



BUSINESS DATA MANAGEMENT

FINAL TERM SUBMISSION

21F3002619
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Fresh Insights: Revitalizing Sandeep Vegetable Shop through Effective Data Management and Solutions.

Executive Summary-

This final report presents the results, findings, recommendations, and solutions for the Sandeep vegetable shop's business data management project. The report aimed to address three significant problems that the Sandeep vegetable shop was facing, namely the inventory problem, sales analysis problem, and the shelf life problem of vegetables.

After conducting extensive research and analysis on given data, the report found that the primary cause of the inventory problem was inadequate stock management practices of various vegetables. The sales analysis problem, on the other hand, was caused by a lack of data analysis tools and techniques to track and interpret sales data accurately. Finally, the shelf life problem was due to poor storage and handling practices of owner Sandeep.

To address these problems, the report recommends implementing an inventory management system that uses modern technology such as excel tools. Additionally, the report suggests implementing data analysis tools and techniques to improve sales data analysis. Lastly, the report recommends adopting best practices in storage and handling of vegetables to prolong their shelf life.

The report concludes that implementing these recommendations will not only solve the identified problems but also help the Sandeep vegetable shop to increase efficiency, reduce wastage, and improve profitability of owner. By adopting better data management practices, and best practices in vegetable storage and handling, Sandeep vegetable shop will be well-positioned to compete in the highly competitive vegetable market.

Analysis process/Method –

Microsoft Excel is an important tool for data analysis that is widely used by businesses, researchers, and analysts. It enables us to analyze, manipulate, and visualize vegetable shop data efficiently. However, before conducting analysis of Sandeep vegetable shop, it is crucial

for us to perform basic pre-processing tasks such as imputing missing values, correcting typing errors, and sorting data to ensure that the data is clean and usable for us.

After cleaning the data, Excel's powerful analytical capabilities can be leveraged to derive new columns from the entered data or remove unnecessary columns to focus on relevant information regarding to the vegetables data. This process helps us to reduce clutter and enables faster analysis. Excel provides an extensive array of features for us for analyzing data of veggies, including pivot tables, statistical analysis, regression analysis, and data visualization of vegetables.

Pivot tables are one of Excel's most popular features, which allows us for grouping, filtering, and analyzing data of Sandeep vegetable shop in easy manner. Pivot tables provide a powerful way to summarize and organize data, enabling quick and insightful analysis for the given data of vegetables. Furthermore, Excel's charting and graphing features are particularly useful for us for visualizing patterns and trends in the data of Sandeep vegetable shop. By identifying relationships between variables, visualizing patterns, and highlighting key insights, charts and graphs enable us to draw insightful conclusions from the vegetables data. With a wide range of chart types and customization options, Excel makes it easy for us to create high-quality charts for different vegetables that effectively communicate vegetables data.

In conclusion, Excel is a powerful tool for data analysis that provides numerous features and tools to help us analyze, manipulate, and visualize different vegetables data effectively. By performing basic pre-processing tasks, using Excel's features, and drawing insightful conclusions from the data, we can derive valuable insights and make data-driven decisions that can lead to success of Sandeep vegetable shop.

Results and Findings(Final term result)-

1)Sales analysis-

- I. Sales trend of vegetables: The sales of all vegetables at Sandeep Vegetable Shop vary from week to week, but there is a noticeable trend of higher sales in the first half of each month, with a decline in the second half of each month from January to April. This could be attributed to customers shopping more frequently and stocking up on vegetables at the start of the month as some of customers receive their salary during starting of month.

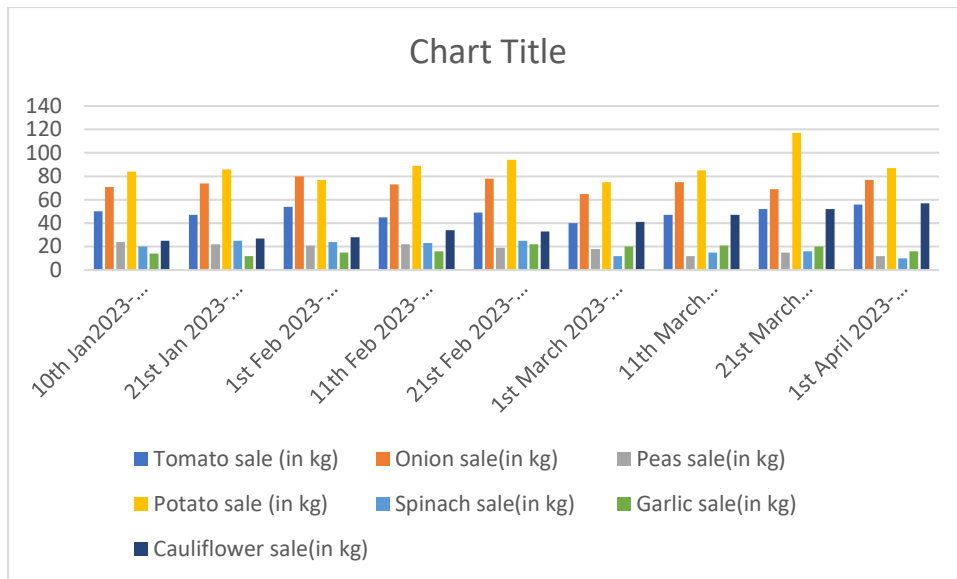


Fig-1

- II. Best-selling vegetables of Sandeep vegetable shop: Potatoes and onions are the most popular vegetables sold at Sandeep Vegetable Shop, with consistently high sales recorded throughout all the weeks. Conversely, spinach and peas have the lowest sales, indicating low demand for these vegetables among the customers of Sandeep vegetable shop.

- III. Garlic sales: Garlic sales remain consistently low compared to other vegetables throughout all the weeks, which could be due to lower demand from customers of that village. Sandeep Vegetable Shop may consider reducing inventory or promoting garlic sales to improve this situation.

