

Artificial Intelligence Dec 2023 Batch

32 hrs

Machine Learning Landscape

Python

Statistics

ML models

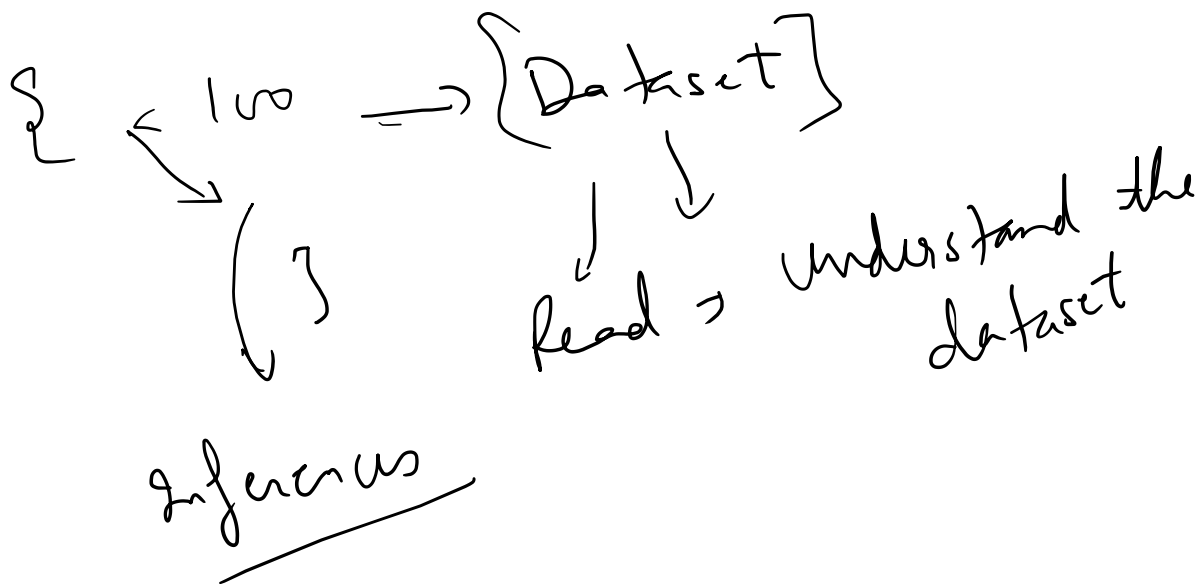
Deep Learning- NLP, CNN & ANN

Data Science- Complete Package

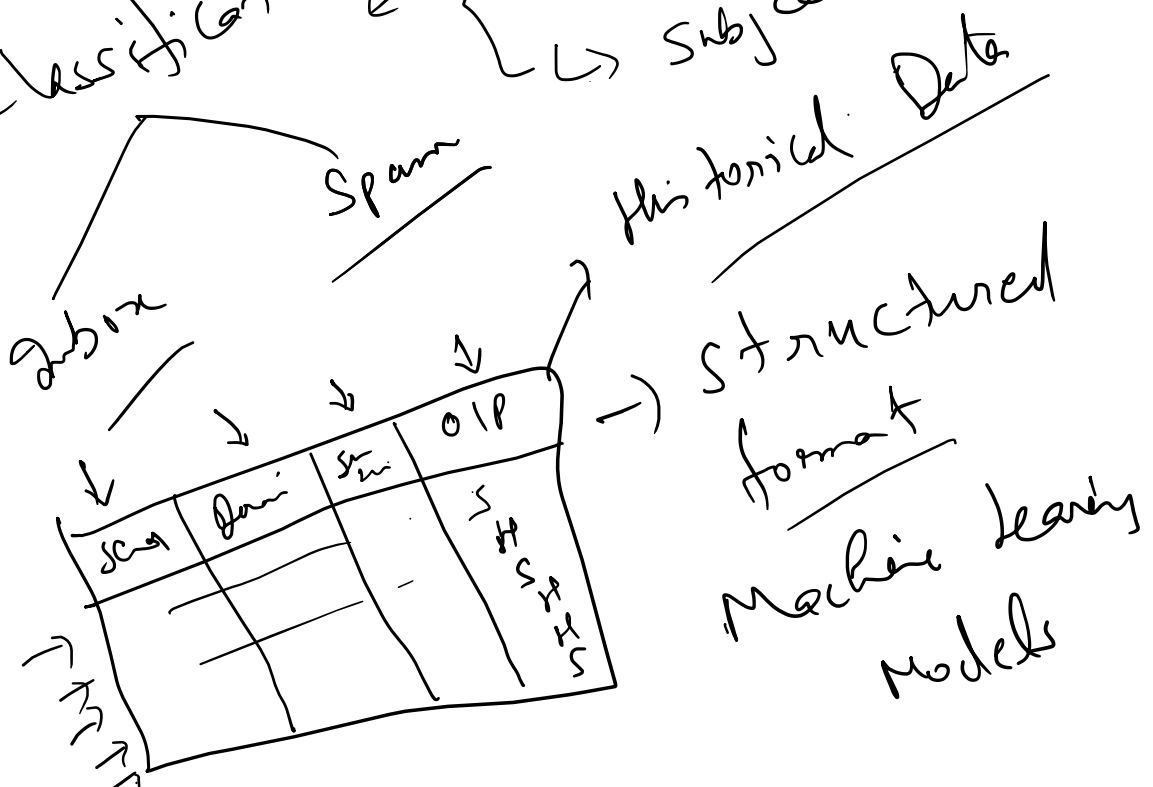
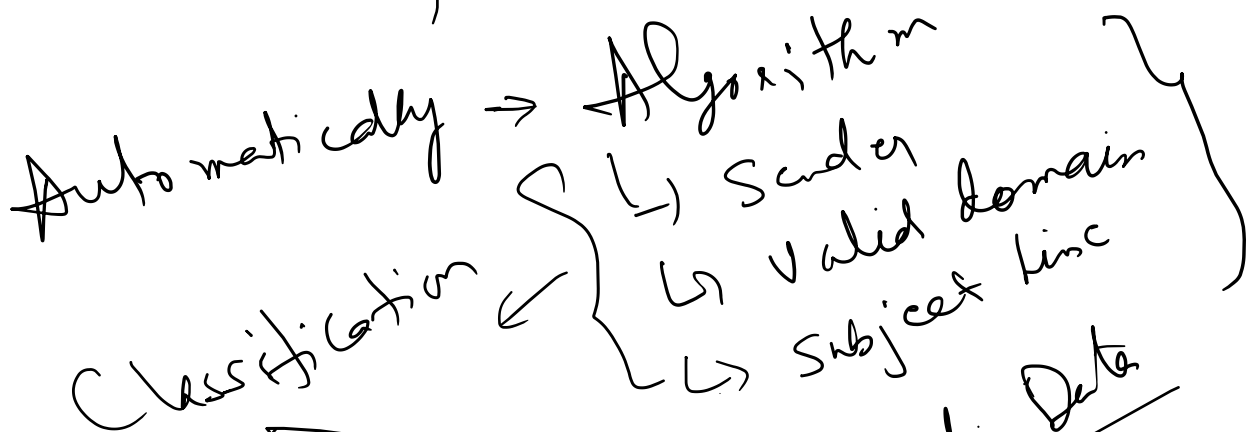
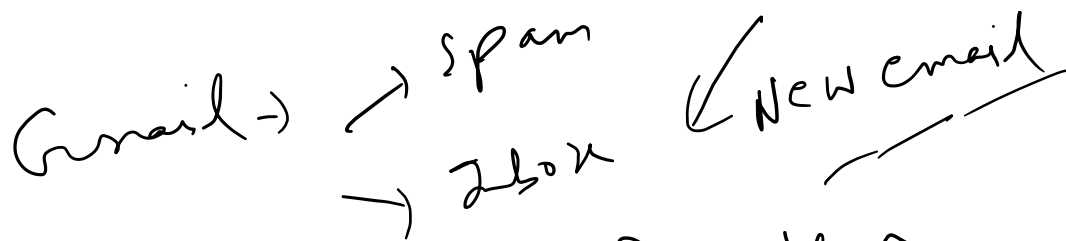
SQL, pyspark, power BI ,
Cloud Computing

