

# Supervised Learning Check List

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In this lecture you will understand a check list of **5 things** in  
a supervised learning setting

## 1) $x_i$

- You need to know what is on left side
- In the vector representation
- Know the domain specific *rough meaning* of this vector

## 2) $y_i$

- You need to know what is on right side
- In the vector representation
- Know the domain specific *rough meaning* of this vector

### 3) Data Set

- You need to have a data set where  $x_i$  are mapped to their corresponding  $y_i$
- $D = \{(x_i, y_i)\}_{i \in [1 \dots N]}$

## 4) Model

- You need to know how the left side is connected to the right side
- By means of a pipeline
- Goodness criteria for that pipeline
- Example,  $f(x) = w^T x$

## 5) Loss function

- You need to know how good or how bad is the mapping of  $x_i$  to  $y_i$
- For example,  $L(f(x_i), y_i) = (y_i - f(x_i))^2$
- You need to know if the loss function can be minimized

$$w^* = \underset{w}{\operatorname{argmin}} L(w)$$