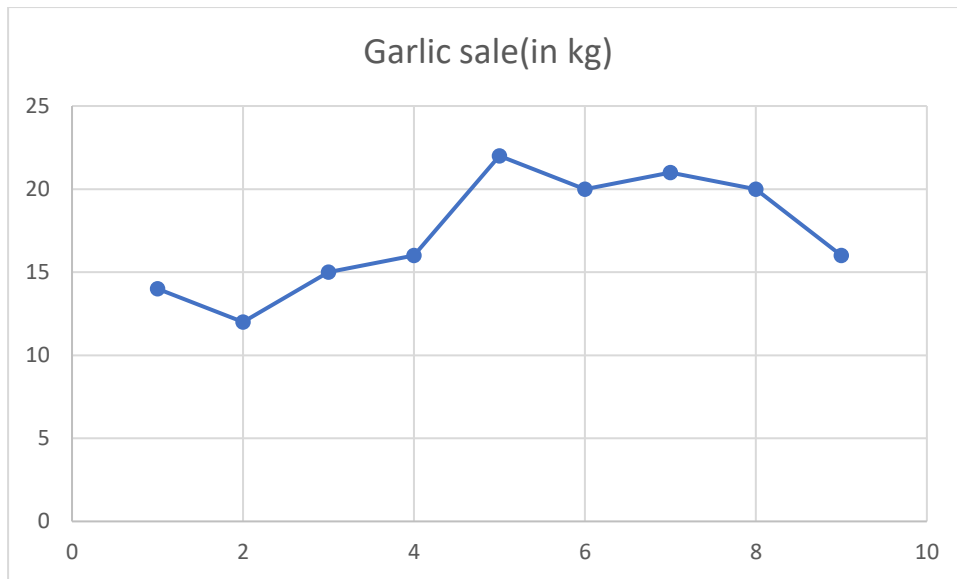


Fig-2

- IV. Potato sales: Potato sales fluctuate throughout the weeks but remain consistently high compared to other vegetables. There is a noticeable increase in sales during the period of 21st March to 31st March, which could be attributed to the Navratri fast when customers abstain from meat and consume more vegetables.

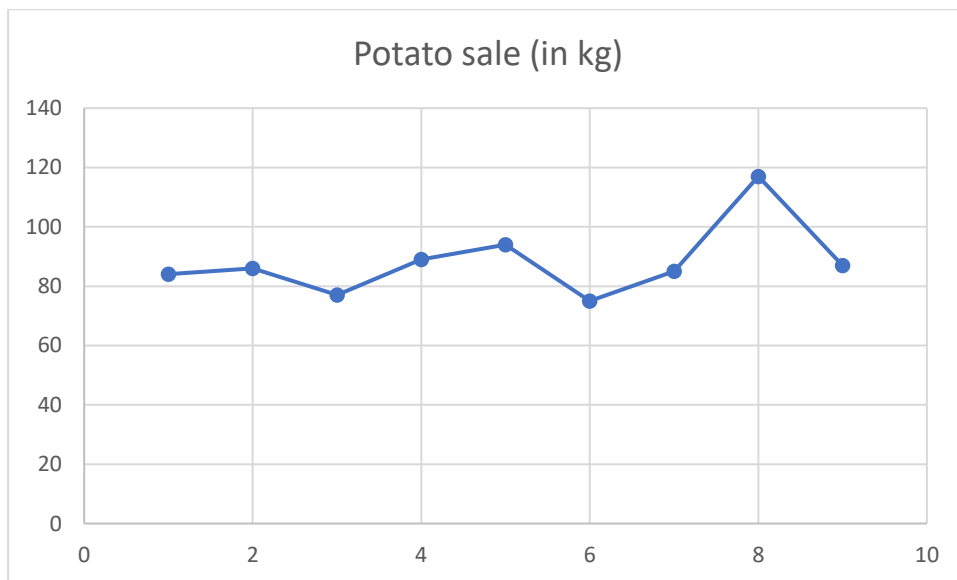


Fig-3

- V. Peas sales: Peas sales decline consistently over the weeks, with a sharp drop from 24 kgs to 12 kgs. This could be due to the arrival of the summer season, which brings about a change in customers' preferences for seasonal vegetables.

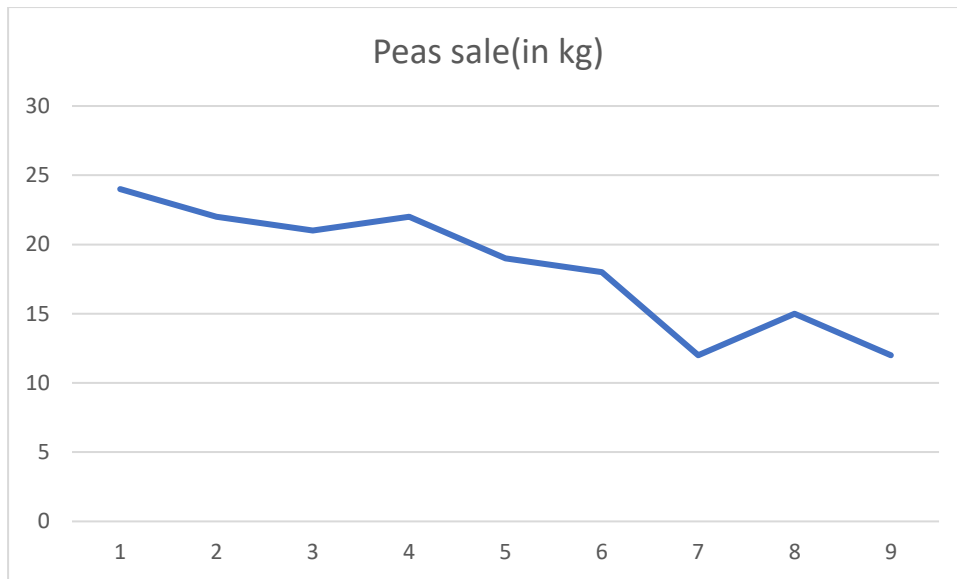


Fig-4

- VI. Cauliflower sales: Cauliflower sales show a steady increase over the weeks, with the highest sales recorded in the last week of March. This indicates high demand for cauliflower during this period, which Sandeep Vegetable Shop could leverage by increasing their inventory by purchasing more Cauliflower.

