

$$\text{standardization} = \frac{x - \mu}{\sigma}$$

$$\text{fit} = \text{mean, std} \quad (\text{min, max})$$

transform :- by using mean, std \rightarrow scale

$$\text{fit} = \text{fitting means train}$$

$$\text{fit_transform} = \frac{\text{training data}}{\text{mean, variance}}$$

$$\text{transform} \Rightarrow \text{testing}$$

$$\underline{\text{Yesterday}} = \underline{\text{scaling on } x}$$

$$\text{today} = \text{scaling should apply after splitting}$$

$$\underline{x_{\text{train}}} \Rightarrow \text{training data}$$

$$x_{\text{test}} \Rightarrow \text{testing data}$$

$$\text{fit} \Rightarrow \text{training data} \Rightarrow \text{mean, std}$$

$$\text{transform} \Rightarrow \text{training data} \Rightarrow \text{scale}$$

$$\text{transform} \Rightarrow \text{testing} \Rightarrow \text{scale.}$$

