

## **Question 1:**

**Write an SQL statement to find the total number of user sessions each page has each day.**

**(A user session is defined as continuous activity on a site where each activity is within 10 mins of each other.)**

## **Answer:**

Since the activity on site where each activity is within 10 mins of each other. The below code will also eliminate any duplicate activity by a user within the 10 mins.

## **Code:**

```
SELECT A.Page_ID, A.Visit_Date,  
Count(A.Visit_Time_Slot) AS Total_User_Sessions  
FROM  
(  
SELECT DISTINCT ID, User_ID, Page_ID, Visit_Date,  
DATEADD(MINUTE, ROUND(DATEDIFF(MINUTE, 0,  
Visit_Time) / 10.0, 0) * 10 AS Visit_Time_Slot, 0)  
FROM TABLE_A  
) A  
GROUP BY A.Page_ID, A.Visit_Date
```

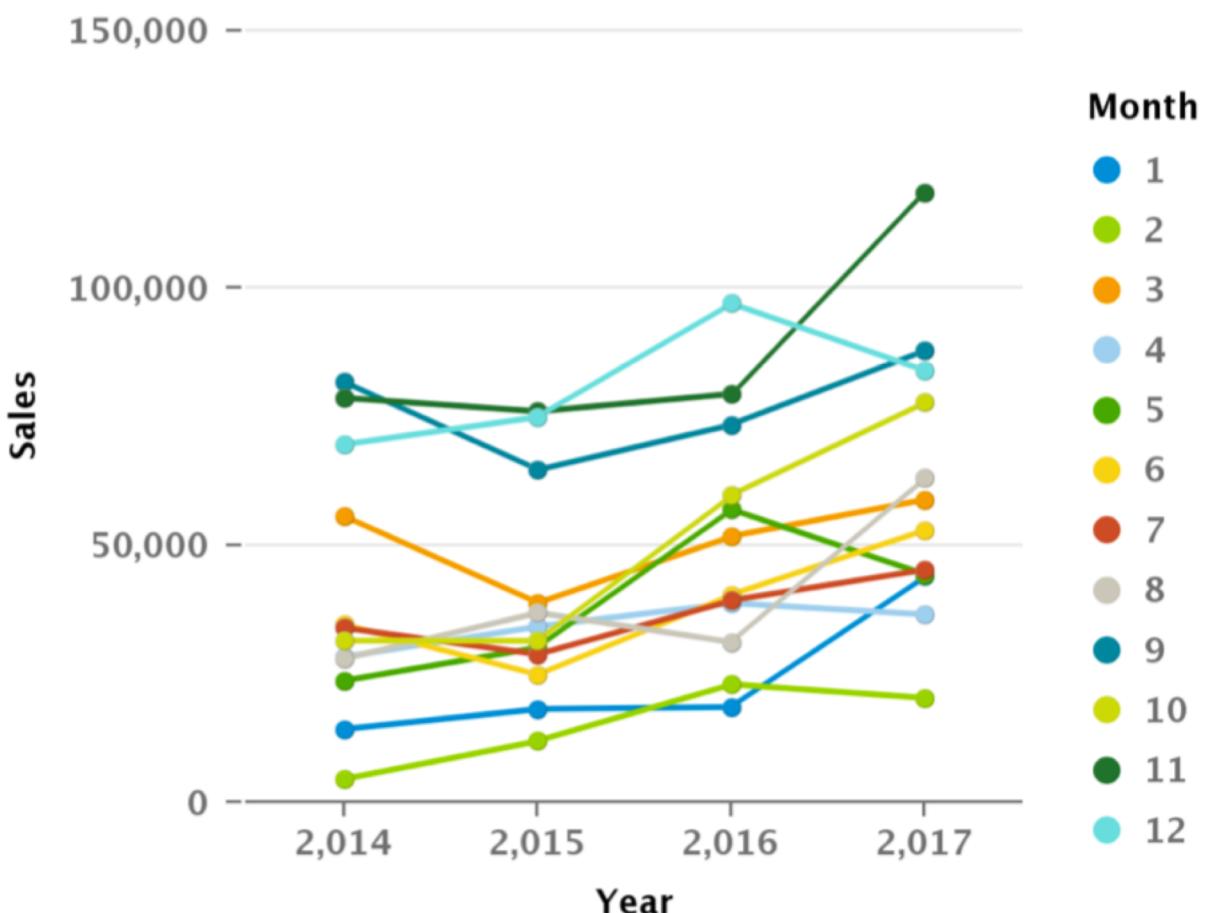
## Question 2:

1. Which month has the highest sales? Is there any seasonality effect?

Answer:

November is month of highest sales.

Yes there is a seasonality effect, in general last quarter sales is higher compared to other quarters.



