

Q] What is Supervised learning?

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Q] Applications

- + spam filtering
- + Speech recognition
- + machine translation
- + online advertising
- + self driving car
- + visual inspection

⇒ Regression is an supervised learning algorithm

⇒ Supervised learning algorithm learns from right answers.

⇒ Classification is also an supervised learning algorithm

predict categories (non numeric values also include)



## ●● Unsupervised Learning

- ⇒ Unsupervised learning finds something interesting patterns in unlabeled data
- ⇒ for e.g clustering used in (google news)

## ✳ LINEAR REGRESSION

- ⇒ linear regression creates line like  $y = mx + c$  and then we predict  $x$  or  $y$  from  $x$  or  $y$
- ⇒ Data set used to train model is called training set

✳  $x$  : input variable / feature

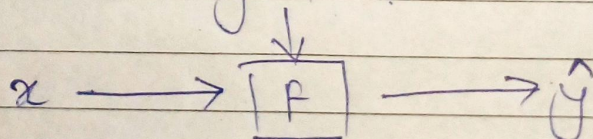
$y$  : prediction / target variable.

$m$  : number of training examples

$(x, y)$  : single training example

$(x^{(i)}, y^{(i)}) = i^{th}$  training example

- ⇒ training set  $\rightarrow$  learning algorithm





$\Rightarrow$  function  $\rightsquigarrow f_{w,b}(x) = wx + b$   
expression

$$f(x) = wx + b$$

$\Rightarrow$  Above is example of

linear regression with one variable  
(univariate linear regression)