

# PROJECT-PRODUCT SALES ANALYSIS

## PHASE 4-DEVELOPMENT PHASE 2

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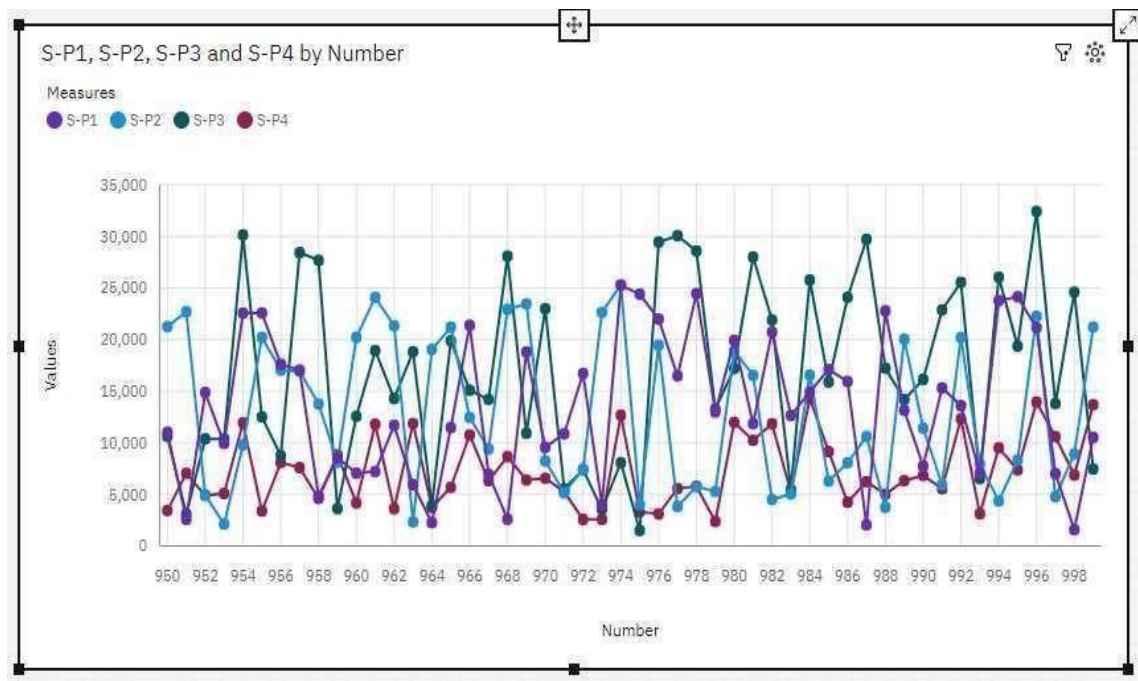
**Dataset :** <https://www.kaggle.com/datasets/ksabishek/product-sales-data>

- 1.Continue building the analysis by creating visualizations using IBM Cognos and generating actionable insights.
- 2.Use IBM Cognos to design interactive dashboards and reports that display insights such as top-selling products, sales trends, and customer preferences.

### 3. Derive insights from the visualizations, such as identifying products with the highest sales, peak sales periods, and customer preferences for specific products.

