Machine learning

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Supervised learning
has both input & output (x_i, y_i)

Regression
when output is continious or numerical data

Ex:

$D_n = \{(x_i, y_i)_{i=1}^{n} \mid x_i \in \mathbb{R}^m, y_i \in \mathbb{R}\}$

Classification
when output is discrete or catagorical data

Ex:

$D_n = \{(x_i, y_i)_{i=1}^{n} \mid x_i \in \mathbb{R}^m, y_i \in (0,1)\}$

Here D_n = data frame ; n = no of data (row)
$x_i = i^{th}$ input (s) ; $y_i = i^{th}$ output
| = such that ; m = no of input = columns
$\mathbb{R}$ = real number

→ Ex: real regression, ex on training data

x	1	10	0.5	6	5
y	1	100	0.25	36	25

$\Rightarrow D_5 = \{(x_i, y_i)_{i=1}^{5} \mid x_i \in \mathbb{R}^1, y_i \in \mathbb{R}\}$

Data D_n → [Regression Algo] → $f(x) = x^2 \Rightarrow y = x^2$
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