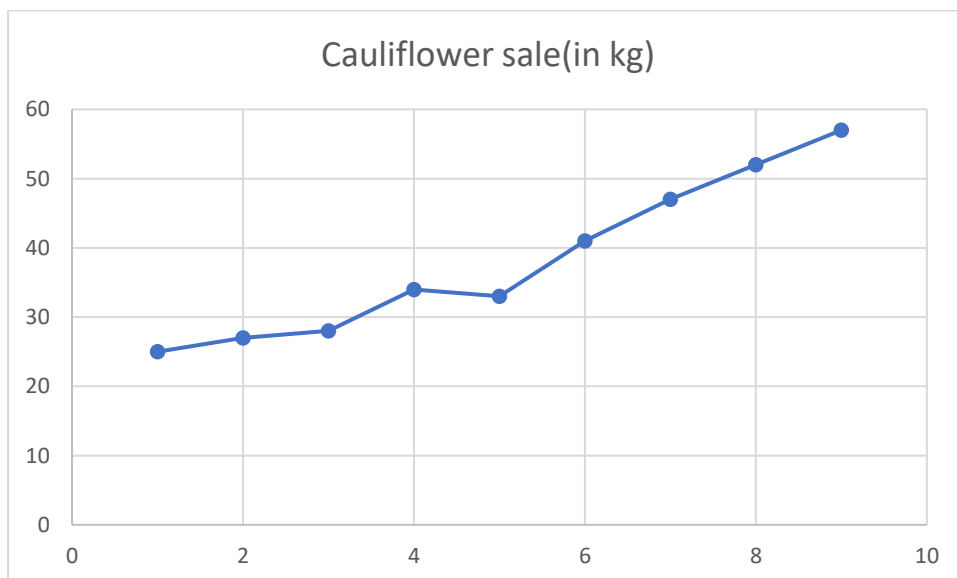


Fig-5

- VII. Onion sales: Onions are one of the best-selling vegetables at Sandeep Vegetable Shop, with consistently high sales recorded throughout all the weeks. The sales show a slight fluctuation from week to week, but overall, the demand for onions remains high among customers of Sandeep Vegetable shop.

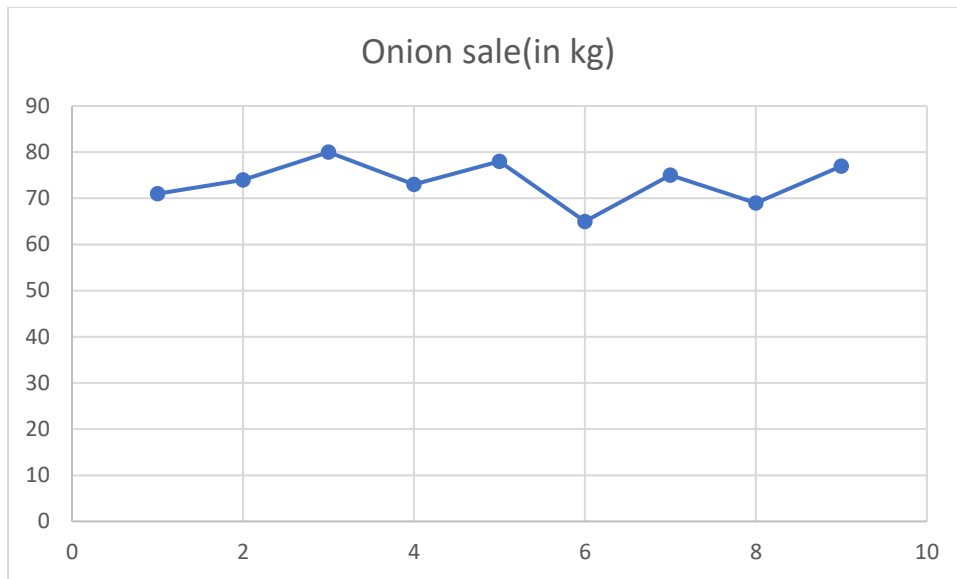


Fig-6

- VIII. Tomato sales: Tomatoes have average sales compared to other vegetables at Sandeep Vegetable Shop. The sales show a fluctuating trend over the weeks, with no clear pattern of increase or decrease. Sandeep Vegetable Shop may consider strategies to increase tomato sales, such as offering discounts or promotions.

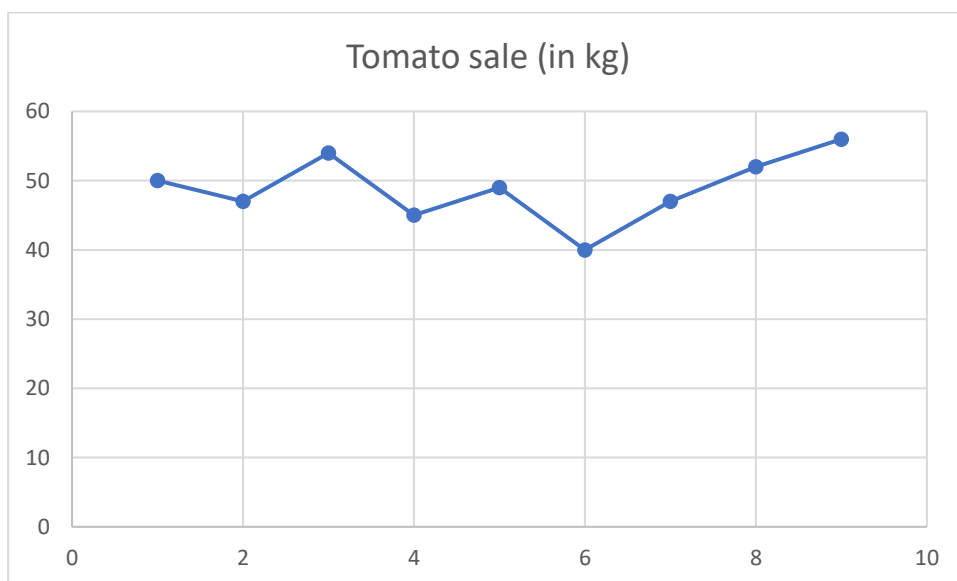


Fig-7

- IX. Spinach sales: Spinach has the lowest sales among all the vegetables sold at Sandeep Vegetable Shop, with consistently low sales recorded throughout all the weeks. The demand for spinach remains consistently low among customers, and Sandeep Vegetable Shop may consider reducing their inventory of spinach or promoting spinach sales to improve this situation.