#### Sales analysis based on number:

+Line



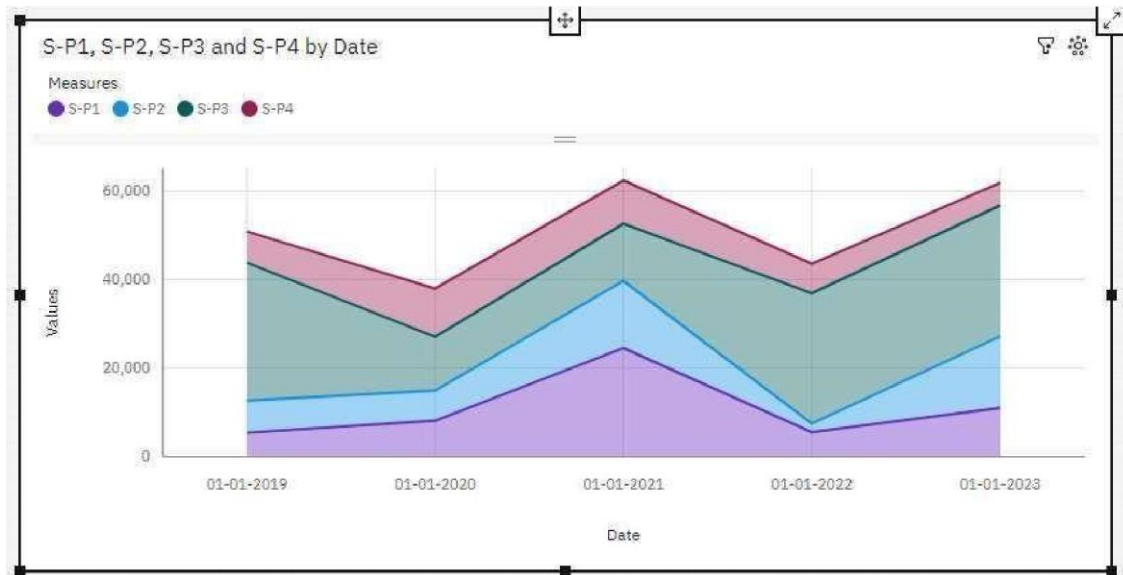
#### Insights:

- P1 is over thirteen thousand.
- Over all numbers, the average of S-P2 is nearly thirteen thousand.
- Over all numbers, the average of S-P3 is nearly seventeen thousand.
- Across all numbers, the average of S-P4 is over seven thousand.
- The total number of results for S-P1, across all numbers, is 50.
- The total number of results for S-P2, across all numbers, is 50.
- The total number of results for S-P3, across all numbers, is 50.
- The total number of results for S-P4, across all numbers, is 50.
- S-P1 ranges from over 1500, when Number is 998, to over 25 thousand, when Number is 974.
- S-P2 ranges from over two thousand, when Number is 953, to over 25 thousand, when Number is 974.

- S-P3 ranges from almost 1500, when Number is 975, to over 32 thousand, when Number is 996.
- S-P4 ranges from almost 2500, when Number is 979, to over 14 thousand, when Number is 984.

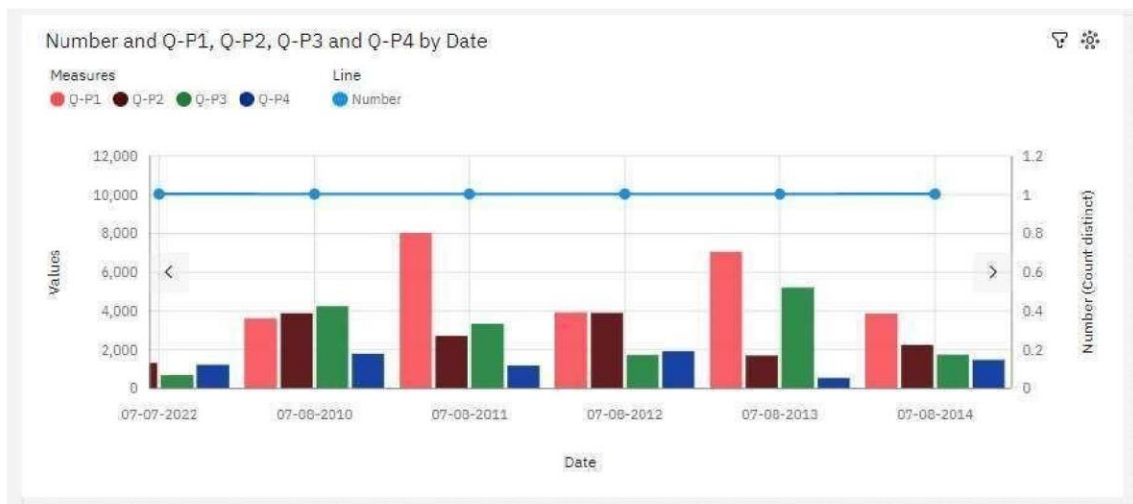
### Sales analysis based on date:

+Area



### Insights:

- Over all dates, the average of S-P1 is nearly eleven thousand.
- Over all dates, the average of S-P2 is almost 9500.
- Across all dates, the average of S-P3 is over 23 thousand.
- Over all dates, the average of S-P4 is nearly eight thousand.
- Add insight to favorites
- The total number of results for S-P1, across all dates, is 5.
- The total number of results for S-P2, across all dates, is 5.
- The total number of results for S-P3, across all dates, is 5.
- The total number of results for S-P4, across all dates, is 5.
- S-P1 ranges from nearly 5500, when Date is 01-01-2019, to over 24 thousand, when Date is 01-01-2021.
- S-P2 ranges from nearly two thousand, when Date is 01-01-2022, to over sixteen thousand, when Date is 01-01-2023.
- S-P3 ranges from over 12 thousand, when Date is 01-01-2020, to over 31 thousand, when Date is 01-01-2019.
- S-P4 ranges from over five thousand, when Date is 01-01-2023, to nearly eleven thousand, when Date is 01-01-2020.



