## Welcome To Machine Learning World
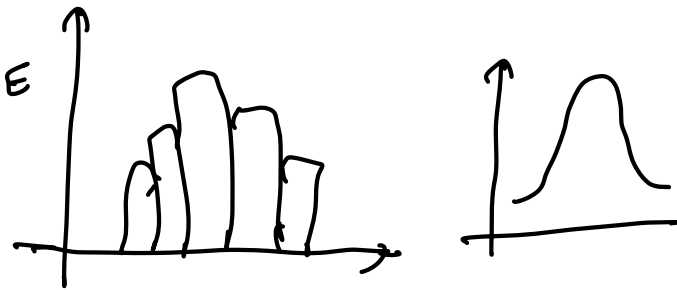
DSML Lib

Prob & stats

Co-ord geom & Linear Algebra

Calculus & optimization

① Numerical : histogram, KDE
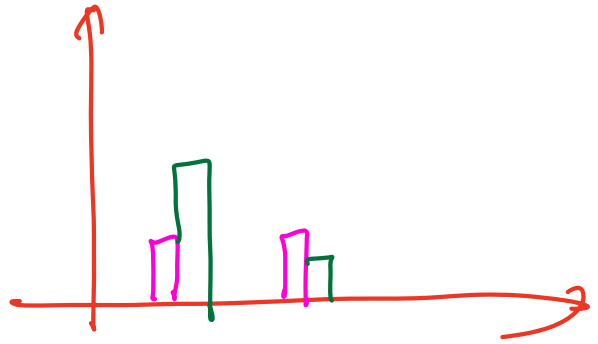
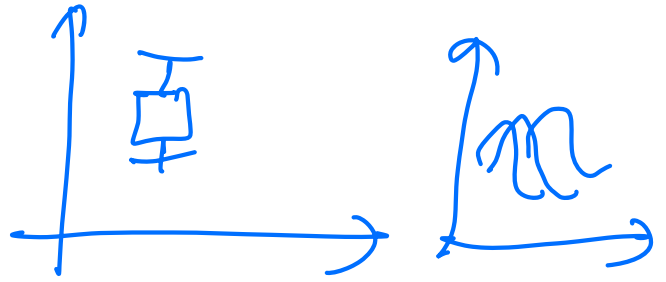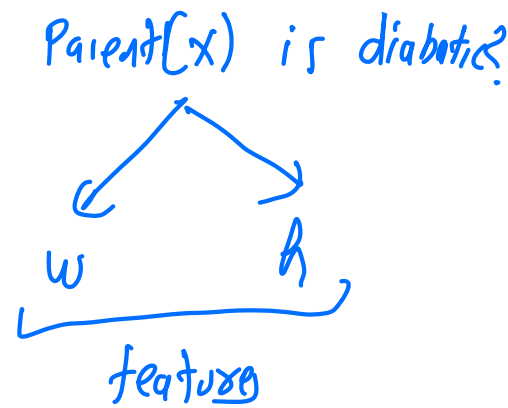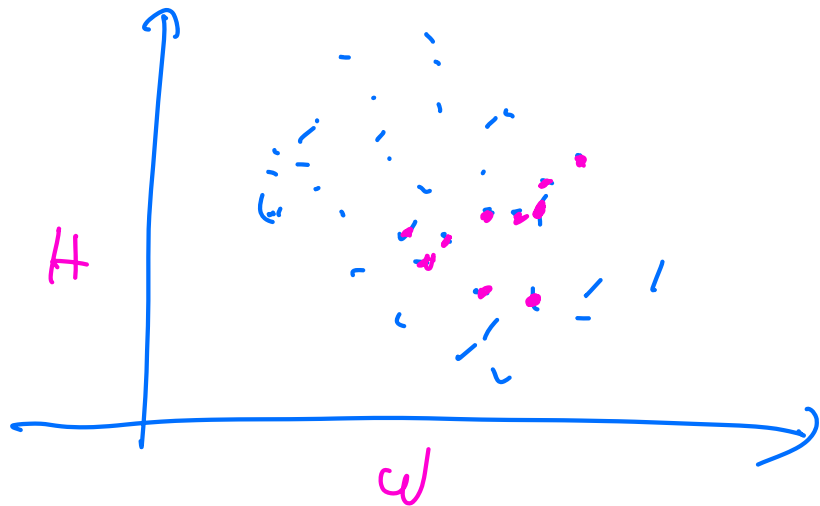② Categorical : bar-plot , count-plot

③ Num – Num

(4) Cat — cat

(5) Num — cat

Checklist

$$\text{Checklist} \xrightarrow{\text{Task}} \text{Parent}(x) \text{ is diabetic?}$$

Parent(x) is diabetic?

w        h

features

Num—num—cat

H

w

Arthur Samuel

ML provides ability to learn without being
extremely programmed

Email → $E_1$ , $E_2$ , $E_3$
         ↓      ↓      ↓
         S      NS     S

(SDW)

if    Keyword = " viagra " || " Nigeria king "
      || " lottery "

nigeria
"nigeria"