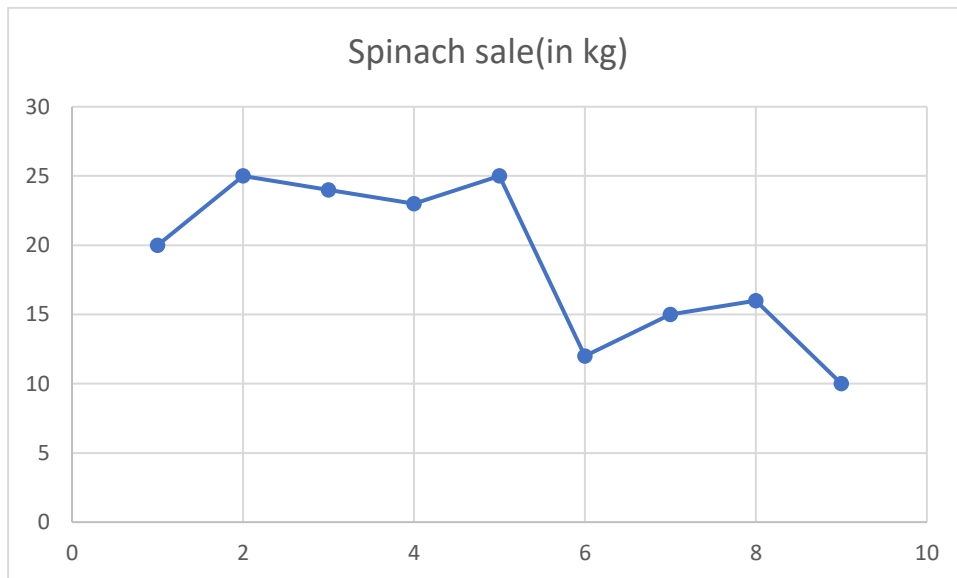


Fig-8

- X. Month-wise comparison of different vegetables: The total sales of all vegetables at Sandeep Vegetable Shop show an upward trend from January to April, with the highest sales recorded in April. This could be due to the arrival of the summer season, which drives up demand for seasonal vegetables. However, spinach and peas show a consistent decline throughout all the months, which may require attention from Sandeep Vegetable Shop.

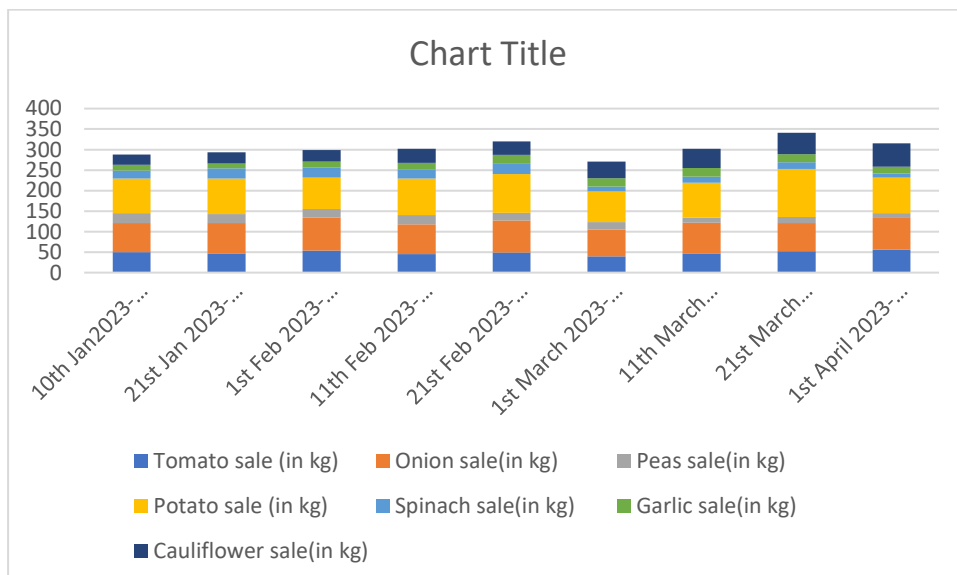


Fig-9

- XI. Overall, these findings provide valuable insights for Sandeep Vegetable Shop to plan their inventory and sales strategy. By analyzing the sales data, the shop can stock up

on best-selling vegetables, reduce inventory of low-selling vegetables, and plan promotions for vegetables with increasing demand. This can help optimize sales and increase customer satisfaction

2)Inventory analysis-

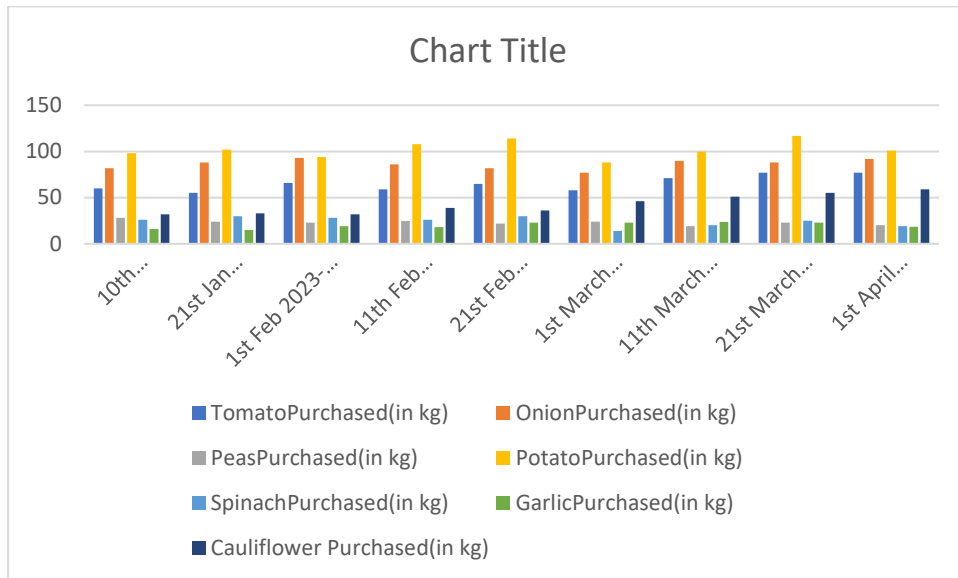


Fig-10

- I. Tomatoes: The quantity purchased by Sandeep varies across different periods. The highest quantity of tomatoes is purchased during the period of 10th Jan 2023-20th Jan 2023, followed by the period of 1st Feb 2023-10th Feb 2023.