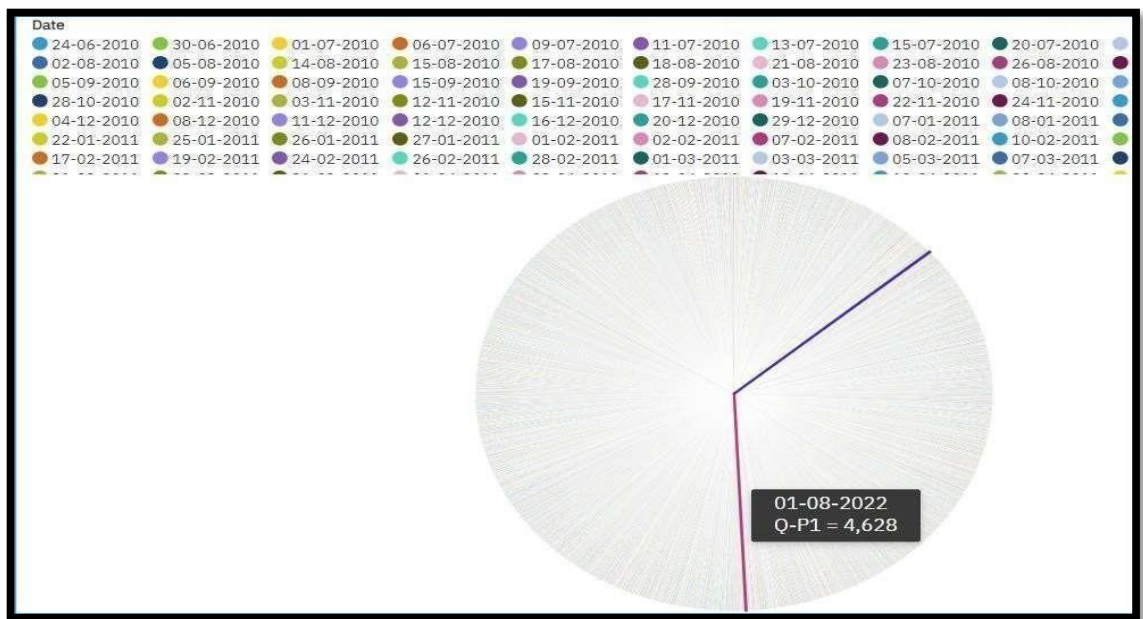
### Insights:

