Hola

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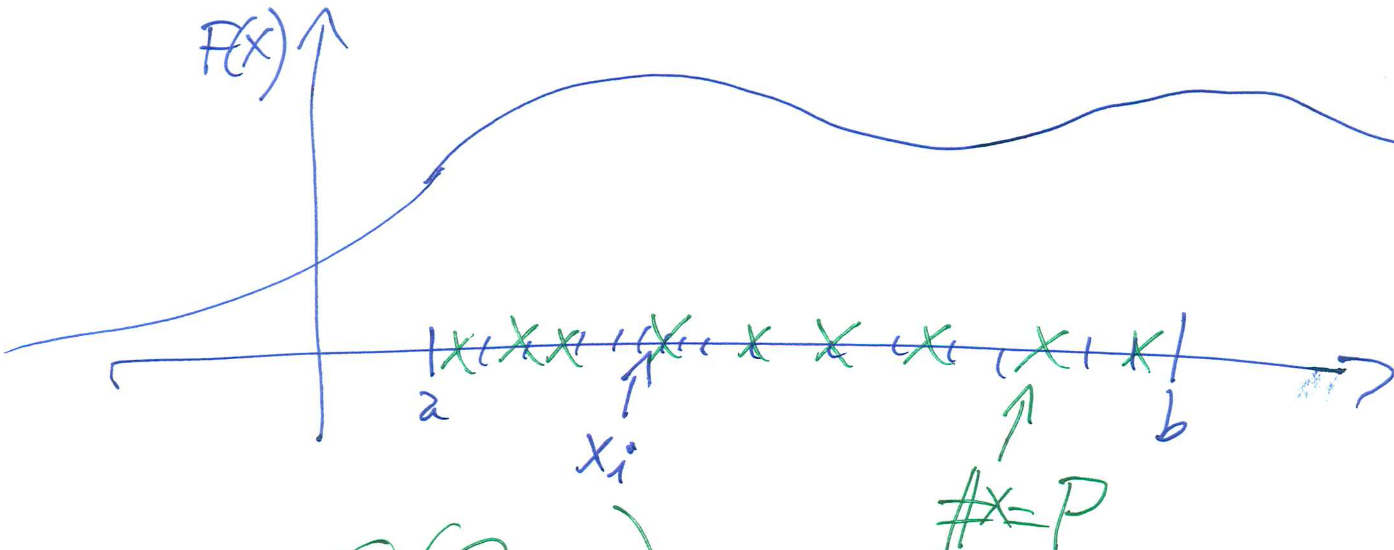
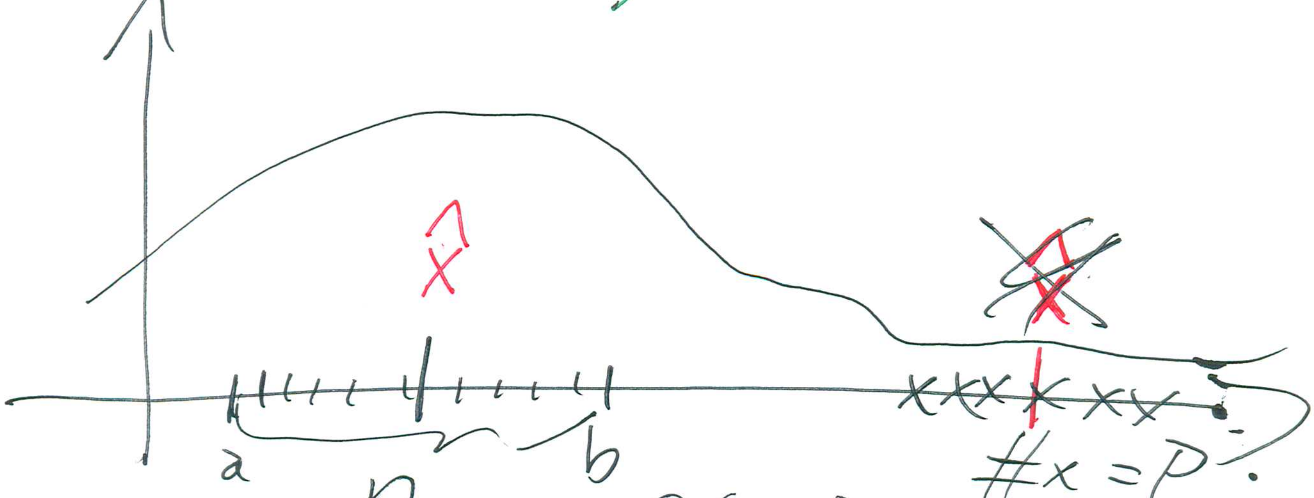
$$F(x) = \sum_{i=1}^{n} y_i \cdot \frac{\sin(x - x_i)}{x - x_i}$$