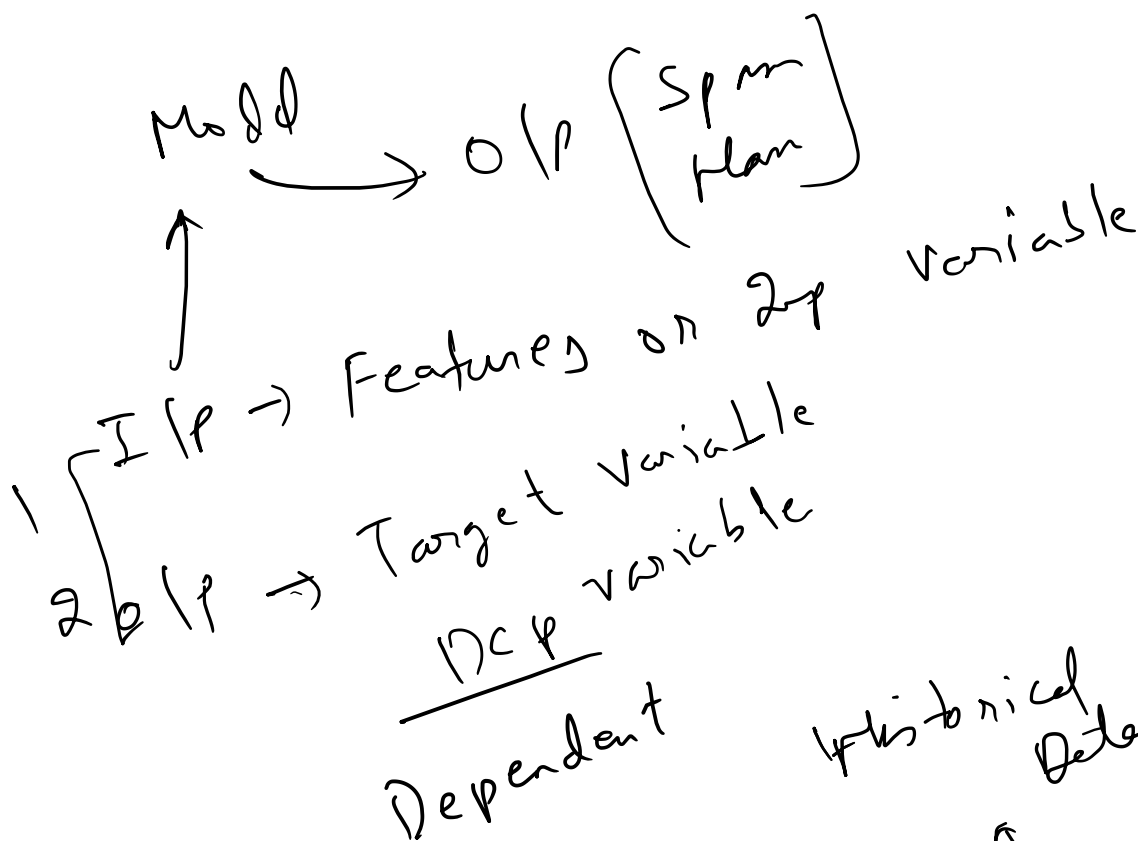
Machine Learning is the science (and art) of programming
computers so they can learn from data.