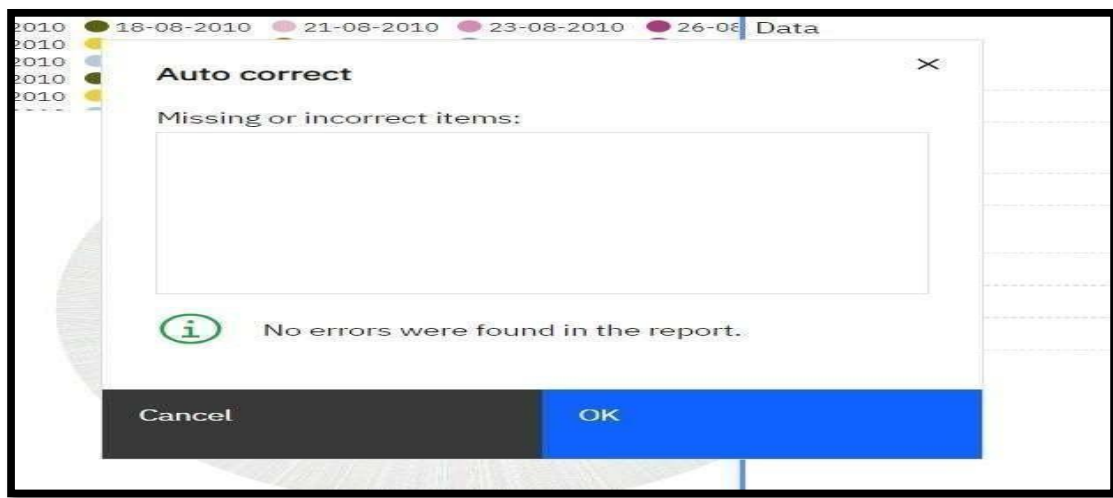
- Over all dates, the average of Q-P1 is nearly five thousand.
- Across all dates, the average of Q-P2 is over 2500.
- Over all dates, the average of Q-P3 is nearly three thousand.
- Over all dates, the average of Q-P4 is almost 1500.
- The total number of results for Q-P1, across all dates, is 6.
- The total number of results for Q-P2, across all dates, is 6.
- The total number of results for Q-P3, across all dates, is 6.
- The total number of results for Q-P4, across all dates, is 6.
- Q-P1 ranges from over three thousand, when Date is 07-07-2022, to nearly eight thousand, when Date is 07-08-2011.
- Q-P2 ranges from almost 1500, when Date is 07-07-2022, to nearly four thousand, when Date is 07-08-2012.
- Q-P3 ranges from 647, when Date is 07-07-2022, to over five thousand, when Date is 07-08-2013.
- Q-P4 ranges from 502, when Date is 07-08-2013, to nearly two thousand, when Date is 07-08-2012.
- The total number of results for Number, across all dates, is 6.

## 2.Interactive dashboards and reports that display insights such as top-selling products, sales trends, and customer preferences.

### Top-Selling Products:

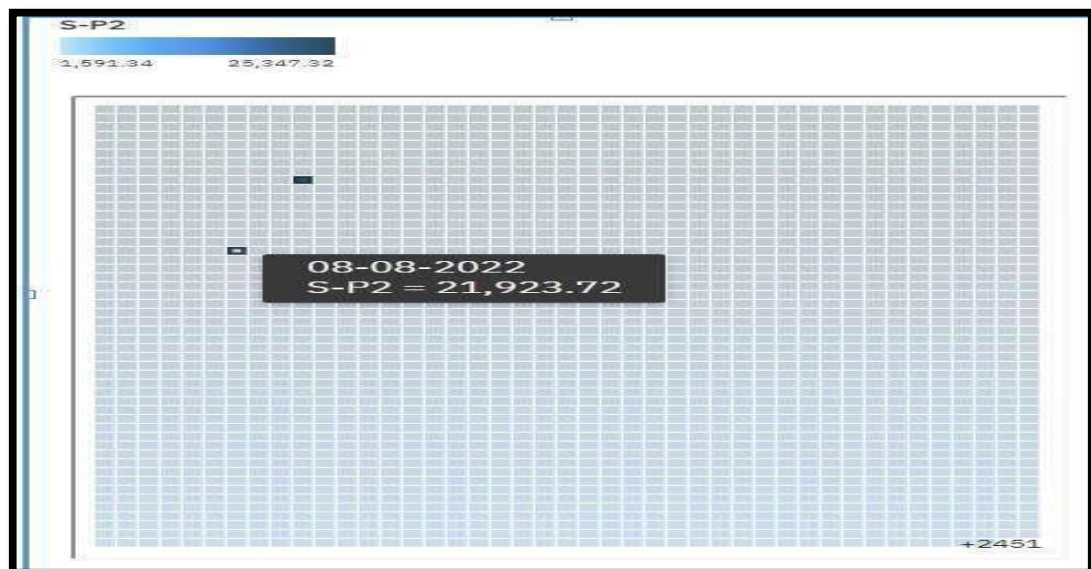
Top-selling products are the items, goods, or services that generate the highest sales revenue within a given time frame. These are the products that consistently perform well in terms of sales and contribute significantly to a company's revenue.