ML algo
|
┌─────────┐
New Email  →  │   h₀   │  → Decision
└─────────┘     Spam / not a spam
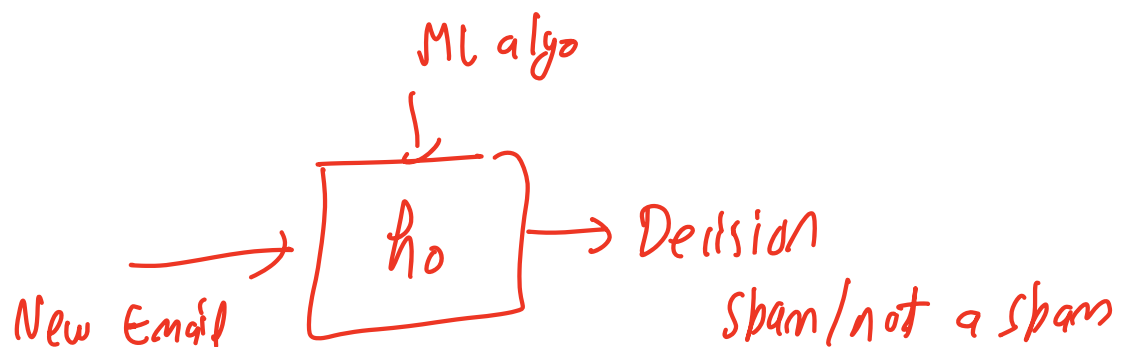
Input :
Learning Algo
Out :   Trained model ( Hypothesis )

Unknown data

| Task | Experience | Performance |
|---|---|---|
| ① Predict price of stock $\Rightarrow$ | Historical data of price for training a model → "Real value" | $(y - \hat{y})$ |
| ② Cat/dog Categorize images | Train using image + label using a model | |

Study of algo which improves Performance (P) at task (T) with Experience (E)

2

→ Regression

→ Classification

$\Downarrow$

fixed # of o/p

→ categorical

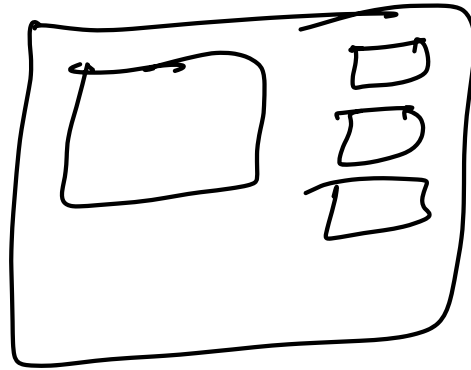| $C_1$ | $C_2$ | $C_3$ | P |
|---|---|---|---|
| — | — | — | 2.3 |
| — | — | — | 3.5 |
| — | — | — | 2.3 |
| — | — | — | 2.3 |
| — | — | — | 3.5 |

2.3 or 3.5

## Regression

o/p Housing price

128.3
128.4
128.27

Clustering
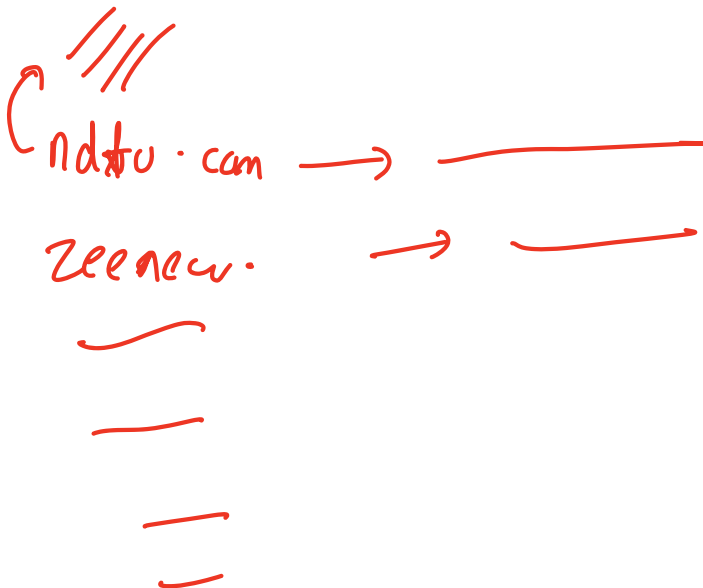
Recommendation

Forecasting

Time series

Input Data

Label

dog, cat, dog

Supervised ML Algo

Trained Model → Dog/Cat

Test
Data

$x_i$

Sports

W C

Aus won

ndtu.com $\longrightarrow$ _____

Zeenew. $\longrightarrow$ _____

_____

_____

_____

_____

SQL $\longrightarrow$ }
DAV $\longrightarrow$ } (Bootramp)
Maths for Mc $\longrightarrow$ } &