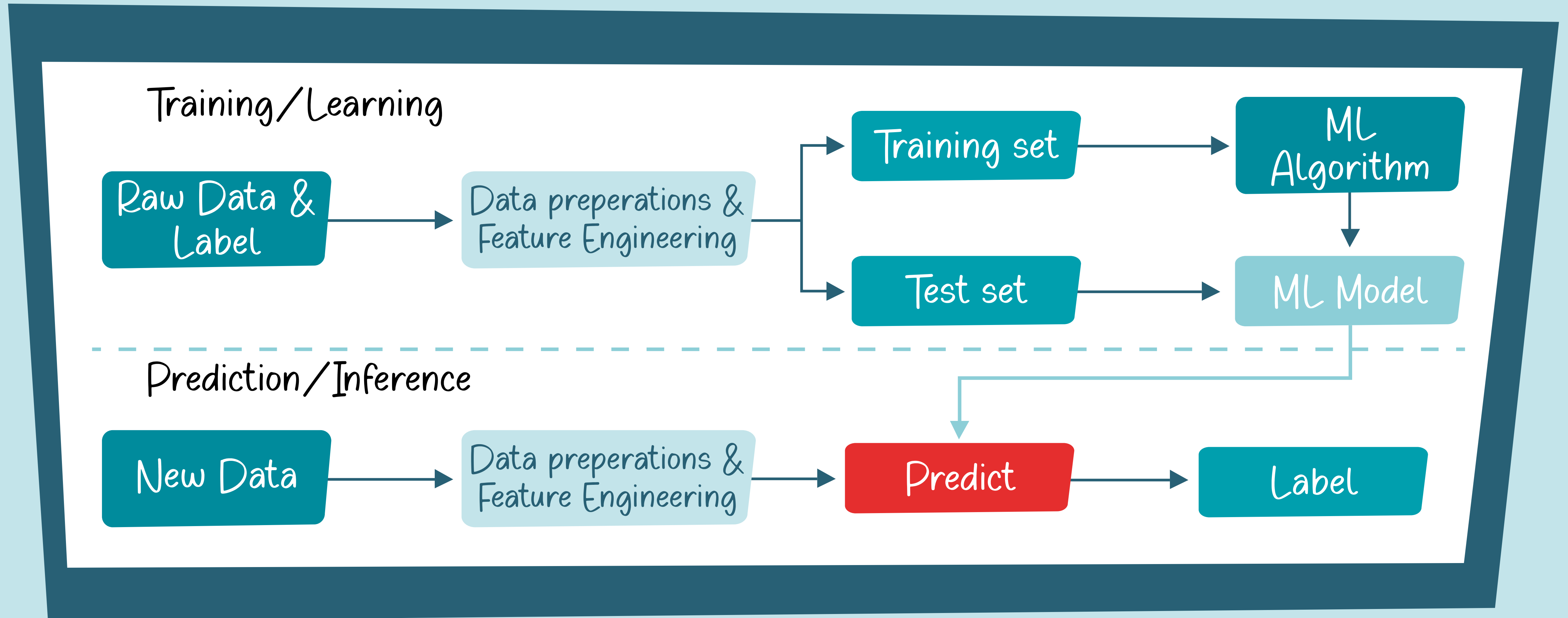


HOW DOES SUPERVISED ML WORK?

A supervised learning algorithm examines the training data to derive an inferred function, or model. This model is then utilized to generate outputs based on new, previously unseen input examples.



SUPERVISED ML PROCESS FLOW



TYPES OF SUPERVISED MACHINE LEARNING

SUPERVISED LEARNING: REGRESSION

Regression in supervised machine learning predicts continuous outcomes, such as forecasting sales amounts or temperature fluctuations.



EXAMPLE:

Predicting house prices based on features like size and location.

SUPERVISED LEARNING: CLASSIFICATION

Classification deals with categorical labels, meaning the label represents a class or category.



EXAMPLE:

Spam or not spam email classification.