Code → Dataset → Predictions
↖ ↗
Learning



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

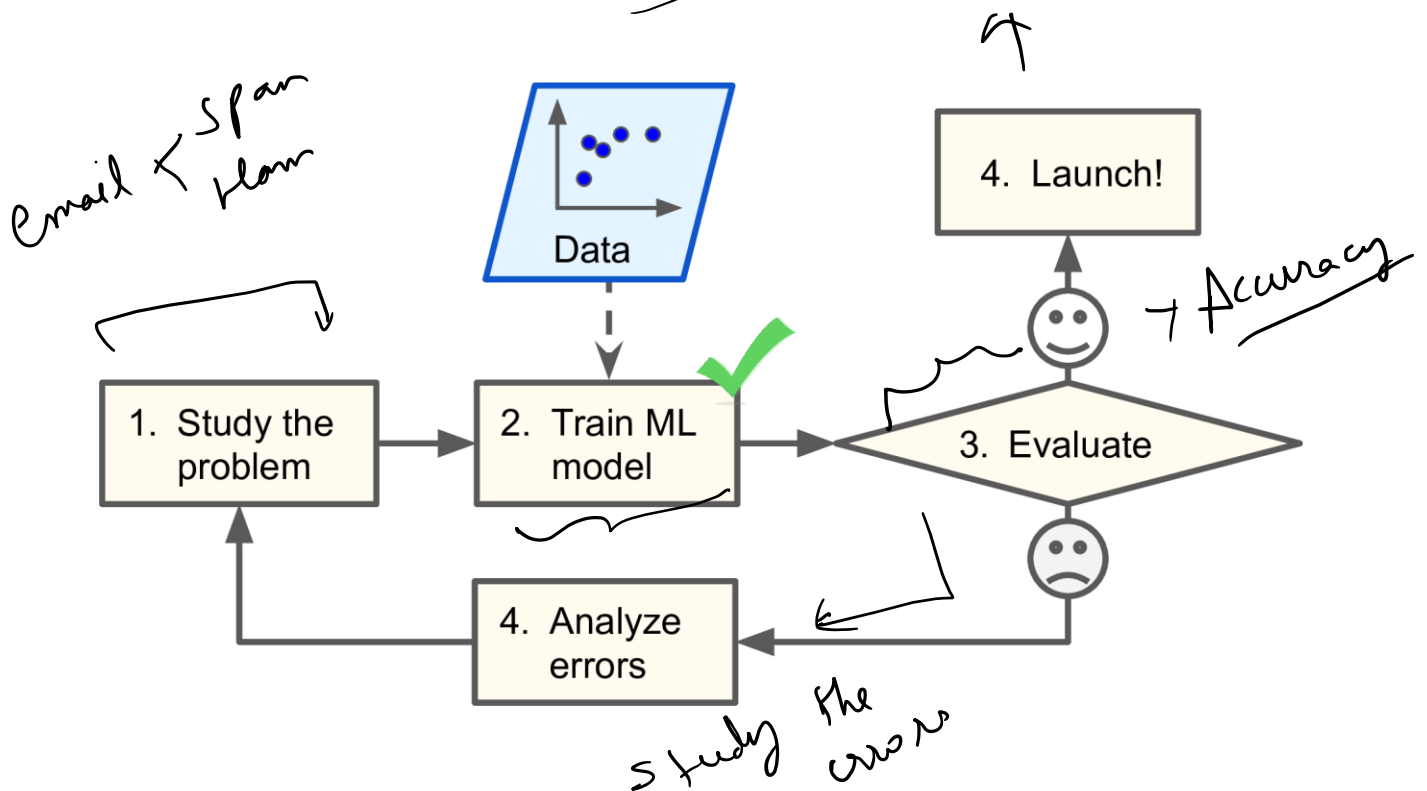
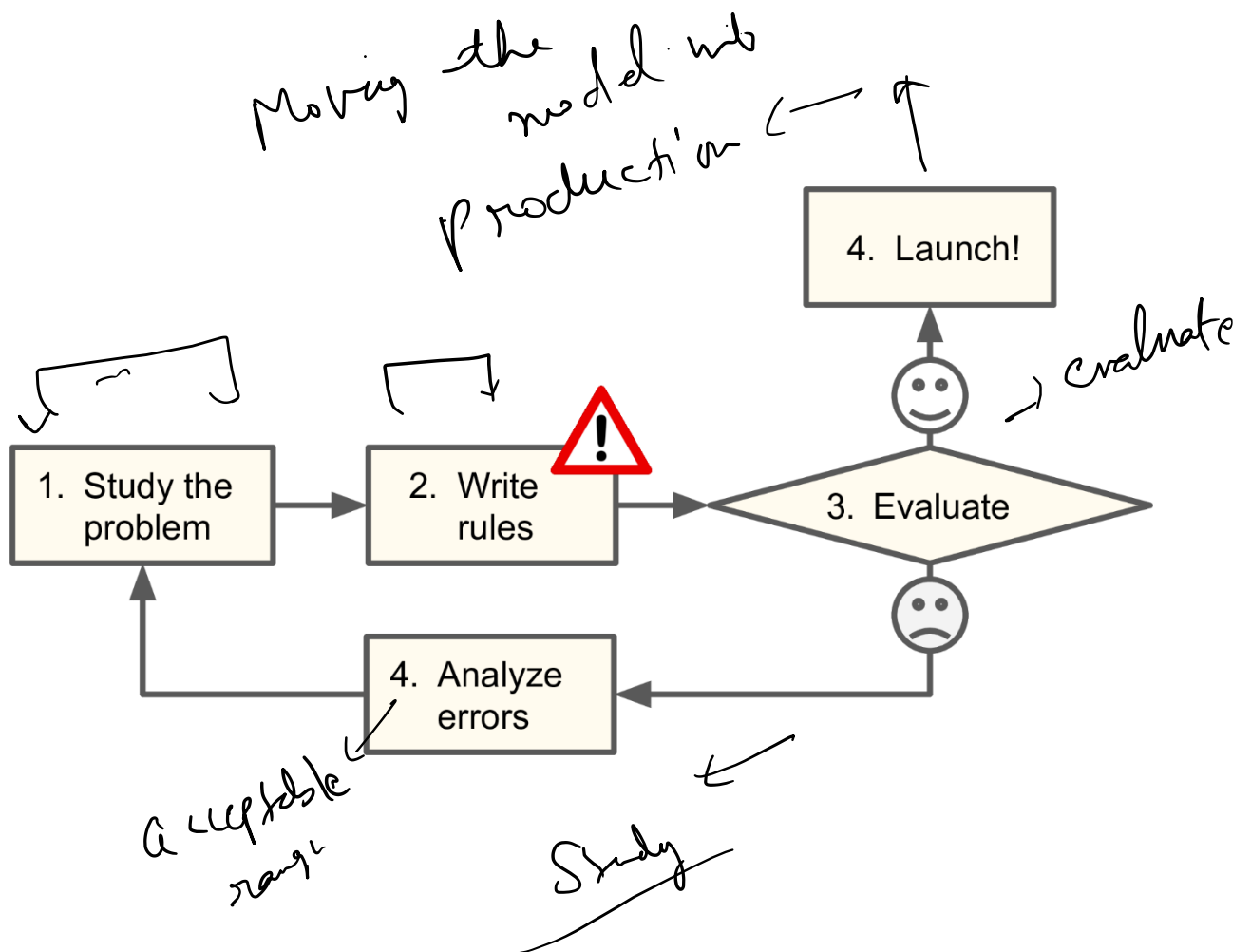


