

Assignment 10

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Download all python codes from

<https://github.com/ka-raja-babu/Matrix-Theory/tree/main/Assignment10/Codes>

and latex-tikz codes from

<https://github.com/ka-raja-babu/Matrix-Theory/tree/main/Assignment10>

1 QUESTION No. 2.56

Two farmers Ramkishan and Gurcharan Singh cultivates only three varieties of rice namely Basmati, Permal and Naura. The sale (in Rupees) of these varieties of rice by both the farmers in the month of September and October are given by the following matrices **A** and **B**.

September Sales(in Rupees)

$$\mathbf{A} = \begin{pmatrix} \text{Basmati} & \text{Permal} & \text{Naura} \\ 10000 & 20000 & 30000 \\ 50000 & 30000 & 10000 \end{pmatrix} \begin{pmatrix} \text{Ramkishan} \\ \text{Gurucharan} \end{pmatrix} \quad (1.0.1)$$

October Sales(in Rupees)

$$\mathbf{B} = \begin{pmatrix} \text{Basmati} & \text{Permal} & \text{Naura} \\ 5000 & 10000 & 6000 \\ 20000 & 10000 & 10000 \end{pmatrix} \begin{pmatrix} \text{Ramkishan} \\ \text{Gurucharan} \end{pmatrix} \quad (1.0.2)$$

- 1) Find the combined sales in September and October for each farmer in each variety.
- 2) Find the decrease in sales from September to October.
- 3) If both farmers receive 2% profit on gross sales, compute the profit for each farmer and for each variety sold in October.

2 SOLUTION

- 1) Combined sales in September and October is given by

$$\mathbf{A} + \mathbf{B} = \begin{pmatrix} \text{Basmati} & \text{Permal} & \text{Naura} \\ 15000 & 30000 & 36000 \\ 70000 & 40000 & 20000 \end{pmatrix} \begin{pmatrix} \text{Ram} \\ \text{Guru} \end{pmatrix} \quad (2.0.1)$$

- 2) Decrease in sales from September to October is given by

$$\mathbf{A} - \mathbf{B} = \begin{pmatrix} \text{Basmati} & \text{Permal} & \text{Naura} \\ 5000 & 10000 & 24000 \\ 30000 & 20000 & 0 \end{pmatrix} \begin{pmatrix} \text{Ram} \\ \text{Guru} \end{pmatrix} \quad (2.0.2)$$

- 3) Profit for sales in October is given by

$$\frac{2}{100} \mathbf{B} = \begin{pmatrix} \text{Basmati} & \text{Permal} & \text{Naura} \\ 100 & 200 & 120 \\ 400 & 200 & 200 \end{pmatrix} \begin{pmatrix} \text{Ram} \\ \text{Guru} \end{pmatrix} \quad (2.0.3)$$

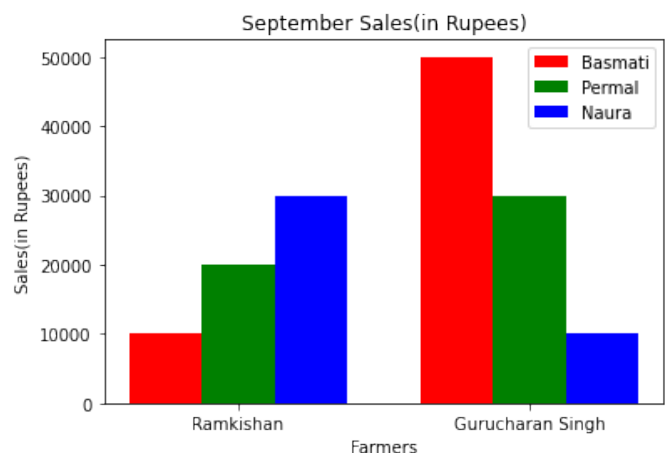


Fig. 2.1: September Sales(in Rupees)