SUPERVISED LEARNING APPLICATIONS

STOCK PRICE PREDICTION

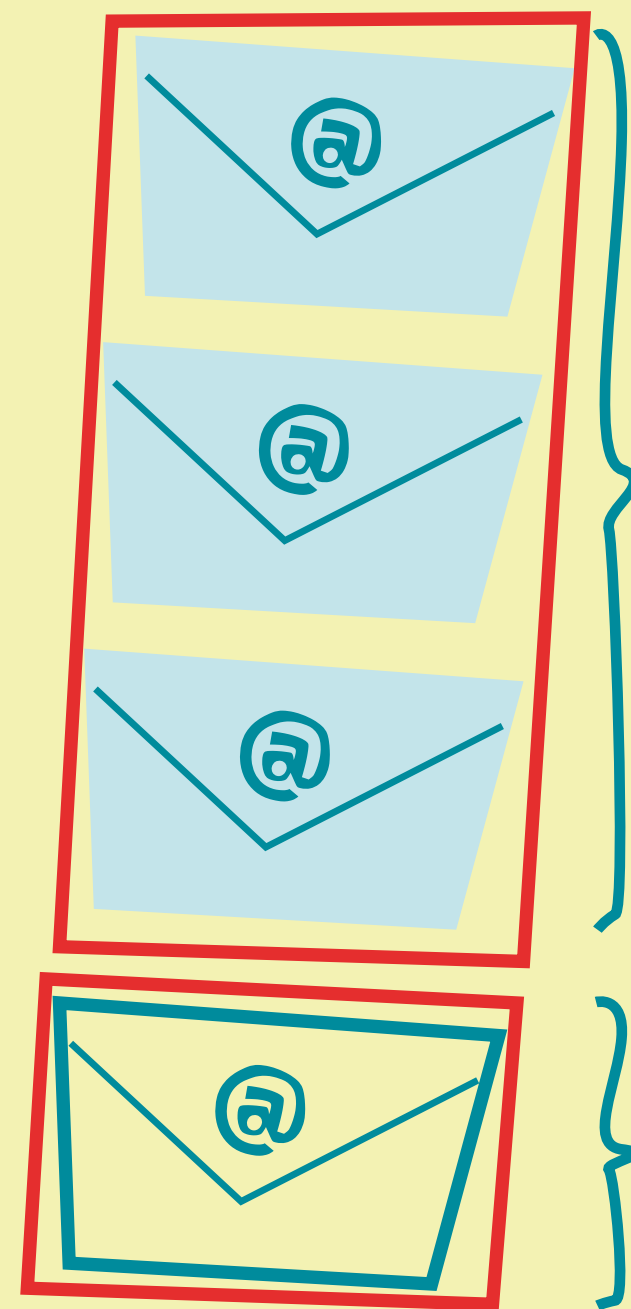
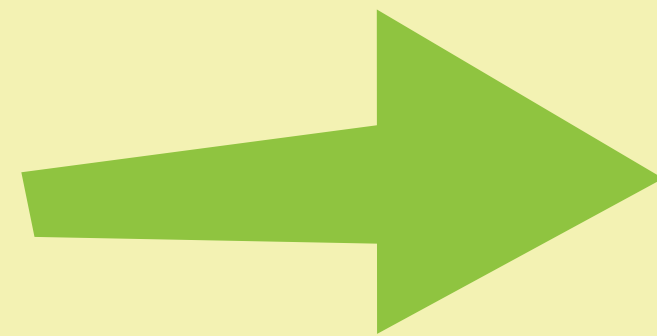
Forecasting future stock prices using historical data, financial indicators, and market trends.

OPTICAL CHARACTER RECOGNITION (OCR)

The model is designed to recognize handwritten characters and categorize each image as a character, which could be any digit from 0 to 9 or any letter from A to Z.