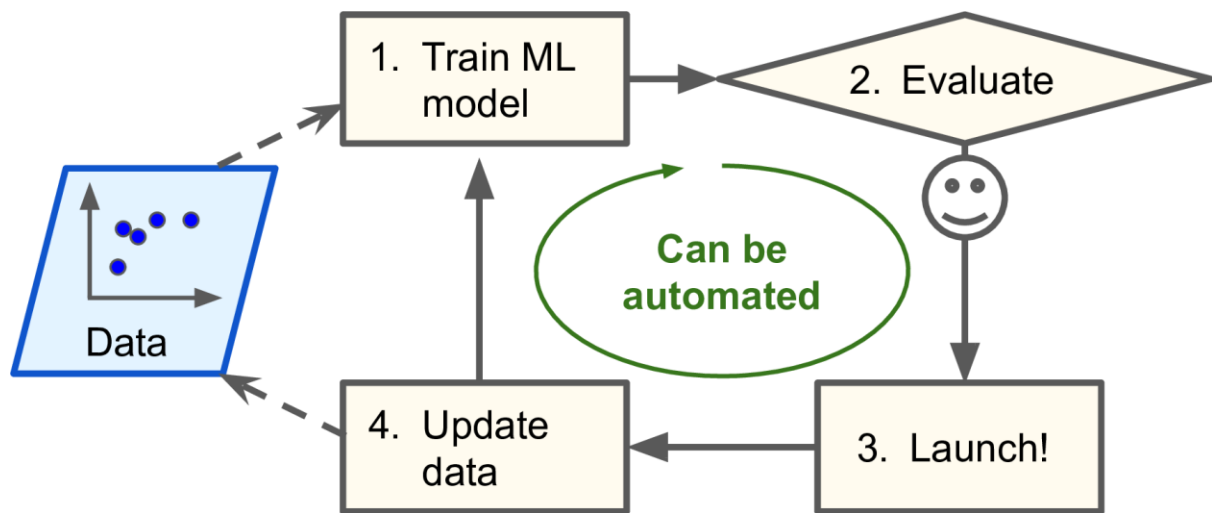


A computer program is said to learn from experience E with respect to some task T and some performance measure P , if its performance on T , as measured by P , improves with experience E .

$E \rightarrow$ Historical Data
 $T \rightarrow$ Email Spam plan
 $P \rightarrow$ Accur

110 email
 6 4
 5/6 = Accuracy
 = 0.83



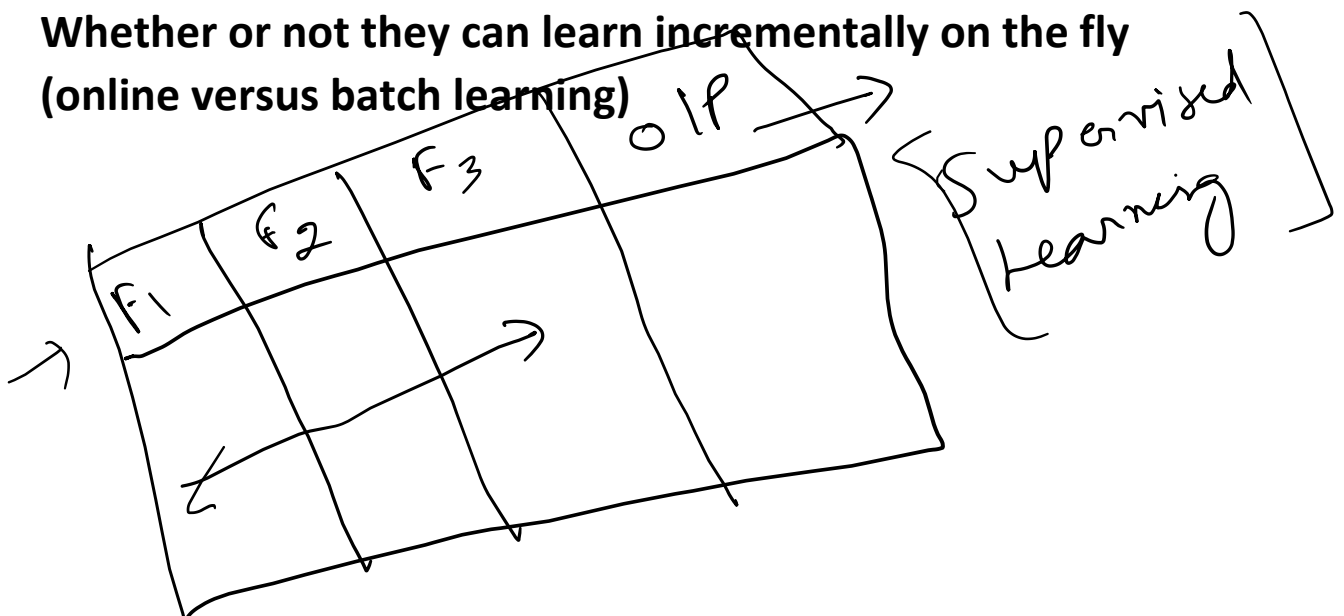


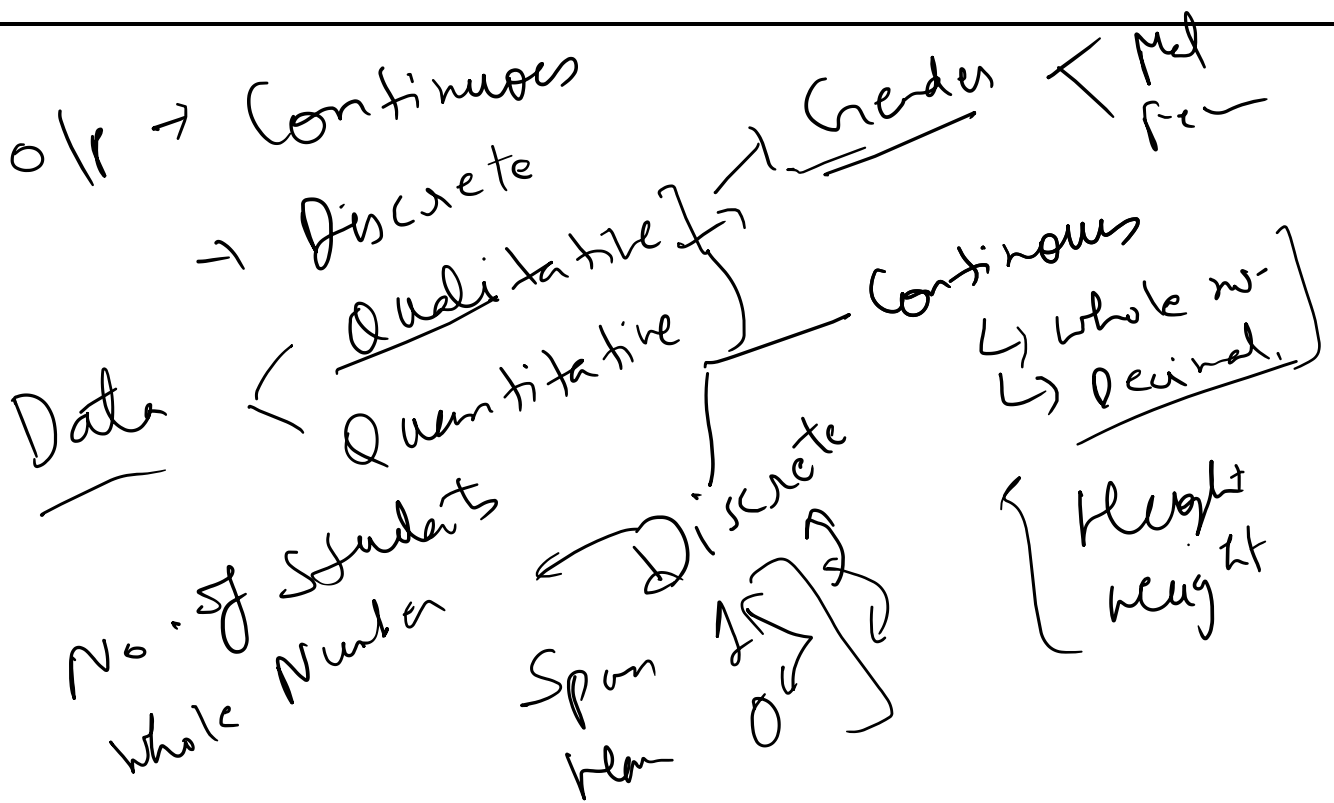
From the perspective of Spam/Ham example the experience E is the training data, the task T is to flag new/incoming email as spam/ham and the performance measure P is called as accuracy.