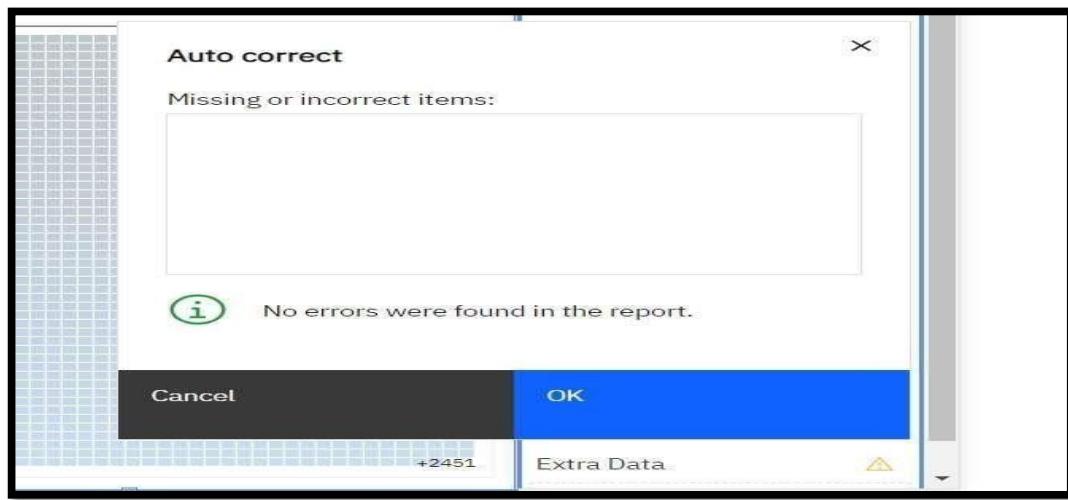


### **Sales Trends:**

Sales trends refer to the patterns, fluctuations, and changes in a company's sales performance over a specified period. These trends can be short-term or long-term and may show increases, decreases, or stability in sales.



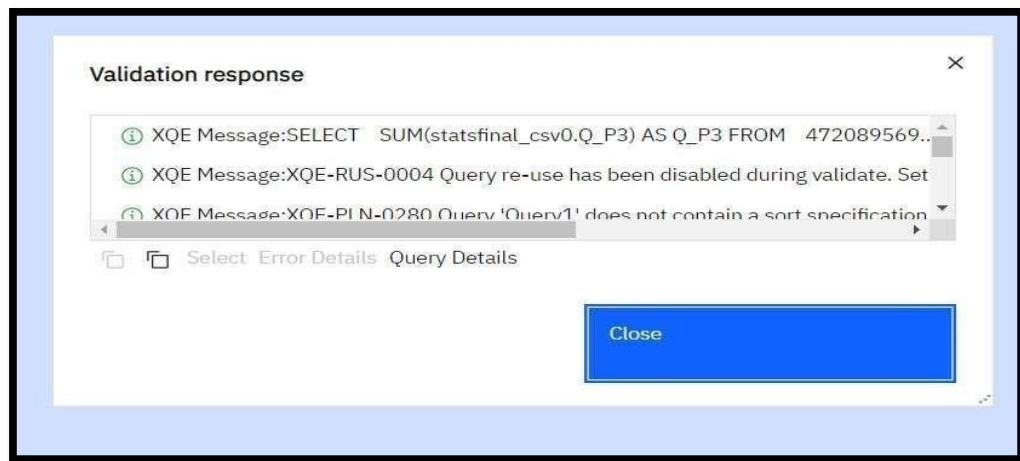




### Customer Preferences:

Customer preferences represent the choices, likes, and dislikes of customers when it comes to products, services, or experiences. These preferences can encompass various aspects, including product features, pricing, brands, and more.

