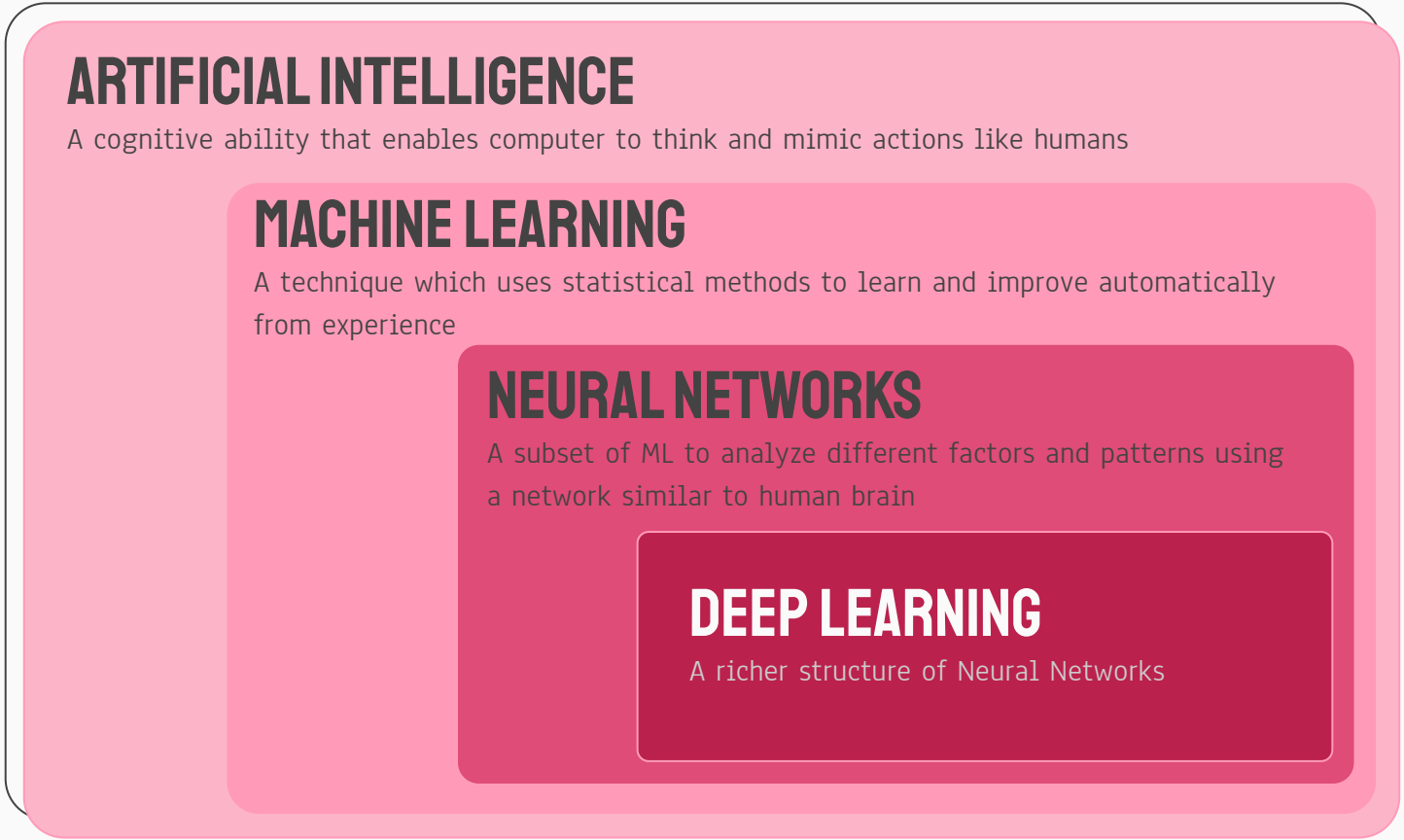
MACHINE LEARNING


ARTIFICIAL INTELLIGENCE
A cognitive ability that enables computer to think and mimic actions like humans
MACHINE LEARNING
A technique which uses statistical methods to learn and improve automatically from experience
NEURAL NETWORKS
A subset of ML to analyze different factors and patterns using a network similar to human brain
DEEP LEARNING
A richer structure of Neural Networks

"Machine Learning is the field of study that gives computers the ability to learn without being explicitly programmed"

ARTHUR SAMUEL, 1959

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WHAT IS MACHINE LEARNING

ML involves **self-learning algorithms** that derives knowledge from **data (examples)** in order to make **predictions**.