Types of Machine Learning Systems

How they are supervised during training (supervised and unsupervised machine learning)

Whether or not they can learn incrementally on the fly (online versus batch learning)





Training Supervision- ML systems can be classified according to the amount and type of supervision they get during training.

Supervised Learning- In supervised learning, the training set you feed to the algorithm includes the desired solutions called labels.

There are two kinds of supervised learning:

1. Classification Spam/Ham model is a classification task where target variable is discrete (0 or 1) e.g. Logistic

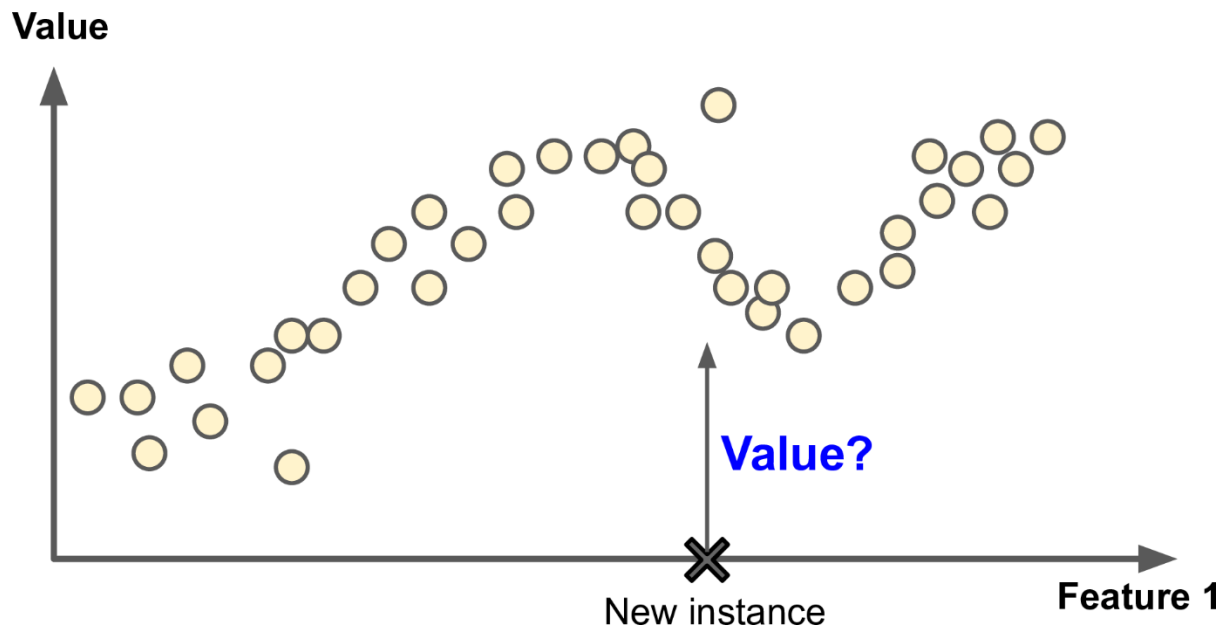
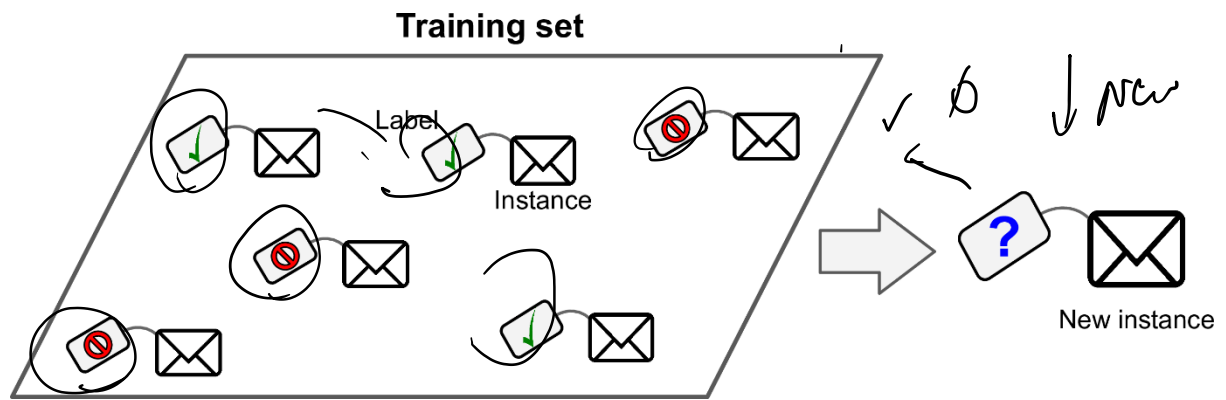
Regression is a ML model