$\mathcal{O}(P \cdot n)$

$\rightarrow \mathcal{O}(n^2)$



$\mathcal{O}(n \cdot P)$

$$F(x) = \sum_{i=1}^{n} y_i \cdot \frac{\sin(x - x_i)}{x - x_i}$$

$$\sin(x - x_i) = \sin(x) \cdot \cos(x_i) - \cos(x) \sin(x_i)$$

$$F(x) = \sum_{i=1}^{n} y_i \cdot \frac{(\sin(x) \cdot \cos(x_i) - \cos(x) \cdot \sin(x_i))}{x - x_i}$$

$$= \sin(x) \cdot \sum_{i=1}^{n} \frac{y_i \cdot \cos(x_i)}{x - x_i} - \cos(x) \cdot \sum_{i=0}^{n} \frac{y_i \cdot \sin(x_i)}{x - x_i}$$

$$\frac{1}{x - x_i} = \text{"Natalia"} = \frac{1}{x} \cdot \frac{1}{1 - \frac{x_i}{x}}$$

$$= \frac{1}{x} \cdot \sum_{\nu=0}^{\infty} \left(\frac{x_i}{x}\right)^{\nu}$$

$$\left|\frac{x_i}{x}\right| < 1$$

$$\frac{1}{x - \hat{x} + \hat{x} - x_i} = \frac{1}{x - \hat{x}} \cdot \frac{1}{1 - \frac{x_i - \hat{x}}{x - \hat{x}}}$$

$$\frac{|x_i - \hat{x}|}{|x - \hat{x}|} < 1 \iff |x_i - \hat{x}| < |x - \hat{x}| \quad (\Sigma$$

$$\frac{1}{x-x_i}=\frac{1}{x-\bar{x}}\cdot\frac{1}{1-\frac{x_i-\bar{x}}{x-\bar{x}}}$$

$$=\frac{1}{x-\bar{x}}\cdot\sum_{j=0}^{\infty}\frac{(x_i-\bar{x})^j}{(x-\bar{x})^j}$$

$$=\sum_{j=0}^{\infty}\frac{(x_i-\bar{x})^j}{(x-\bar{x})^{j+1}}$$

$$F(x)=\sin(x)\cdot\sum_{i=1}^{n}\frac{y_i\cdot\cos(x_i)}{x-x_i}-\cos(x)\cdot\sum_{i=1}^{n}\frac{y_i\cdot\sin(x_i)}{x-x_i}$$

$$\cancel{\sin(x)\cdot\sum}$$

$$\sum_{i=1}^{n}\frac{y_i\cdot\cos(x_i)}{x-x_i}=\sum_{i=1}^{n}y_i\cdot\cos(x_i)\cdot\frac{1}{x-x_i}$$

$$=\sum_{i=1}^{n}y_i\cdot\cos(x_i)\cdot\sum_{j=0}^{\infty}\frac{(x_i-\bar{x})^j}{(x-\bar{x})^{j+1}}$$

$$F(x) = \sin(x) \cdot \sum_{i=1}^{n} y_i \cdot \cos(x_i) \cdot \sum_{j=0}^{\infty} \frac{(x_i - \bar{x})^j}{(x - \bar{x})^{j+1}}$$

$$- \cos(x) \cdot \sum_{i=1}^{n} y_i \cdot \sin(x_i) \cdot \sum_{j=0}^{\infty} \frac{(x_i - \bar{x})^j}{(x - \bar{x})^{j+1}}$$

$$= \sin(x) \cdot \sum_{j=0}^{\infty} \frac{1}{(x - \bar{x})^{j+1}} \cdot \sum_{i=1}^{n} y_i \cdot \cos(x_i) \cdot (x_i - \bar{x})^j$$

$$- \cos(x) \cdot \sum_{j=0}^{\infty} \frac{1}{(x - \bar{x})^{j+1}} \cdot \sum_{i=1}^{n} y_i \cdot \sin(x_i) \cdot (x_i - \bar{x})^j$$

$$= \sin(x) \cdot \sum_{j=0}^{\infty} \frac{a_j}{(x - \bar{x})^{j+1}} - \cos(x) \cdot \sum_{j=0}^{\infty} \frac{b_j}{(x - \bar{x})^{j+1}}$$

$$\approx \sin(x) \sum_{j=0}^{m} \frac{a_j}{(x - \bar{x})^{j+1}} - \cos(x) \cdot \sum_{j=0}^{\cancel{\infty}\, m} \frac{b_j}{(x - \bar{x})^{j+1}}$$

1	$O(n) + O(1)$	$O(n \cdot P)$
R	$O(n) + O(P)$	