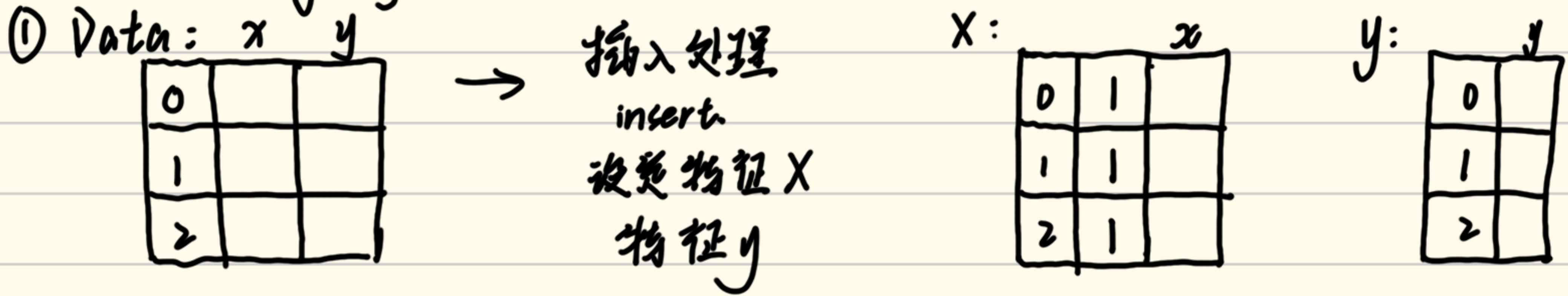


Polynomial Regression 多项式回归 — No - Linear.

$$f(\vec{x}) = w_0 + w_1x_1 + w_2x_1^2 + w_3x_1^3 + \dots + b.$$

Code designing :



② 初始化.

矩阵 X

$$\begin{matrix} & 1 & 2 \\ \vdots & \vdots & \vdots \\ 0 & x_0 & x_1 \\ 1 & x_1 & x_2 \\ 2 & \vdots & \vdots \\ n & x_n & x_{n+1} \end{matrix}$$

矩阵 y

$$\begin{matrix} & 1 & 2 \\ \vdots & \vdots & \vdots \\ 0 & y_0 \\ 1 & y_1 \\ 2 & \vdots \\ n & y_n \end{matrix}$$

参数矩阵 θ

$$\begin{matrix} & 1 & 2 \\ 0 & 0 & 0 \end{matrix}$$

③ 梯度下降函数

临时变量矩阵 $temp (= \theta)$

$$\begin{matrix} & 1 & 2 \\ 0 & 0 & 0 \end{matrix}$$

参数量 $parameters = 2. (j)$

成本 : $cost [iter]$. iter 为迭代次数

—— iter

误差 error :

$$\begin{matrix} & 1 & 2 \\ \vdots & \vdots & \vdots \\ 0 & x & \times \theta - y \end{matrix}$$

更新 m, b .

j in parameters

—— $j = 1.$

$$\begin{matrix} & 0 & 0 \\ \text{term} & \vdots & \vdots \end{matrix} =$$

$$\begin{matrix} & 1 & 2 \\ \vdots & \vdots & \vdots \\ 0 & error & \times x[i, 0] \end{matrix} =$$

$$\begin{matrix} & 1 \\ \vdots & \vdots \\ 1 & 1 \times a_1 \\ & 1 \times a_2 \\ & \vdots \\ & 1 \times a_i \end{matrix}$$

$$b = b - \frac{\alpha}{i} \sum (f(x) - y)$$

—— $j = 2.$

$$\begin{matrix} & 0 & 0 \\ \text{term} & \vdots & \vdots \end{matrix} =$$

$$\begin{matrix} & 1 & 2 \\ \vdots & \vdots & \vdots \\ 0 & error & \times x[i, 1] \end{matrix} =$$

$$\begin{matrix} & 1 \\ \vdots & \vdots \\ 1 & x_1 \times a_1 \\ & x_2 \times a_2 \\ & \vdots \\ & x_i \times a_i \end{matrix}$$

$$w = w - \frac{\alpha}{i} \sum (f(x) - y) x.$$

end. $temp = [b \ w] = \theta$

$cost [i] = computeCost (x, y, \theta)$