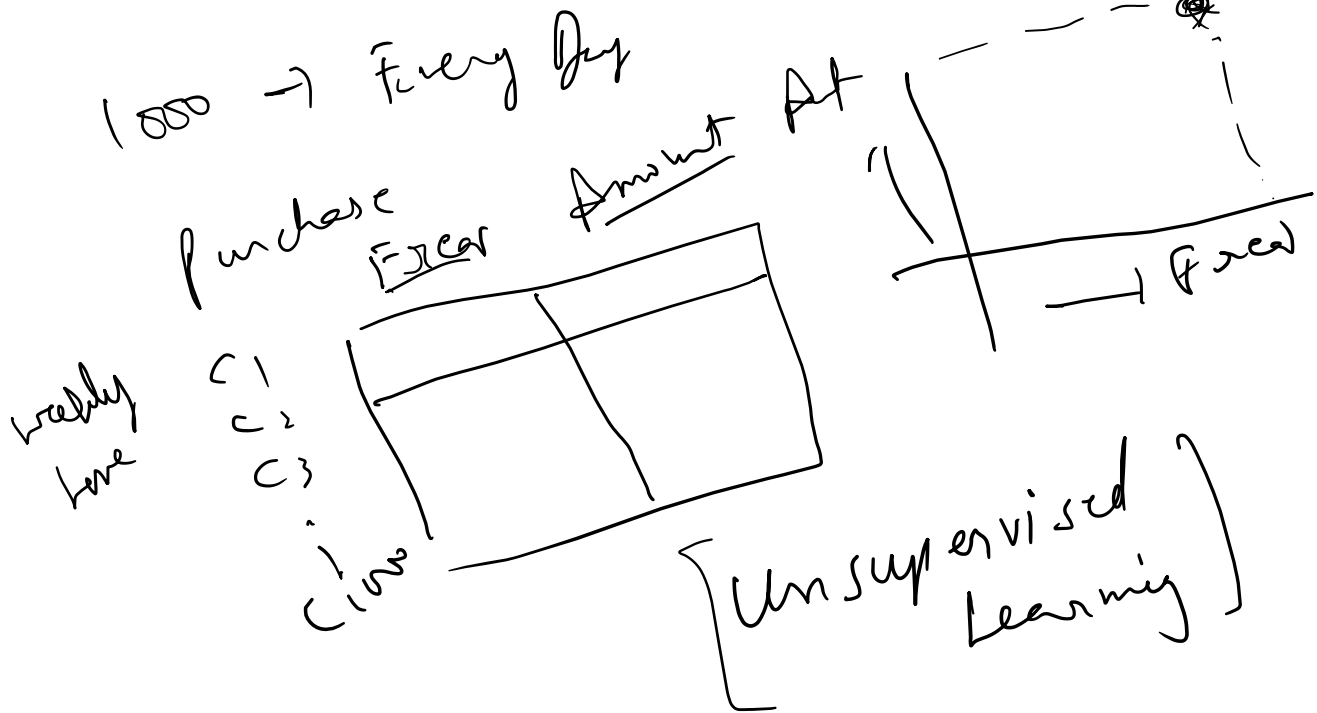
2. Regression The target variable is continuous in nature

e.g Linear Regression is a ML model

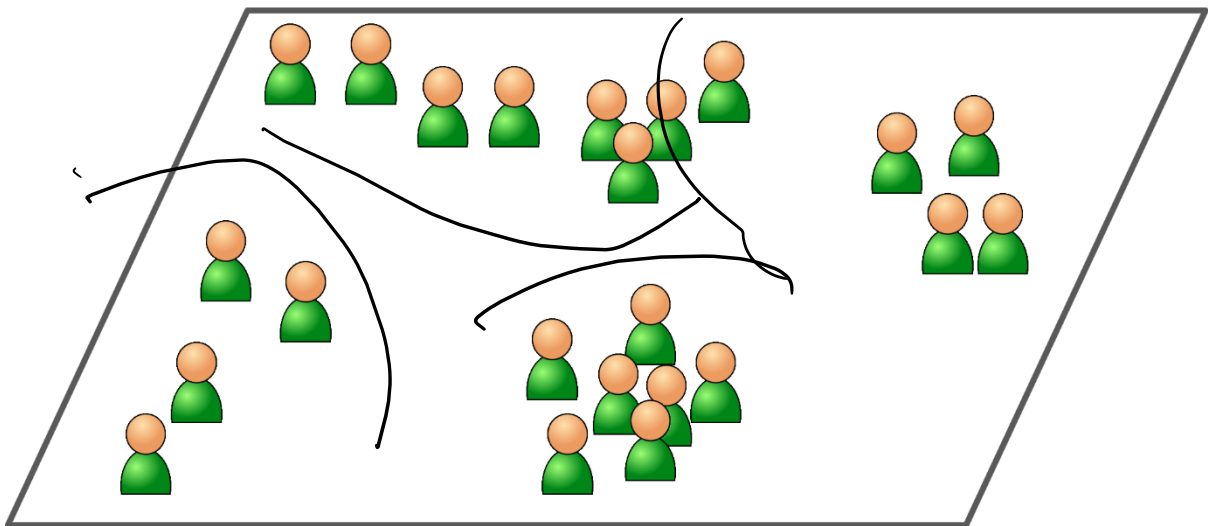
Supervised ML is that algorithm where the target variable is present in the historical or training data. If the target variable is discrete then we opt for classification algorithms and if the target variable is continuous then we opt for regression algorithms.

Bank Customer \rightarrow Whether a customer
+ will leave the bank services
- or not
has
[Churn Modelling]