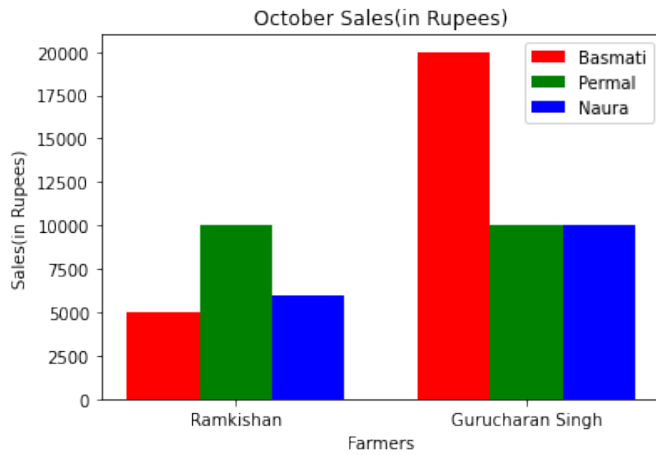


Fig. 2.2: October Sales(in Rupees)

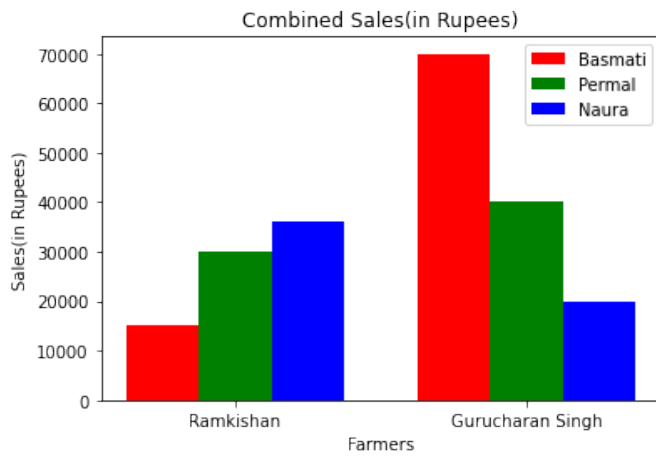


Fig. 2.3: Combined Sales(in Rupees)

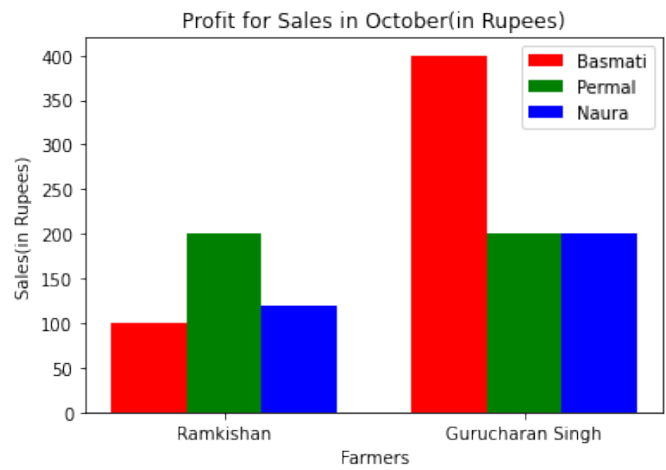


Fig. 2.5: Profit for Sales in October(in Rupees)

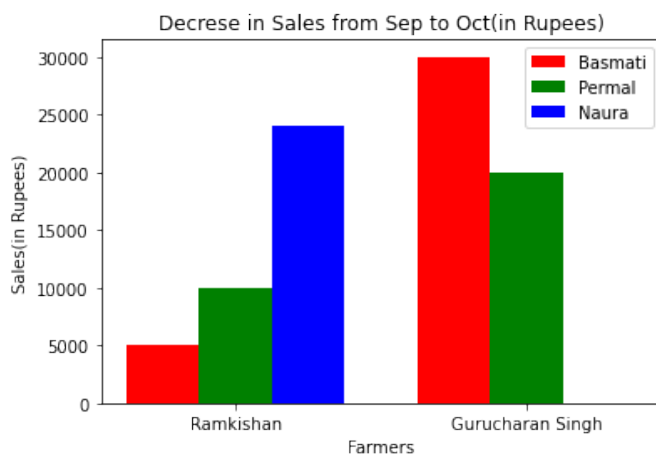


Fig. 2.4: Decrease in Sales from Sep to Oct(in Rupees)