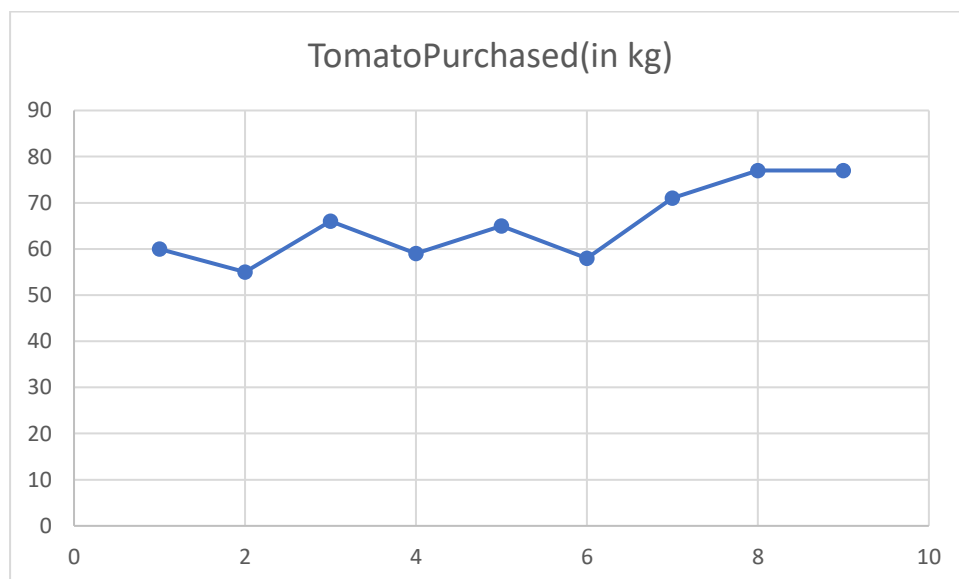


Fig-11

- II. Onions: The quantity purchased by Sandeep is consistent across different periods, with the highest quantity purchased during the period of 10th Jan 2023-20th Jan 2023.

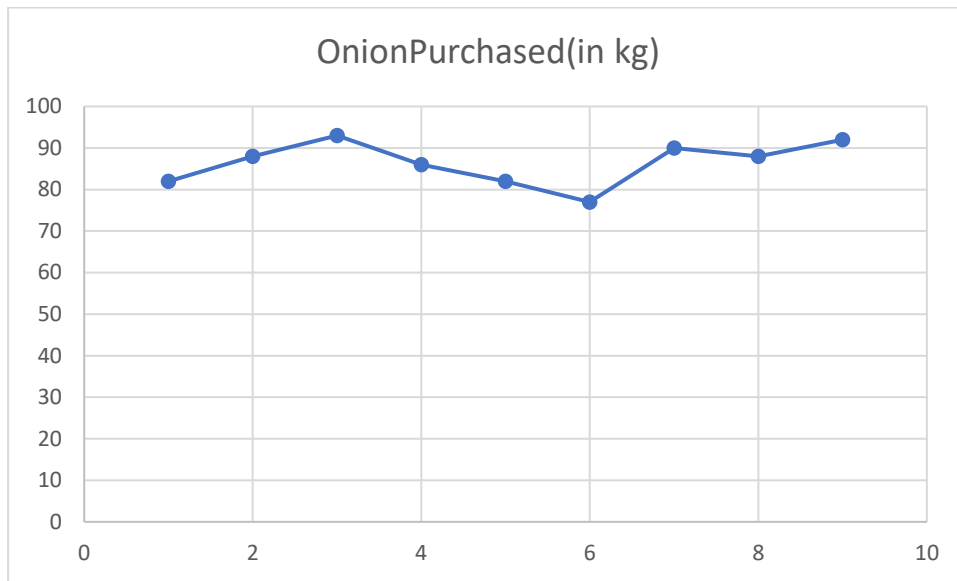


Fig-12

- III. Peas: The quantity purchased by Sandeep is relatively low compared to other vegetables, with the highest quantity purchased during the period of 10th Jan 2023-20th Jan 2023.

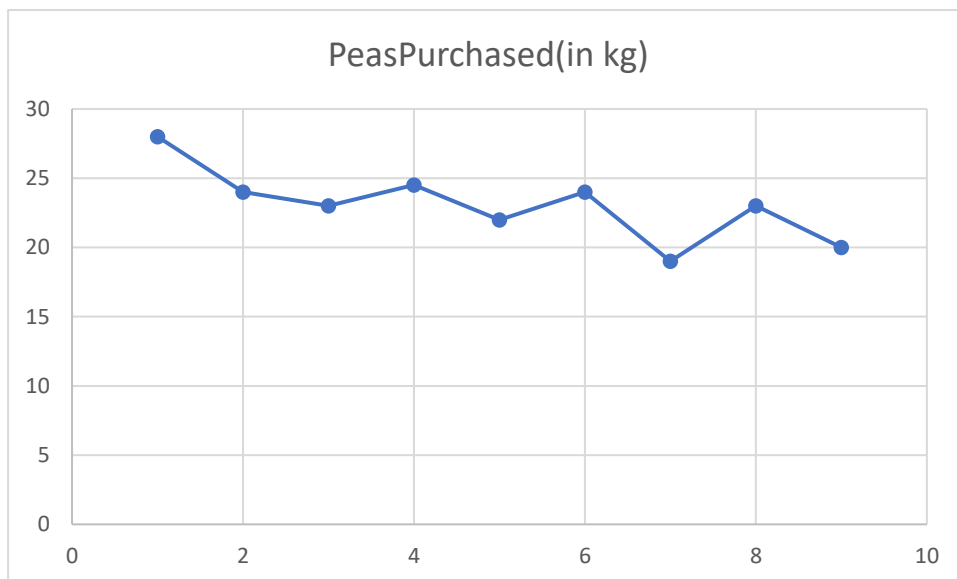


Fig-13

- IV. Potatoes: The quantity purchased by Sandeep is the highest among all vegetables, with a consistent quantity purchased across different periods.