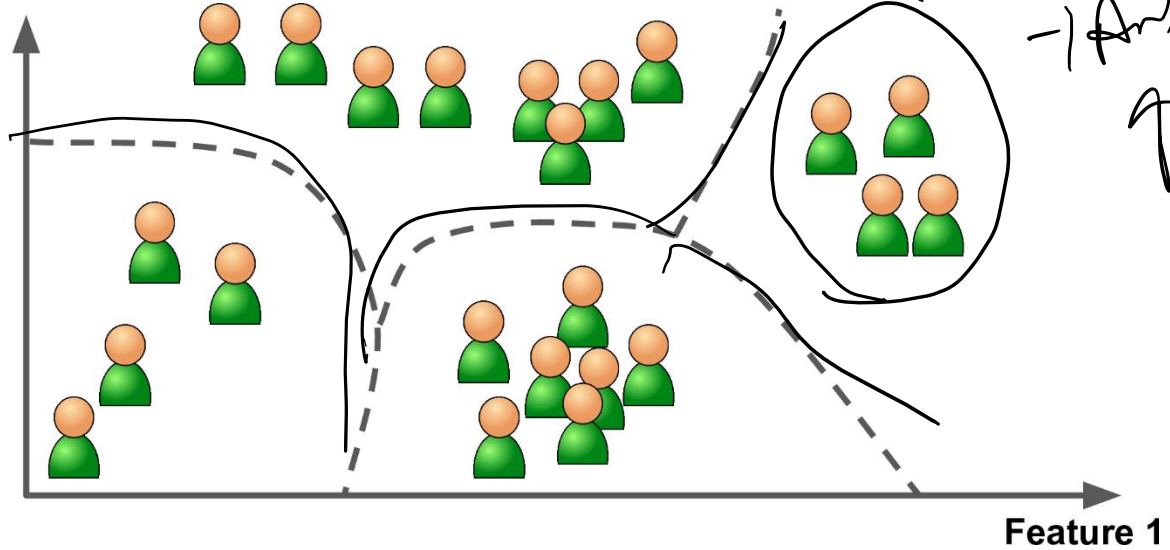




Training set



Feature 2



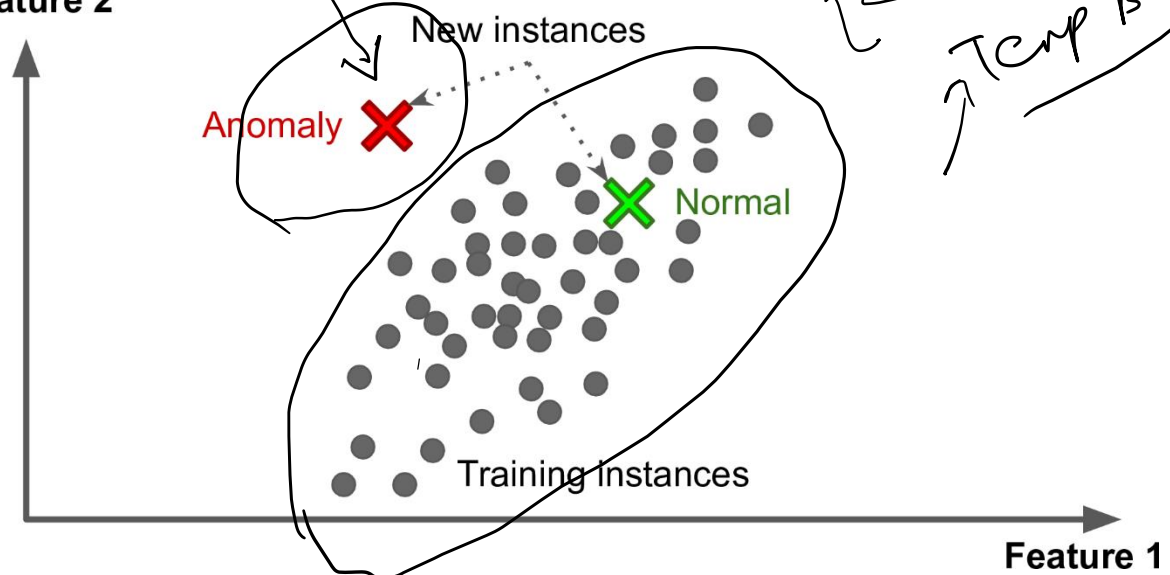
Anomaly Detection

$CC \Rightarrow \frac{2 \text{ lac}}{10-20}$

1 lac

Call Temp Block

Feature 2

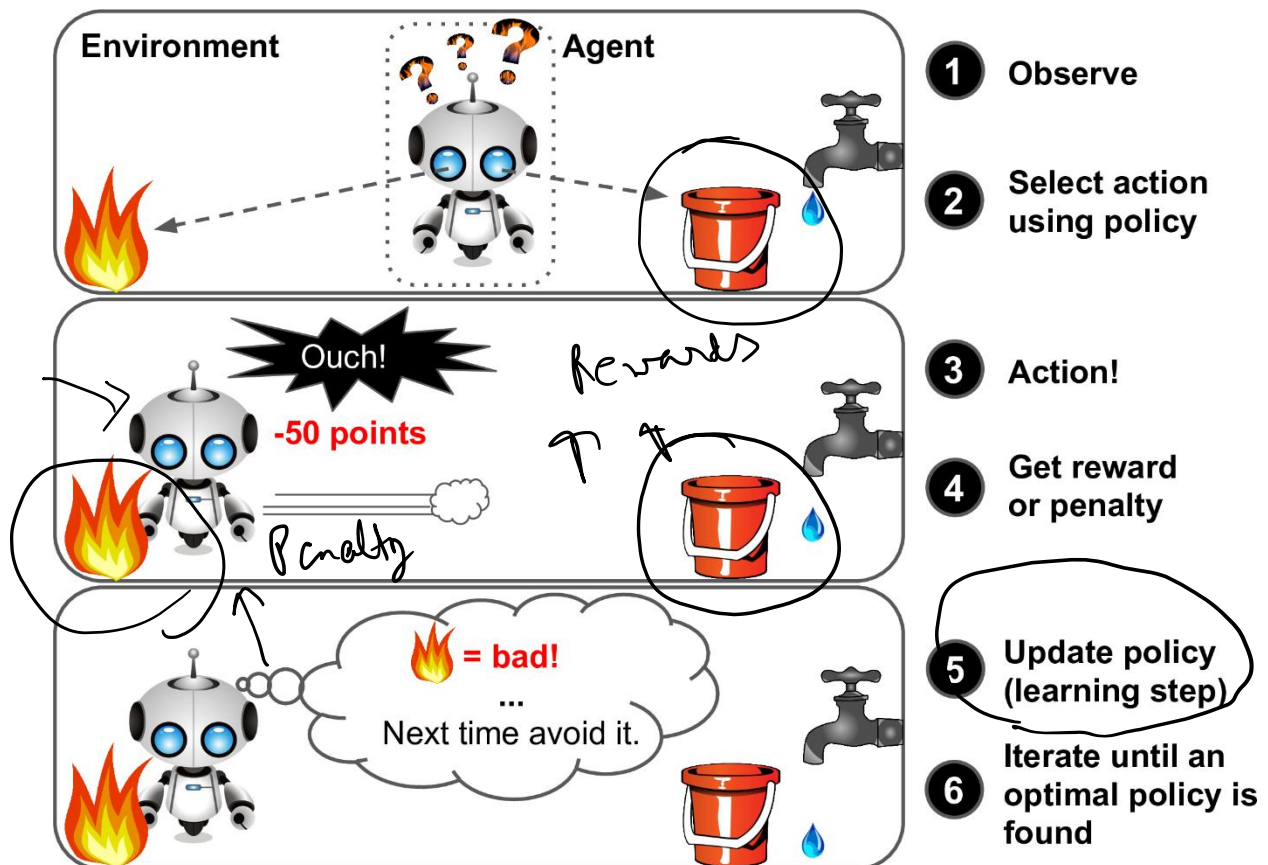


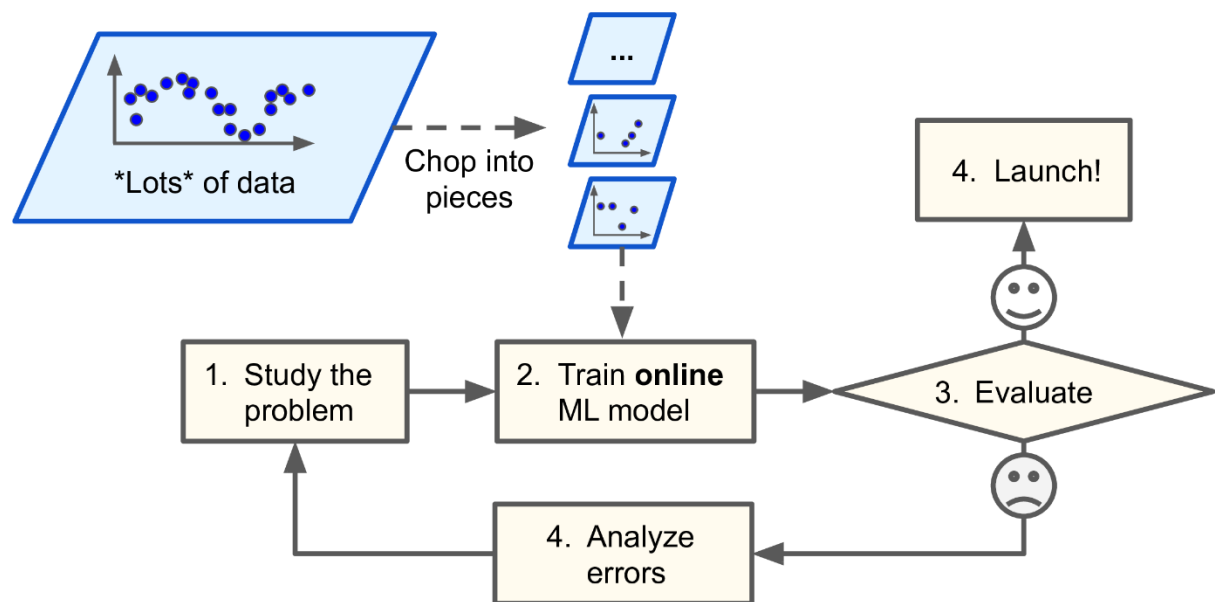
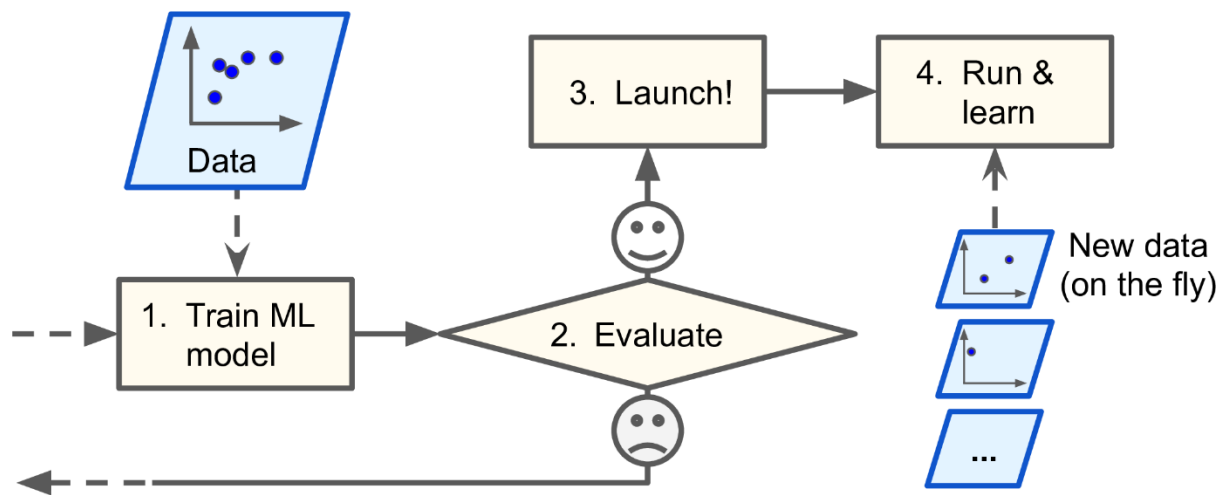
environment

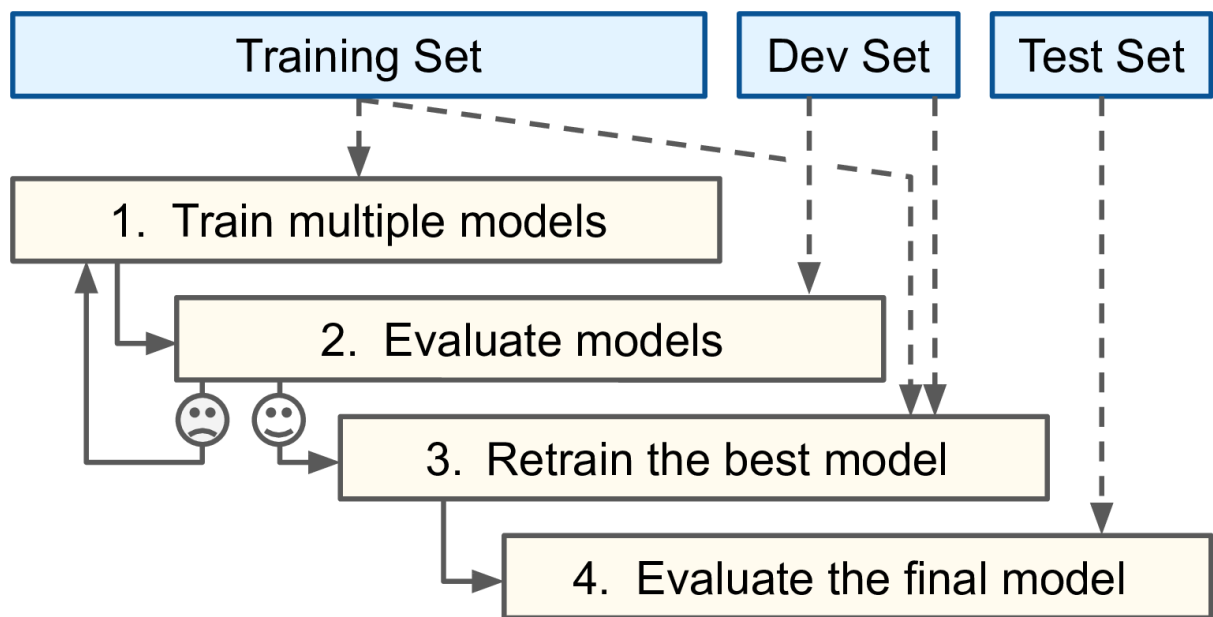
Reinforcement Learning- The learning system, called an agent in this context, can observe the environment, select and performs actions and get rewards in return (or penalties in the form of negative rewards).

It must then learn by itself what is the best strategy, called a policy to get the most rewards over time.

A policy defines what action the agent should choose when it is in a given situation.







Data \rightarrow Historical Data
 1000 \rightarrow $\begin{cases} 800 \rightarrow \text{Train data} \\ 200 \rightarrow \text{Test data} \end{cases}$

Run Train data & test it on unseen data

