# Machine Learning

MTE : 20 } Numerical
PRS : 25 → Play
CWS : 15

Attendance : 5 → ≥95% : 5
Tests : 10 → 90-94 : 4
÷ 2 → 85-89 : 3
5 → 80-84 : 2
75-79 : 1
< 75 : 0

1st Avg → 2nd Avg.

## Pre-Requisite:

Probability

Differentiation

$\frac{\partial}{\partial x}(1) = 0$

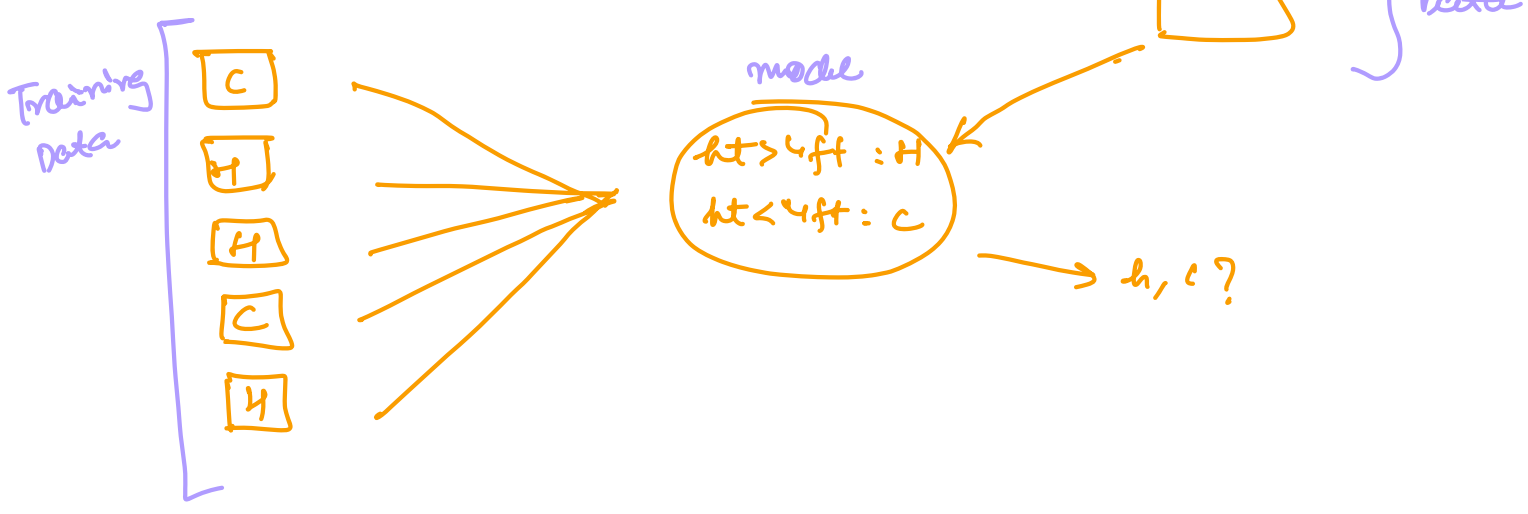
$\frac{\partial}{\partial x}(x^n) = nx^{n-1}$