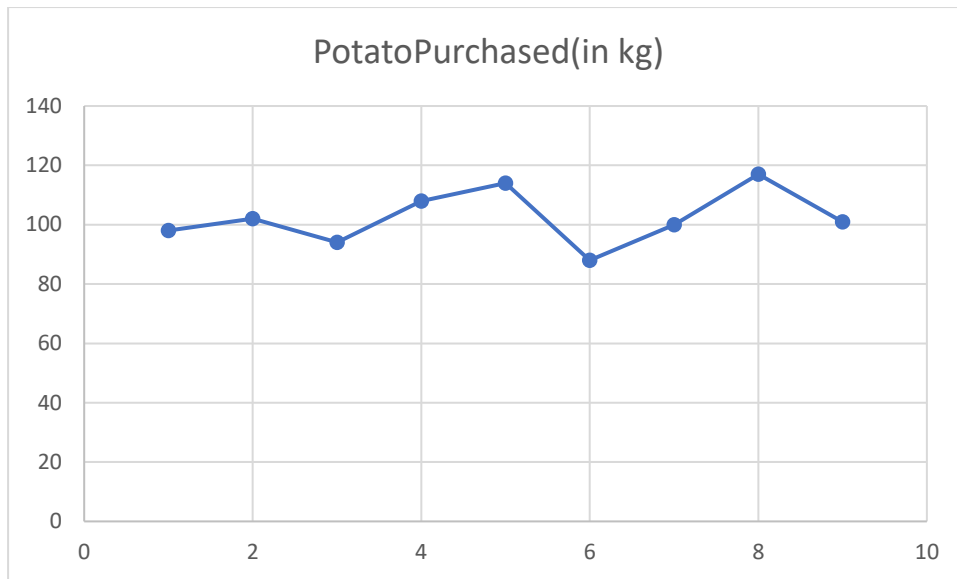


Fig-14

- V. Spinach: The quantity purchased by Sandeep is consistent across different periods, with a relatively low quantity purchased compared to other vegetables.

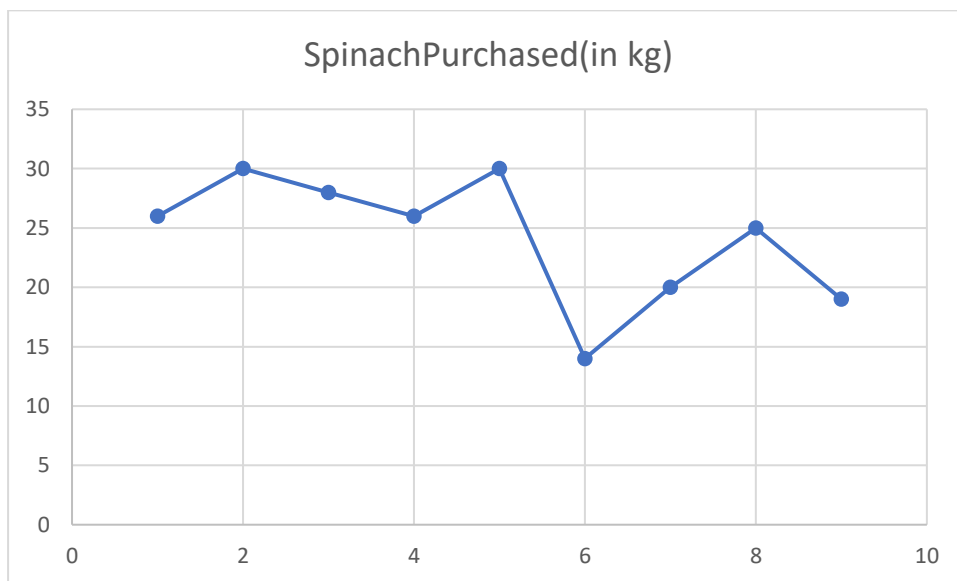


Fig-15

- VI. Garlic: The quantity purchased by Sandeep shows an increase during the period of 1st March 2023-10th March 2023, after which it remains consistent.

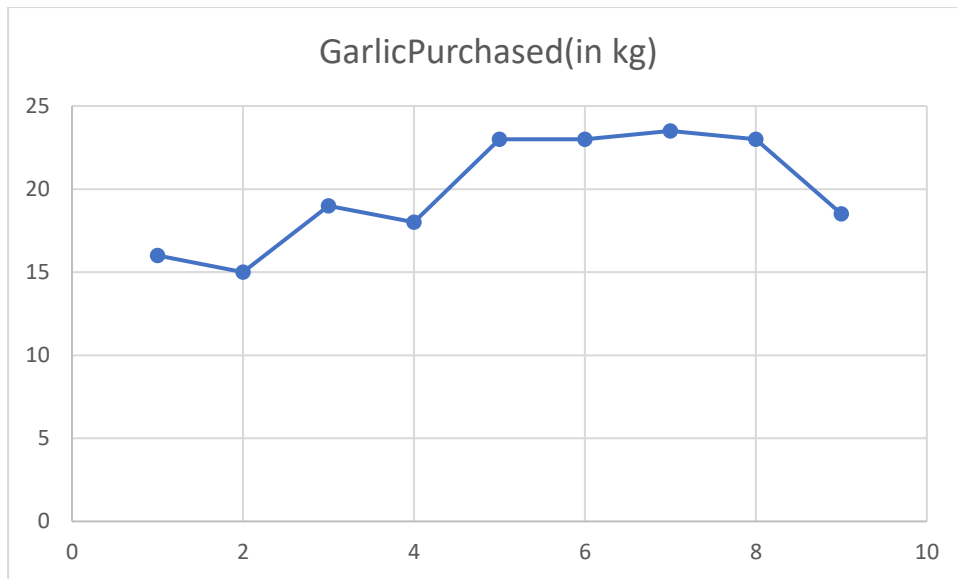


Fig-16

VII. Cauliflower: The quantity purchased by Sandeep shows an increase during the period of 11th Feb 2023-20th February 2023 and remains relatively consistent thereafter.\

