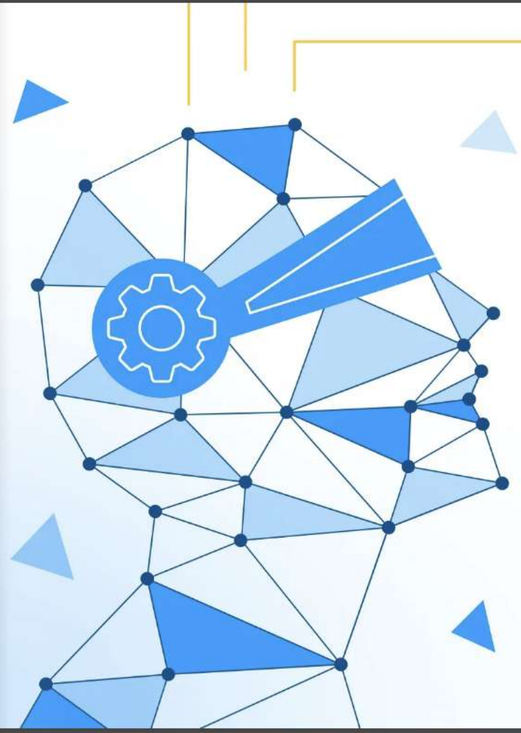
Data Preprocessing



The Machine Learning Process

The Machine Learning Process

Data Pre-Processing
- Import the data
- Clean the data
- Split into training & test sets
- Feature Scaling

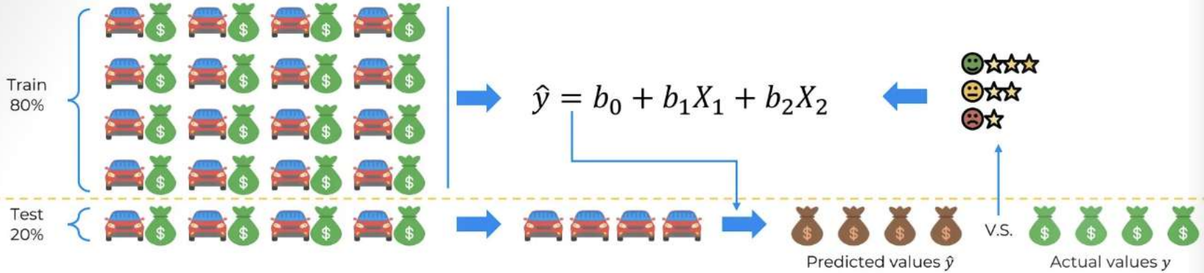
Modelling
- Build the model
- Train the model
- Make predictions

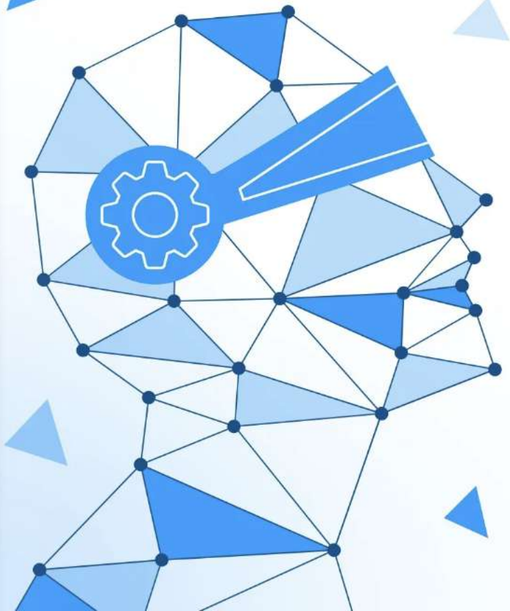
Evaluation
- Calculate performance metrics
- Make a verdict

Training Set & Test Set

Training Set & Test Set

$\sim$





Feature Scaling

Feature Scaling

X1	X2	X3	X4
$ 179.43	56.784	34.6181	3.55
$ 641.87	62.054	47.7306	1.692
$ 556.30	64.13	55.596	1.559
$ 578.47	63.377	52.7121	1.679
$ 591.16	61.553	46.1315	1.984
$ 242.03	58.29	39.2952	2.942
$ 364.66	59.93	42.4628	2.494
$ 190.68	57.271	36.2725	3.419
$ 547.23	63.763	54.1971	1.634
$ 359.69	59.375	41.5105	2.128
$ 438.08	60.484	43.493	2.47
$ 637.17	62.525	49.428	1.725

Feature Scaling

Normalization

$$X' = \frac{X - X_{min}}{X_{max} - X_{min}}$$

[0 ; 1]

Standardization

$$X' = \frac{X - \mu}{\sigma}$$

[-3 ; +3]

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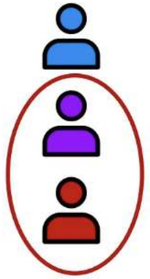
Feature Scaling



70,000 $

10,000

60,000 $

8,000

52,000 $

45 yrs

1

44 yrs

4

40 yrs

Feature Scaling

Normalization

$$X' = \frac{X - X_{min}}{X_{max} - X_{min}}$$

[0 ; 1]

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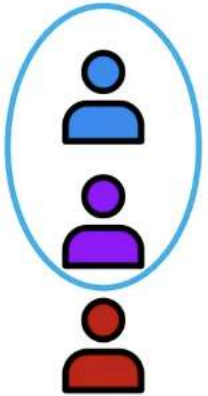
Feature Scaling

	70,000 $	45 yrs
	60,000 $	44 yrs
	52,000 $	40 yrs

Feature Scaling

	1	45 yrs
	0.444	44 yrs
	0	40 yrs

Feature Scaling



1

0.444

0

1

0.75

0