18,960,506	60,104,804.0200001
Q-P1	S-P1
9,799,295	62,127,530.29999998
Q-P2	S-P2



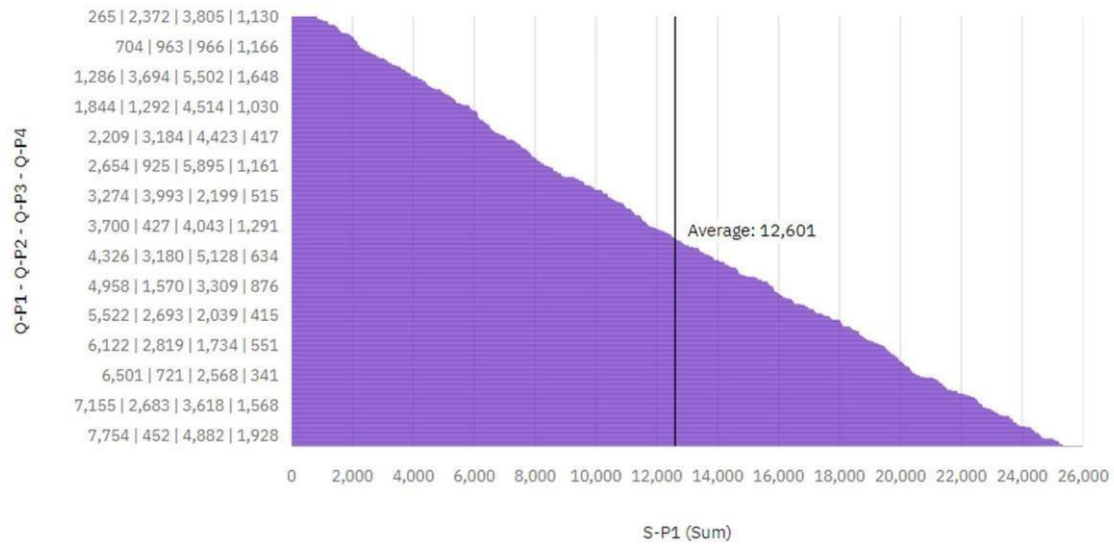
3. Derive insights from the visualizations, such as identifying products with the highest sales, peak sales periods, and customer preferences for specific products.

*Highest Sales:*

+Bar Chart



## S-P1 by Q-P1, Q-P2, Q-P3 and Q-P4



## Insights:

### Insights



### Show average value



The average value of S-P1 is 12,601.

### Show meaningful differences



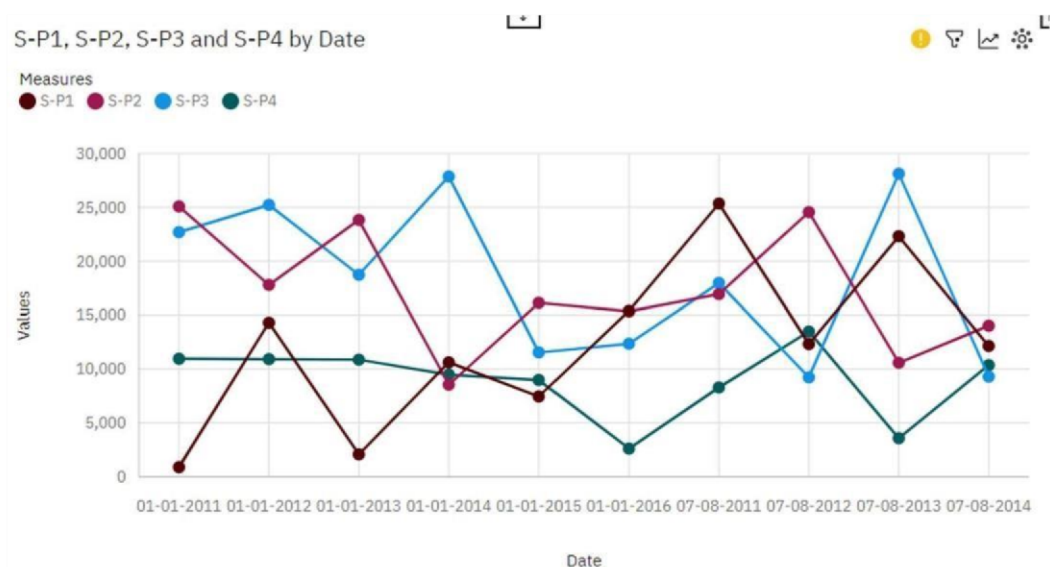
None found

- Q-P4 1142 has the highest total S-P1 due to Q-P1 7759.
- Q-P1 6404 has the highest Total S-P4 but is ranked #3 in Total S-P1.
- Q-P3 579 has the highest Total S-P4 but is ranked #2 in Total S-P1.
- Q-P1 6404 has the highest Total S-P4 but is ranked #3 in Total S-P1.
- Q-P3 579 has the highest Total S-P4 but is ranked #2 in Total S-P1.
- Q-P2 3267 has the highest Total S-P1 but is ranked #2 in Total S-P4.
- Q-P3 1834 has the highest Total S-P1 but is ranked #2 in Total S-P4.
- Q-P1 7681 has the highest Total S-P1 but is ranked #38 in Total S-P4.
- Q-P2 1574 has the highest Total S-P4 but is ranked #8 in Total S-P1.
- Q-P4 1851 has the highest Total S-P4 but is ranked #9 in Total S-P1.
- 7681 S-P1 at nearly 49 thousand is 73% higher than the S-P4 of over 13 thousand.