3)Shelf life analysis-

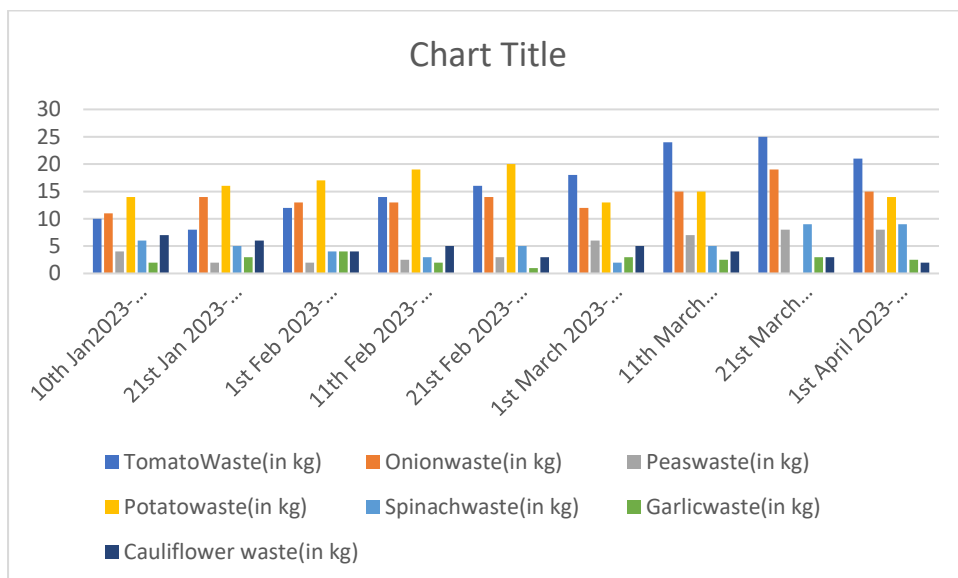


Fig-17

Based on the data on the waste of different vegetables during different periods, the following results and findings can be derived regarding the shelf life problem of the vegetable shop:

Tomatoes:

Tomatoes generate the highest amount of waste on average, with a total of 109 kg waste over the 90-day period from January to April.

The highest amount of waste was observed during 1st March 2023-10th March 2023, with 18 kg wasted, and the lowest was during 21st Feb 2023-28th Feb 2023, with 16 kg wasted.

This suggests that tomatoes may have a shorter shelf life or are not being stored properly in Sandeep vegetable shop, leading to spoilage and wastage.

Onions:

Onions generate the second-highest amount of waste in Sandeep vegetable shop on average, with a total of 99 kg waste over the 90-day period.

The highest amount of waste was observed during 21st March 2023-31st March 2023, with 19 kg wasted, and the lowest was during 2nd Feb 2023-10th Feb 2023, with 13 kg wasted.

This indicates that onions may also have a shorter shelf life or are not being stored properly, leading to spoilage and wastage.

Peas:

Peas generate the third-highest amount of waste on average, with a total of 31 kg waste over the 90-day period.

The highest amount of waste was observed during 1st March 2023-10th March 2023, with 6 kg wasted, and the lowest was during 21st Jan 2023-31st Jan 2023, with 2 kg wasted.

This suggests that peas may have a shorter shelf life or are not being stored properly, leading to spoilage and wastage of Peas.

Potatoes:

The highest amount of waste for potatoes was observed during the period of 21st Feb 2023-28th Feb 2023, with 20 kg of wasted potatoes.

The amount of waste for potatoes during the period of 21st March 2023-31st March 2023 is zero, indicating that the vegetable shop may have sold out all their stock, or the storage and handling of potatoes during this period were better than the other periods.

Overall, there is a significant amount of waste for potatoes during most of the periods, indicating that Sandeep vegetable shop needs to improve their storage and handling practices for potatoes.

Spinach:

The highest amount of waste for spinach was observed during the period of 21st March 2023-31st March 2023, with 9 kg of wasted spinach.

The amount of waste for spinach during the period of 1st March 2023-10th March 2023 was the lowest, with only 2 kg of wasted spinach.

Overall, there is a moderate amount of waste for spinach during different periods, suggesting that the vegetable shop can make improvements in their handling and storage practices for this vegetable.

Garlic:

The amount of waste for garlic is relatively low for all the periods, with the highest being 4 kg during the period of 1st Feb 2023-10th Feb 2023.

The amount of waste for garlic during the period of 21st March 2023-31st March 2023 is also relatively low, with only 3 kg of wasted garlic.

Overall, the amount of waste for garlic is consistently low, indicating that Sandeep vegetable shop is doing well in their storage and handling practices for this vegetable.

Cauliflower:

The amount of waste for cauliflower is also relatively low for all the periods, with the highest being 7 kg during the period of 11th March 2023-20th March 2023.

The amount of waste for cauliflower during the period of 1st April 2023-10th April 2023 is the lowest, with only 2 kg of wasted cauliflower.

Overall, the amount of waste for cauliflower is consistently low, indicating that Sandeep vegetable shop is doing well in their storage and handling practices for this vegetable.

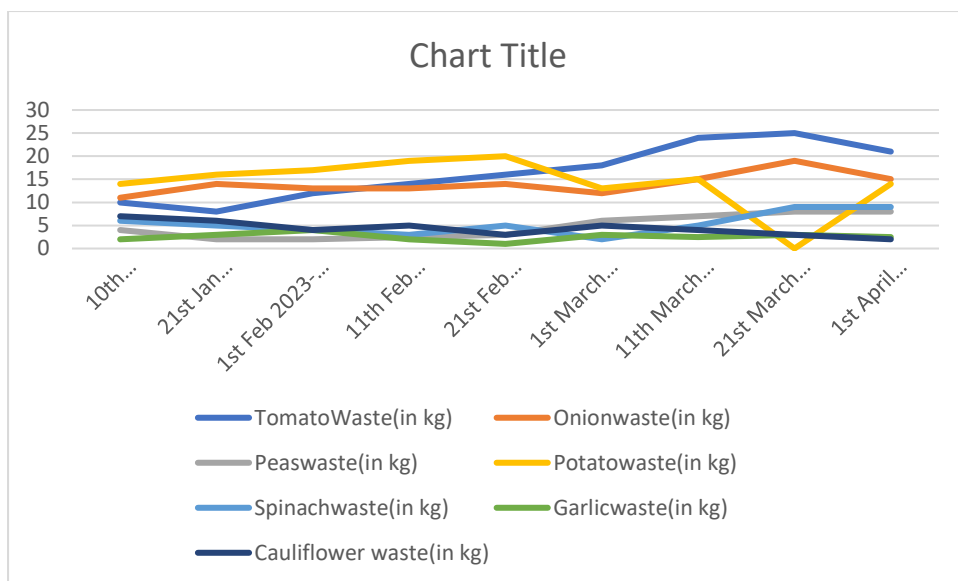


Fig-18

In summary, Sandeep vegetable shop needs to improve their storage and handling practices for most of the vegetables, especially for tomatoes, onions, peas, and potatoes, which have a higher amount of waste during different periods. This vegetable shop seems to be doing well in their handling and storage practices for garlic and cauliflower, as the amount of waste is consistently low for these vegetables. Overall, reducing waste can lead to cost savings and improve the environmental sustainability and profitability of the vegetable shop.