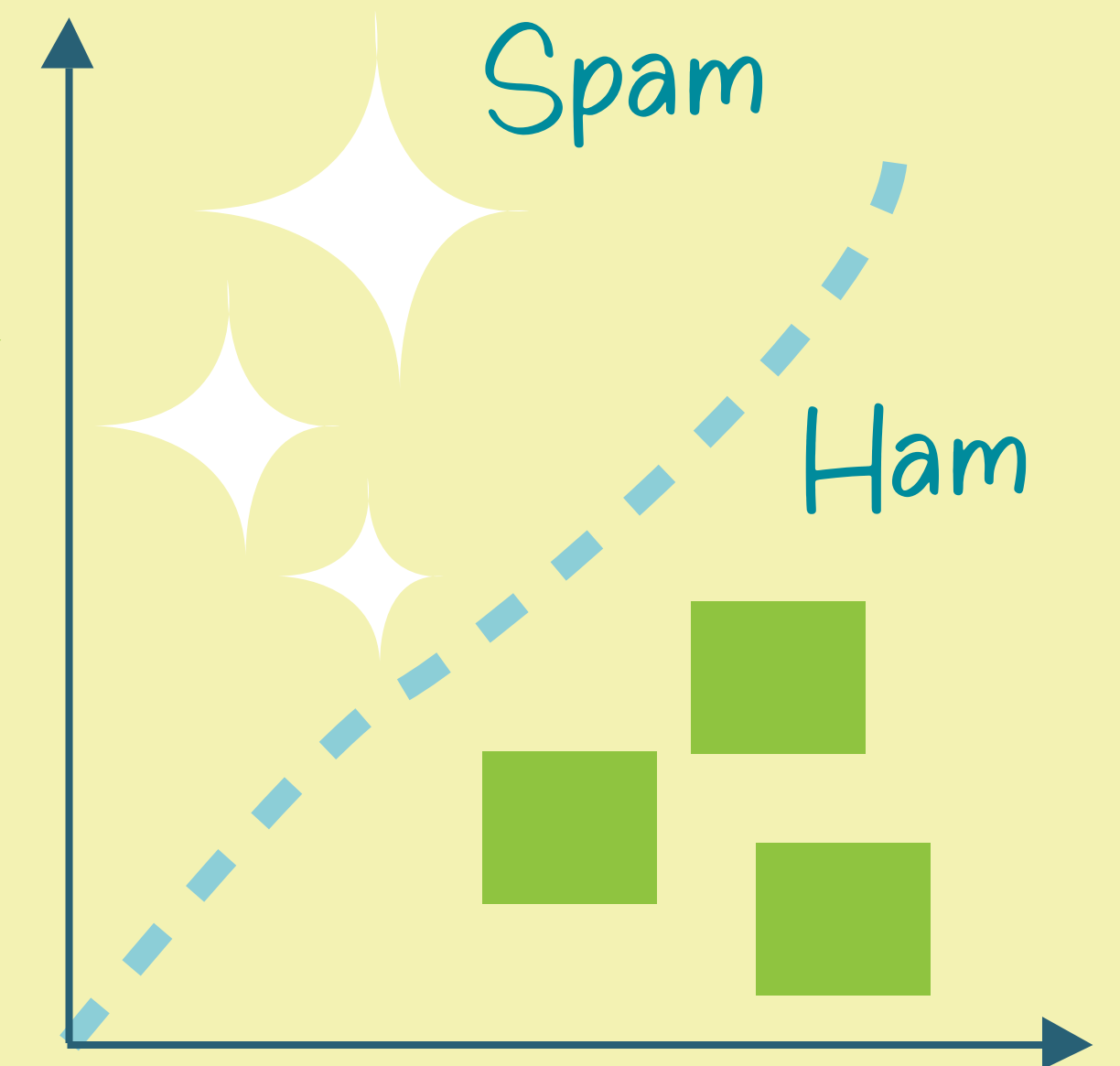
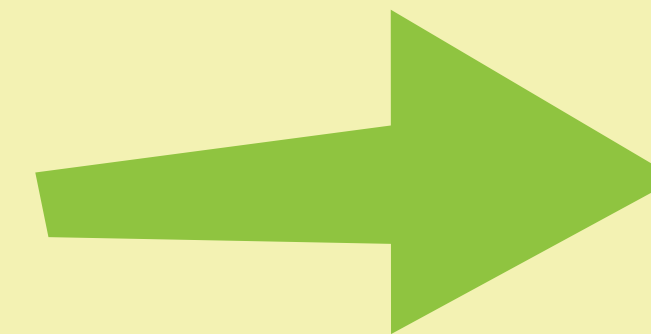
SPAM DETECTION

The model is proficient in accurately discerning which incoming emails should be classified as spam and which should be directed to the primary inbox.



Training Set
80%

Training Set
20%



Instance Gathering

Training and Testing

Classification

SPEECH RECOGNITION

The model is developed to recognize spoken words. Examples of such models include virtual assistants like Siri, Cortana, and Google Assistant.

Audio



Speech Recognizer

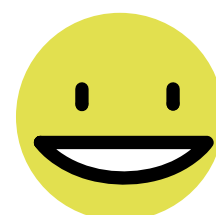


Text

**RECOGNIZED
SPEECH**

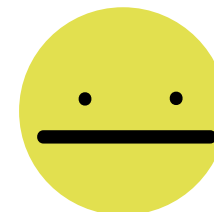
SENTIMENT ANALYSIS

Determining the sentiment or emotion behind text in social media posts or reviews.



My experience
so far has been
fantastic!

POSITIVE



The product is
okay I guess

NEUTRAL



Your support
team is useless

NEGATIVE

FRAUD DETECTION

Supervised Learning is applied to identify potentially fraudulent activities in financial transactions.