- 3267 S-P1 at almost 54 thousand is 46% higher than the S-P4 of over 29 thousand.
- 1834 S-P1 at over 48 thousand is 41% higher than the S-P4 of over 28 thousand.
- 1142 S-P1 at over 59 thousand is 59% higher than the S-P4 of over 24 thousand.
- S-P1 and S-P4 diverged the most when Q-P1 is 7681, and when S-P1 was over 35 thousand higher than the S-P4.
- S-P1 and S-P4 diverged the most when Q-P2 is 1241, and when S-P1 was over 32 thousand higher than the S-P4.
- S-P1 and S-P4 diverged the most when Q-P3 is 1226, and when S-P1 was almost 24 thousand higher than the S-P4.
- S-P1 and S-P4 diverged the most when Q-P4 is 551, and when S-P1 was over 45 thousand higher than the S-P4.
- Q-P1 7681 has the highest S-P1 at nearly 49 thousand, out of which Q-P4 742 contributed the most at over 24 thousand.
- 1165 has a S-P1 of over 25 thousand for Q-P1 7994.
- S-P1 ranges from 840, when Q-P1 - Q-P2 - Q-P3 - Q-P4 is 265|2372|3805|1130, to over 25 thousand, when Q-P1 - Q-P2 - Q-P3 - Q-P4 is 7994|3128|1262|1165.
- For S-P1, the most significant values of Q-P1 - Q-P2 - Q-P3 - Q-P4 are 7994|3128|1262|1165, 7982|401|1226|251, 7951|2658|5246|1989, 7950|495|1195|908, and 7948|560|387|1850, whose respective S-P1 values add up to over 126 thousand, or 2.2 % of the total.

### Peak Sale Periods:

+Line



### Insights:

- S-P1 ranges from 890.8, when Date is 01-01-2011, to over 25 thousand, when Date is 07-08-2011.
- S-P2 ranges from over 8500, when Date is 01-01-2014, to over 25 thousand, when Date is 01-01-2011.
- S-P3 ranges from over nine thousand, when Date is 07-08-2012, to over 28 thousand, when Date is 07-08-2013.

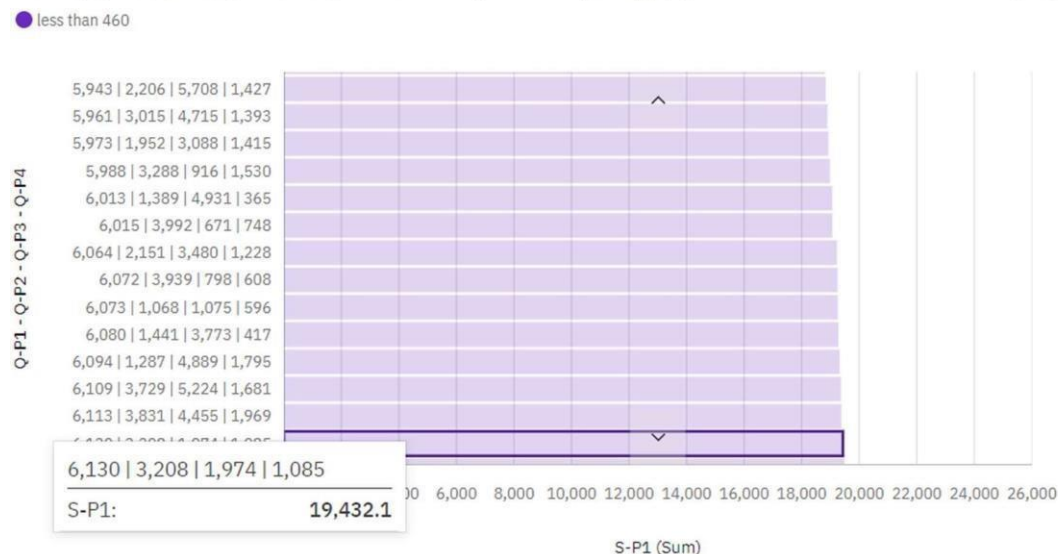
- S-P4 ranges from over 2500, when Date is 01-01-2016, to over 13 thousand, when Date is 07-08-2012.
- The total number of results for S-P1, across all dates, is 10.
- The total number of results for S-P2, across all dates, is 10.
- The total number of results for S-P3, across all dates, is 10.
- The total number of results for S-P4, across all dates, is 10
- Across all dates, the average of S-P1 is over twelve thousand.
- Across all dates, the average of S-P2 is over seventeen thousand.
- Across all dates, the average of S-P3 is over eighteen thousand.
- Over all dates, the average of S-P4 is nearly nine thousand.