Interpretation of Results and Recommendation:

The sales analysis provided insights into the sales trends and demand for different vegetables at Sandeep Vegetable Shop. The best-selling vegetables are potatoes and onions, with consistently high sales recorded throughout all the weeks. On the other hand, spinach and peas have the lowest sales, indicating low demand for these vegetables among customers of Sandeep vegetable shop. Garlic sales remain consistently low compared to other vegetables throughout all the weeks, suggesting lower demand from customers of that village. Tomatoes have average sales compared to other vegetables, with fluctuating sales trend over the weeks from January to April. Spinach has the lowest sales among all the vegetables sold at Sandeep Vegetable Shop, with consistently low sales recorded throughout all the weeks. The total sales of all vegetables show an upward trend from January to April, with the highest sales recorded in April month, driven by the arrival of the summer season in that region. The findings can help Sandeep Vegetable Shop plan their inventory and sales strategy and maintain waste of different vegetables.

The inventory analysis provides information on the quantity purchased of different vegetables during different periods. Potatoes have the highest quantity purchased among all vegetables of Sandeep vegetable shop, with a consistent quantity purchased across different periods. Tomatoes have the highest quantity purchased during the period of 10th Jan 2023-20th Jan 2023, followed by the period of 1st Feb 2023-10th Feb 2023. Onions and spinach have consistent quantity purchased across different periods, while the quantity purchased of peas is relatively low compared to other vegetables.

The shelf life analysis highlights the waste generated by different vegetables during different periods. Tomatoes generate the highest amount of waste on average due to its shorter shelf life, with the highest amount of waste observed during 1st March 2023-10th March 2023, suggesting that they may have a shorter shelf life or are not being stored properly, leading to spoilage and wastage. Onions generate the second-highest amount of waste on average after tomatoes due to poor handling. The findings suggest that Sandeep Vegetable Shop may need to improve their storage and inventory management practices to reduce wastage and optimize their inventory to maximize profits.

Recommendation:

- 1) Increase inventory of best-selling vegetables: Based on the sales data, it is recommended that Sandeep Vegetable Shop should increase the inventory of high-selling vegetables such as potatoes and onions. These vegetables have consistently high sales throughout all the weeks from January to April, indicating a high demand from customers of that village. By stocking up on these items, the shop can ensure that they do not run out of stock and can meet customer demands.
- 2) Reduce inventory of low-selling vegetables: Sandeep Vegetable Shop should reduce the inventory of low-selling vegetables such as spinach and peas, which have consistently low sales throughout all the weeks. By doing so, the shop can free up space and resources that can be used to stock up on high-selling vegetables such as potatoes, onions etc.
- 3) Consider strategies to increase sales of average-selling vegetables: For vegetables with average sales such as tomatoes, the shop can consider offering discounts or promotions to attract customers and increase sales. This will help to boost the overall sales of the shop and attract new customers of neighbouring villages.

- 4) Monitor inventory of fluctuating sales vegetables: Sandeep Vegetable Shop should closely monitor the inventory of garlic and cauliflower, which have fluctuating sales, and adjust the inventory accordingly. By doing so, the shop can avoid overstocking or understocking these items and optimize sales of these two vegetables.
- 5) Improve storage and handling of tomatoes: As tomatoes generate the highest amount of waste on average, it is recommended that Sandeep Vegetable Shop improves the storage and handling of these vegetables to reduce spoilage and waste of vegetables. This can be achieved by storing them in a cool and dry place and avoiding overhandling during transportation of vegetables.
- 6) Monitor shelf life of all vegetables: Sandeep Vegetable Shop should monitor the shelf life of all vegetables and adjust the inventory accordingly to reduce waste and optimize sales. By doing so, the shop can avoid stocking up on items that are likely to expire soon and avoid waste of veggies.
- 7) Leverage high demand for cauliflower: Sandeep Vegetable Shop can leverage the high demand for cauliflower during the last week of March and increase the inventory to meet customer demand. This will help to optimize sales and ensure that the shop does not run out of stock during peak demand periods.
- 8) Adjust inventory for seasonal vegetables: The shop can adjust the inventory for seasonal vegetables based on the expected increase in demand during the summer season. By doing so, the shop can ensure that they have enough stock to meet customer demand during peak season of summers.
- 9) Categorize vegetables based on sales: Sandeep Vegetable Shop should categorize its vegetables based on sales data, such as high-selling, average-selling, and low-selling items. This will help the shop to focus on stocking up on the high-selling items while reducing inventory for low-selling items such as garlic.
- 10) Analyze sales data regularly: It is important for Sandeep Vegetable Shop to analyze its sales data regularly to make informed decisions about its inventory and sales

strategy. This will help the shop to identify trends and make adjustments to its inventory accordingly.

- 11) Train staff on proper handling and storage: Sandeep Vegetable Shop should train its staff on proper handling and storage of vegetables to reduce spoilage and wastage of vegetables. This can include educating them on the ideal temperature and humidity conditions for different vegetables.
- 12) Collaborate with local farmers: The shop can collaborate with local farmers to source fresh and seasonal vegetables, which can help to attract customers and increase sales. This can also help to reduce transportation costs of the shop.
- 13) Overall, by implementing these recommendations, Sandeep Vegetable Shop can optimize its inventory and sales strategy, reduce waste, and increase customer satisfaction, which leads to increased profitability in the long run.