

# Computation and Modeling Assignment 28

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## Problem 28-1

Suppose you are given the following dataset:

$$\text{data} = [(1, 0.2), (2, 0.25), (3, 0.5)]$$

**Solution:**

$$a + b = 0.2$$

$$a + 2b = 0.25$$

$$a + 3b = 0.5$$

$$\begin{bmatrix} 1 & 1 \\ 1 & 2 \\ 1 & 3 \end{bmatrix} \begin{bmatrix} a \\ b \end{bmatrix} = \begin{bmatrix} 0.2 \\ 0.25 \\ 0.5 \end{bmatrix}$$

$$\begin{bmatrix} 1 & 1 & 1 \\ 1 & 2 & 3 \end{bmatrix} \begin{bmatrix} 1 & 1 \\ 1 & 2 \\ 1 & 3 \end{bmatrix} \begin{bmatrix} a \\ b \end{bmatrix} = \begin{bmatrix} 1 & 1 & 1 \\ 1 & 2 & 3 \end{bmatrix} \begin{bmatrix} 0.2 \\ 0.25 \\ 0.5 \end{bmatrix}$$

$$\begin{bmatrix} 3 & 6 \\ 6 & 14 \end{bmatrix} \begin{bmatrix} a \\ b \end{bmatrix} = \begin{bmatrix} 0.95 \\ 2.2 \end{bmatrix}$$

$$\begin{bmatrix} a \\ b \end{bmatrix} = \begin{bmatrix} 2.333 & -1 \\ -1 & 0.5 \end{bmatrix} \begin{bmatrix} 0.95 \\ 2.2 \end{bmatrix} = \begin{bmatrix} 0.016667 \\ 0.15 \end{bmatrix}$$

$$y = 0.15x + 0.016667$$