$x = [\ \ \ ]$ $15{,}000$

$y = [\ \ \ ]$

$X = \begin{bmatrix} & & \\ & & \\ & & \end{bmatrix}$ $16{,}000$ $10{,}000 \times 1$

$y = \begin{bmatrix} \\ \\ \end{bmatrix}$ $f_w($ $10{,}000 \times 1$

w_0 $\begin{bmatrix} \uparrow & \uparrow & \uparrow & & \uparrow \\ 1 & x_1 & x_2 & \cdots & x_{4096} \\ \downarrow & \downarrow & \downarrow & & \downarrow \end{bmatrix}$

$W = \begin{bmatrix} \uparrow & \uparrow & \uparrow & & \uparrow \\ w_0 & w_1 & \cdots & & w \\ \downarrow & \downarrow & \downarrow & & \downarrow \end{bmatrix}$

$w_0 + w_1 t_i$

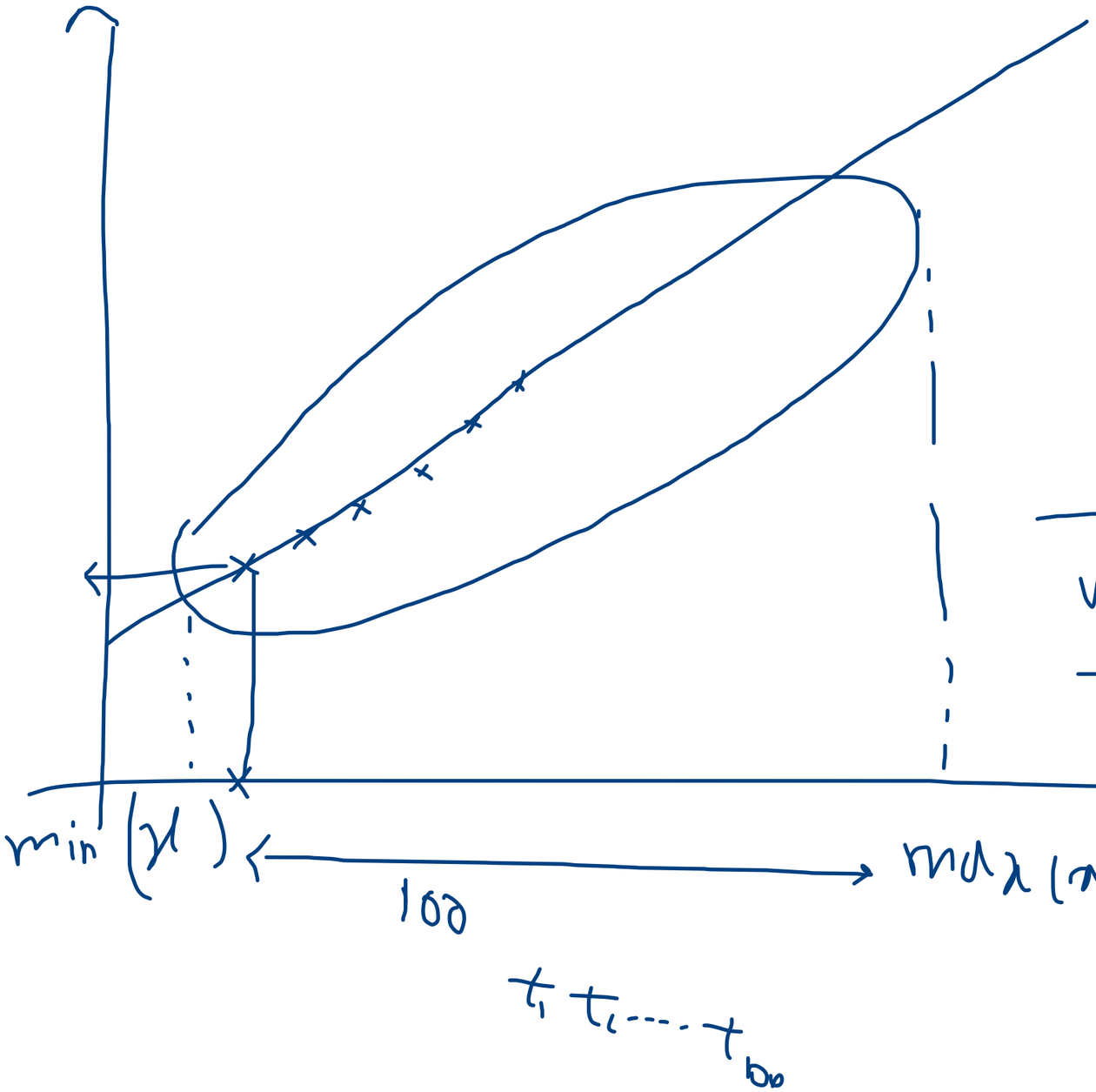
$w_0 = -350.73$

$w_1 = 7.71$

$w = \begin{bmatrix} -350.73 \\ 7.71 \end{bmatrix}$ 2×1

$w[0,0] \equiv w_0$

$w[1,0] \equiv w_1$



استانداردسازی داده ها

(نرمال سازی)

Normalization

$X \in \mathbb{R}^{n \times d}$

$x_i \in \mathbb{R} \Longrightarrow x_i \in [0,1]$

$y \in [0,1]$

$$\frac{X - \min(X)}{\max(X) - \min(X)} \Longrightarrow \begin{cases} \min \longrightarrow 0 \\ \max \longrightarrow 1 \end{cases}$$

$X = [\ ]$ 20646×8

$y = [\ ]$ 20646×1 median_income

GD.

$w^* =$

$w_0 = 1$

$$f_w(X) = w_0 + w_1 x_1 + \cdots + w_d x_d$$