### Customer Preferences :

+Stacked bar chart

- A stacked bar chart representing customer preferences that can help us to visualize how different product units are preferred by customers. Here's an explanation of what it might look like:
  - ✓ **X-Axis:** The X-axis of the stacked bar chart represents different time periods or categories. For example, it could represent dates or specific time intervals.
  - ✓ **Y-Axis:** The Y-axis represents the total revenue or the number of units sold. It shows the quantitative value being measured.
  - ✓ **Stacked Bars:** The chart consists of stacked bars, each representing a specific time period (e.g., date) on the X-axis. Each bar is divided into segments, with each segment representing a different product unit (unit1, unit2, unit3, unit4).
  - ✓ **Color-Coding:** Each segment within a stacked bar is color-coded to differentiate the product units. Customers' preferences for specific units are visualized by the distribution of colors within each bar.

S-P1 by Q-P1, Q-P2, Q-P3 and Q-P4 colored by Number (Group) (1)



Insights:

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## Insights



### Show average value



The average value of S-P1 is 12,444.

### Show meaningful differences



None found

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- Q-P4 1168 has the highest total S-P1 due to Q-P1 7024.
- 7910 S-P1 at over 50 thousand is 76% higher than the S-P4 of nearly 12 thousand.
- 1773 S-P1 at over 49 thousand is 56% higher than the S-P4 of almost 22 thousand.
- 671 S-P1 at nearly 44 thousand is 76% higher than the S-P4 of nearly 11 thousand.
- 1168 S-P1 at over 47 thousand is 47% higher than the S-P4 of almost 25 thousand.
- S-P1 and S-P4 diverged the most when Q-P1 is 7826, and when S-P1 was almost 43 thousand higher than the S-P4.
- S-P1 and S-P4 diverged the most when Q-P2 is 1773, and when S-P1 was almost 28 thousand higher than the S-P4.
- S-P1 and S-P4 diverged the most when Q-P3 is 671, and when S-P1 was over 33 thousand higher than the S-P4.
- S-P1 and S-P4 diverged the most when Q-P4 is 395, and when S-P1 was over 38 thousand higher than the S-P4.
- Q-P3 671 has the highest Total S-P1 but is ranked #152 in Total S-P4.
- Q-P4 1682 has the highest Total S-P4 but is ranked #121 in Total S-P1.
- Q-P1 2898 has the highest Total S-P4 but is ranked #119 in Total S-P1.
- Q-P1 7910 has the highest Total S-P1 but is ranked #83 in Total S-P4.
- Q-P4 1168 has the highest Total S-P1 but is ranked #10 in Total S-P4.
- Q-P2 3855 has the highest Total S-P4 but is ranked #7 in Total S-P1.
- Q-P2 1773 has the highest Total S-P1 but is ranked #6 in Total S-P4.
- Q-P1 7910 has the highest S-P1 at over 50 thousand, out of which Q-P4 306 contributed the most at over 25 thousand.
- Q-P3 3646 has the highest Total S-P4 but is ranked #4 in Total S-P1.
- 1163 has a S-P1 of over 25 thousand for Q-P1 7996.
- Across all values of Q-P1 - Q-P2 - Q-P3 - Q-P4, the sum of S-P1 is over 5.7 million.
- S-P1 ranges from 890.8, when Q-P1 - Q-P2 - Q-P3 - Q-P4 is 281|3956|4186|1537, to over 25 thousand, when Q-P1 - Q-P2 - Q-P3 - Q-P4 is 7996|2672|3317|1163.