Machine-learning uses **statistical analysis** to find patterns in **data** and **learns** from experience **automatically**.

A machine learning system can be **improved** through training, by exposing the algorithm to **more data.**

APPLICATIONS OF MACHINE LEARNING

FINANCE

Identify fraudulent behavior, credit decisions

HEALTHCARE

Improved elder care, monitoring food and alcohol consumption

TECHNOLOGY

Robotic arm, Self driving cars

SEARCH ENGINES

Google Maps, Spam filters

COMMERCIALIZATION

Product suggestion, Varying price update based on demand

SOCIAL MEDIA

Facial recognition, Friends suggestion

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ELEMENTS OF MACHINE LEARNING

01 DATASET

Speech, Audio
Image, Video
Text
Measurement (time, weight)
Number (temperature)

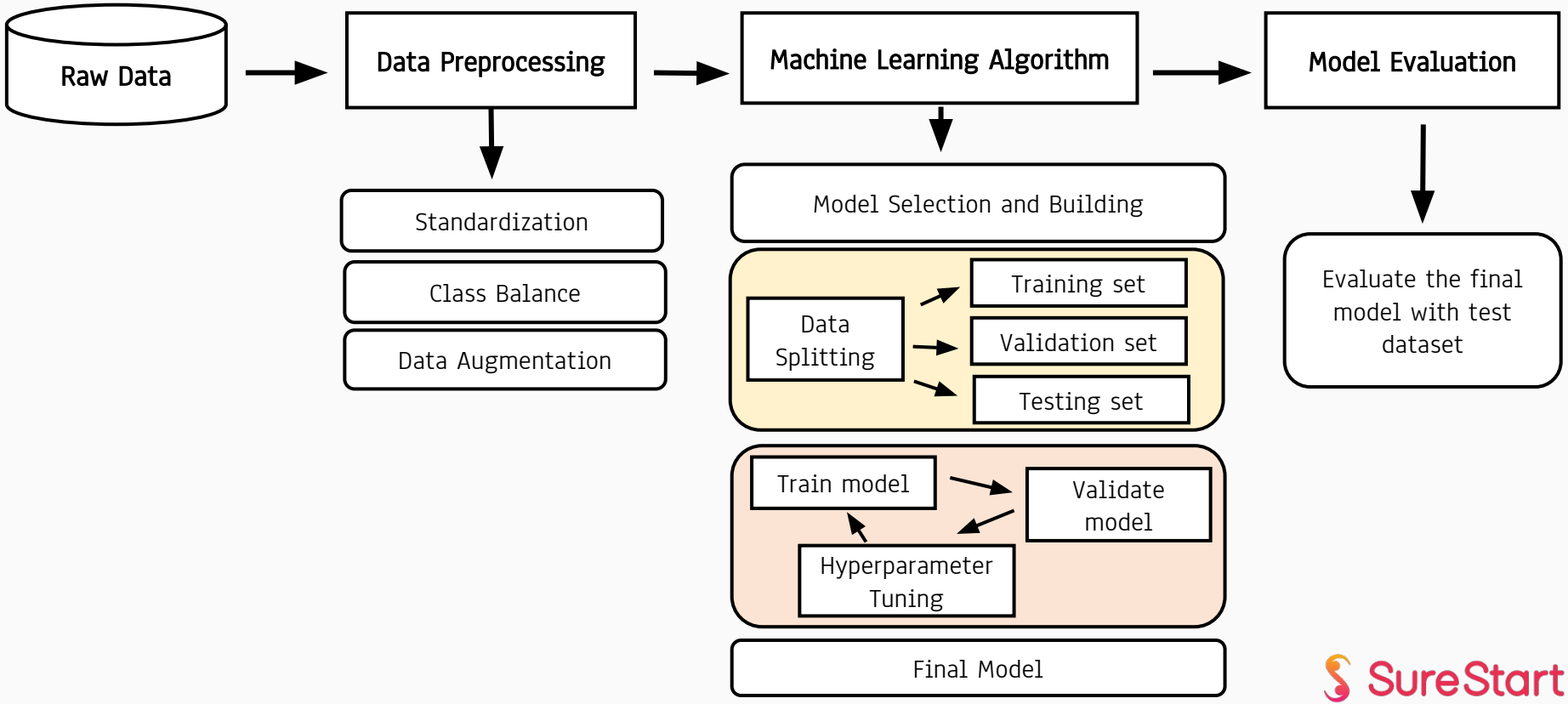
02 ALGORITHM

Analyze data, and find pattern

03 PREDICTION

Make decision, and learn from feedback

STEPS OF MACHINE LEARNING



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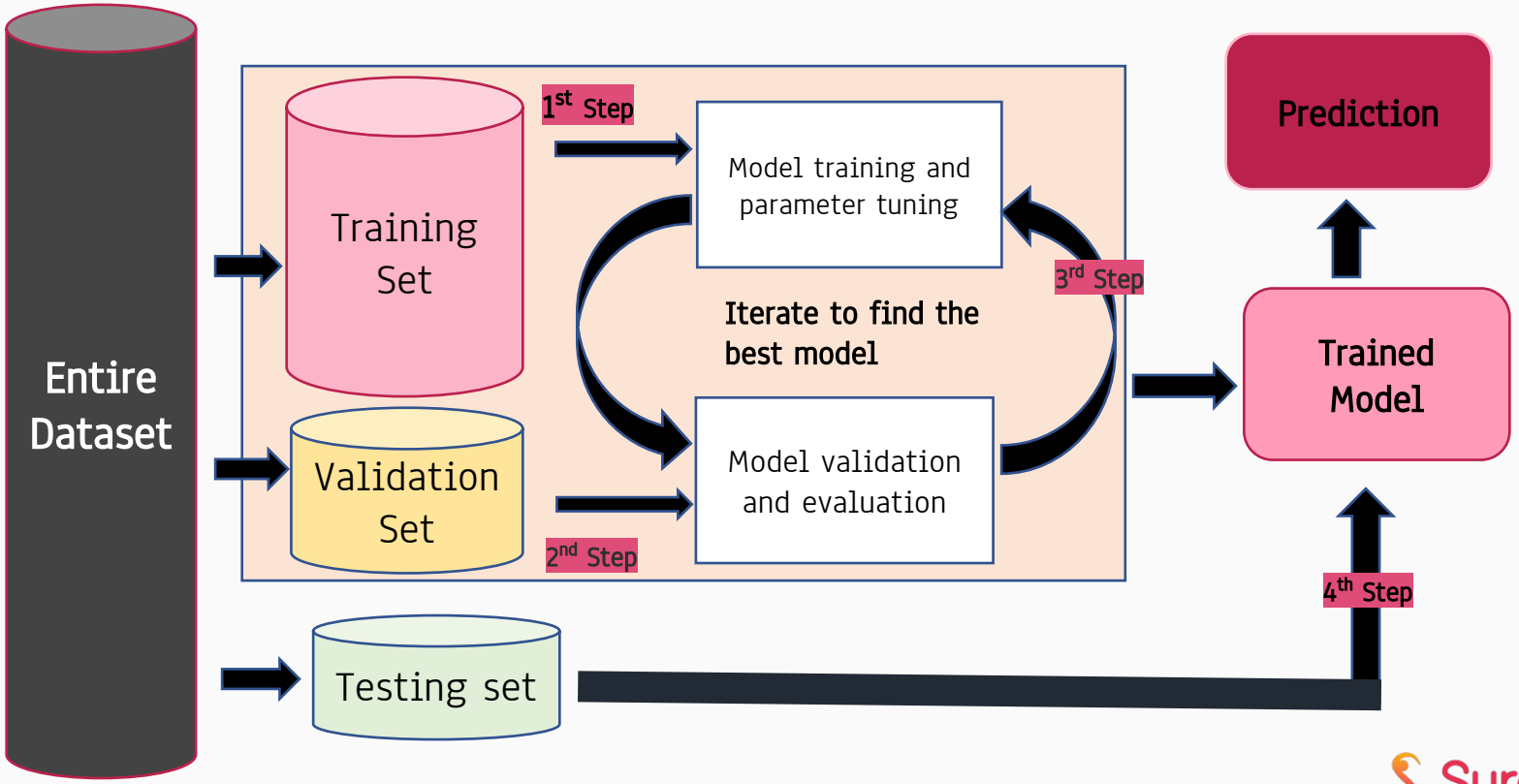
ML ALGORITHM FRAMEWORK