Data Analytics → Data → Patterns

ML

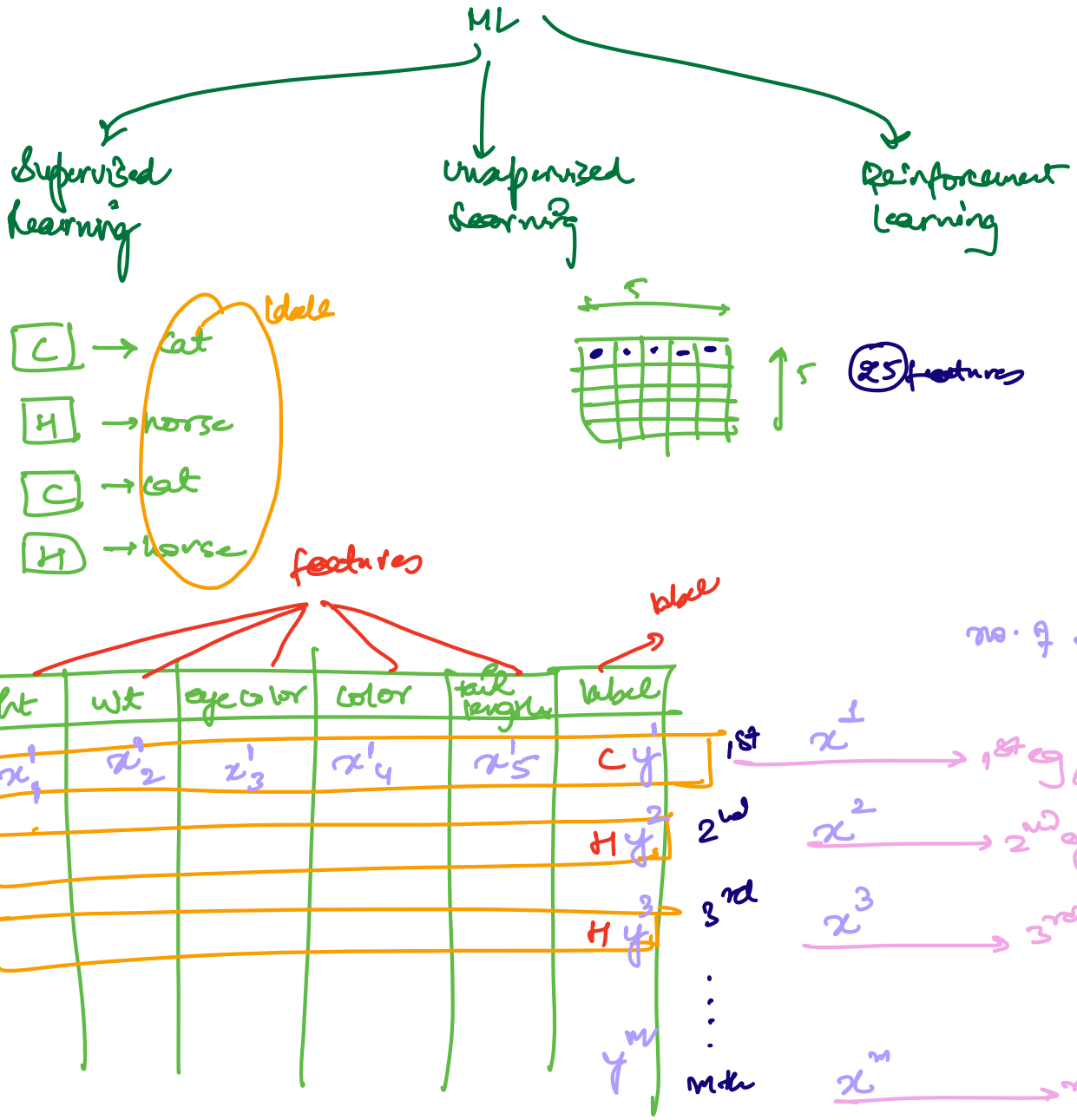
Data → Pattern ← Unseen Data

Pattern → Result




ML ?

- Data
- Computation
- Algorithms / mathematical models




$x^1 = \{ x_1^1, x_2^1, x_3^1, x_4^1, x_5^1 \}$

SL: $\{ x^{(i)}, y^{(i)} \}_{i=1}^{m}$

$x_j^i$ = $j$th feature of $i$th example

Features

Numerical

Categorical

{white, black, brown, orange... }

Label

(continuous)

Numerical

?

REGRESSION

(discrete)

Categorical

{cat, horse }

CLASSIFICATION

| #bed. | #bath | carpet area | balcony | cost |
|---|---|---|---|---|
| | | | | ? |

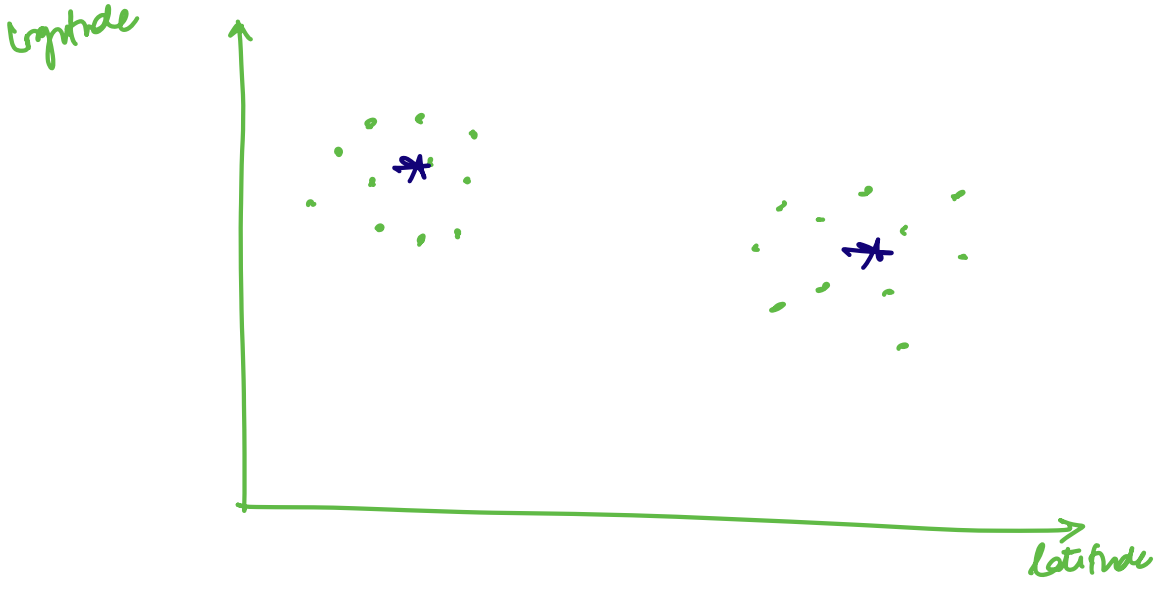
label

numerical / continuous

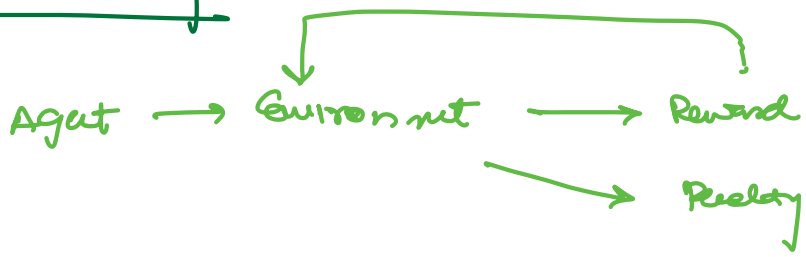
## Unsupervised

only features, no label

Clustering



## Reinforcement Learning




## Linear Regression

Preset:

| | | | |
|---|---|---|---|
| 443 | 95 | 83 | ~~267~~ 464 |
| 108 | 124 | 111 | 509 |
| 137 | 109 | 75 | 144 |
| 134 | 128 | 118 | |
| 146 | 120 | 89 | |
| 123 | 100 | 97 | |
| 140 | 93 | 94 | |