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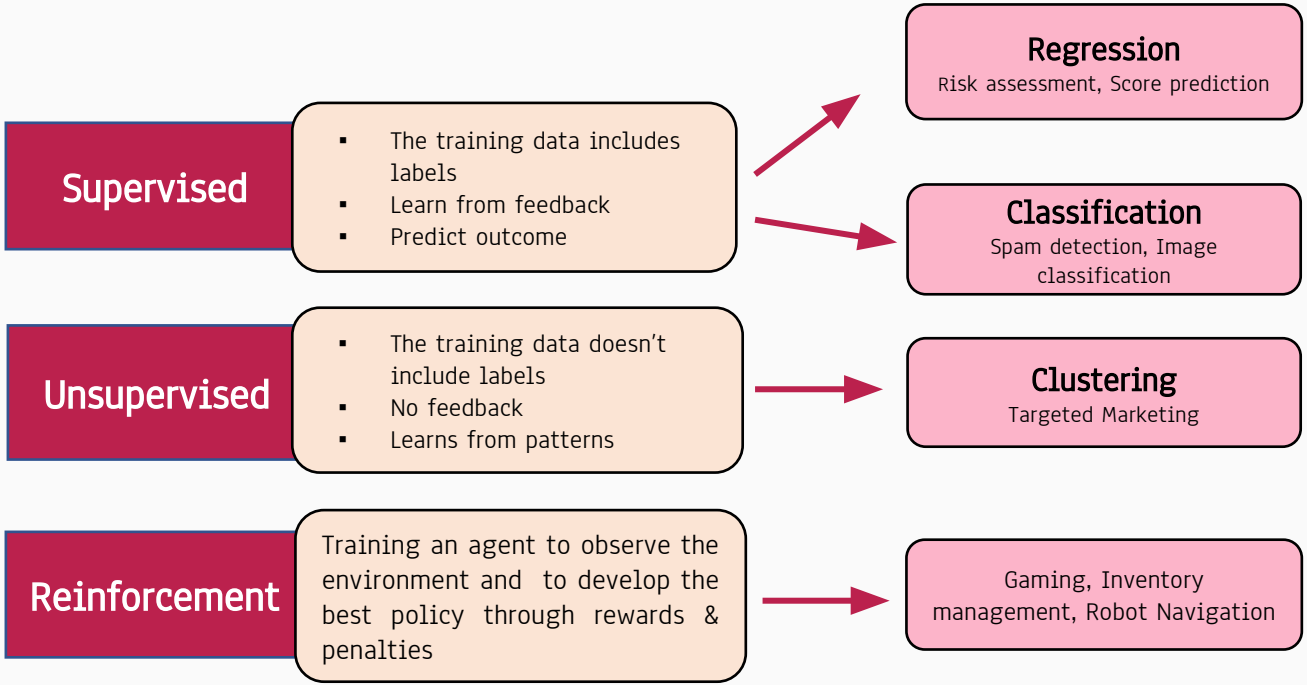
TYPES OF MACHINE LEARNING



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SCIKIT LEARN

Library with efficient tools for data mining and data analysis

Open source, accessible to everybody

Built on NumPy, SciPy, IPython, Sympy, Pandas, matplotlib

Read more: https://scikit-learn.org/stable/

SCIKIT LEARN

Preprocessing data
- Feature extraction and normalization.

Comparing, validating and choosing parameters and models.
- Cross validation, Metrics

Offers robust algorithms
- Classification, Regression, Clustering