## Question 2:

### 2. Which product is the recent best seller?

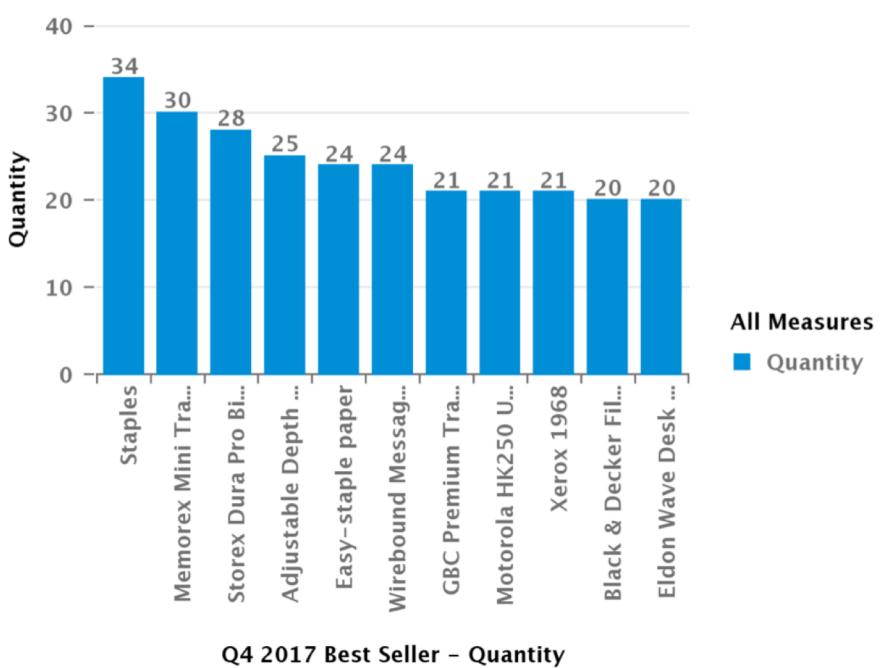
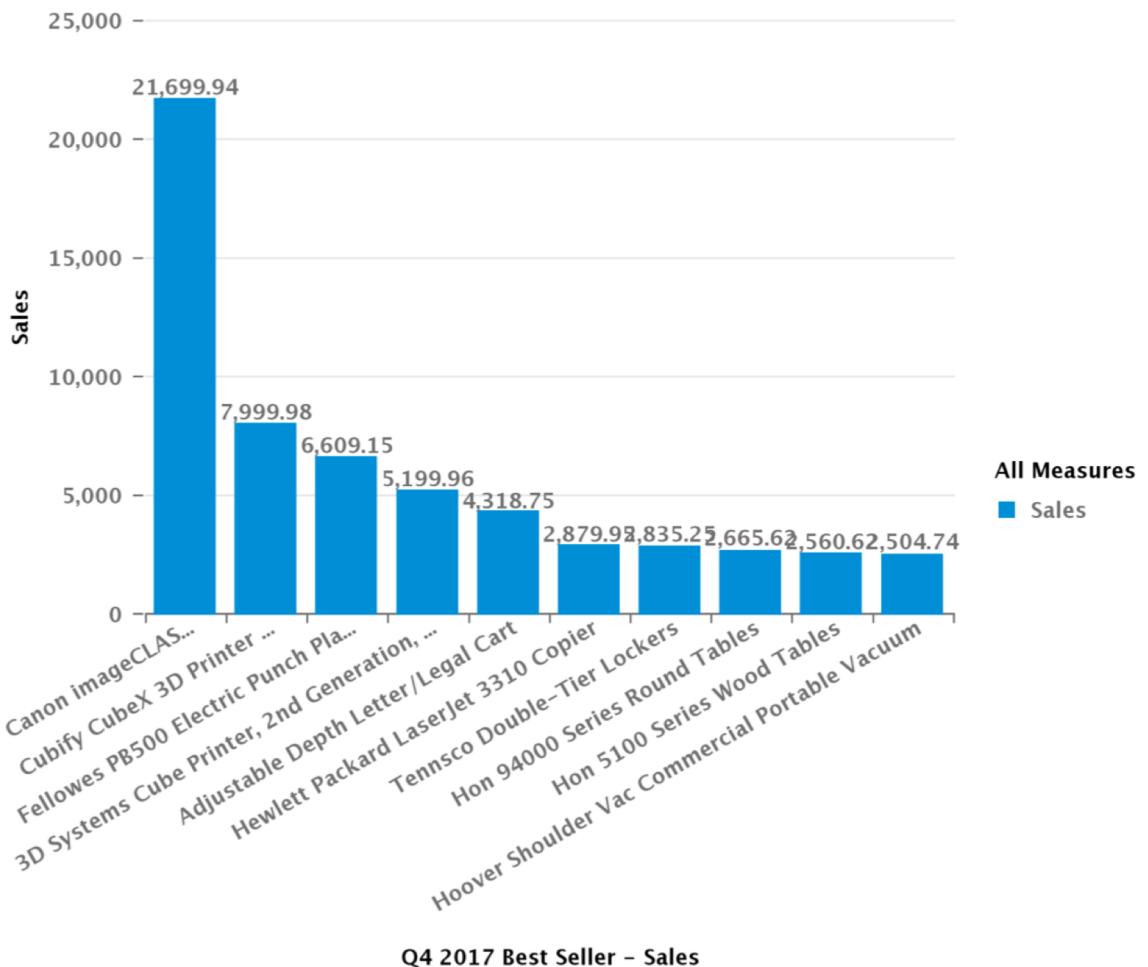
Answer:

In terms of sales **Canon image CLASS 2200 Advanced Copier** was the best seller in terms of sales in the last two years. In terms of quantity the **Staples** are the highest.

Year	ProductName	Sales
2017	Canon imageCLASS 2200 Advanced Copier	\$35,699.90
2016	Canon imageCLASS 2200 Advanced Copier	\$25,899.93
2014	Cisco TelePresence System EX90 Videoconferencing Unit	\$22,638.48
2015	Fellowes PB500 Electric Punch Plastic Comb Binding Machine with Manual Bind	\$15,760.28

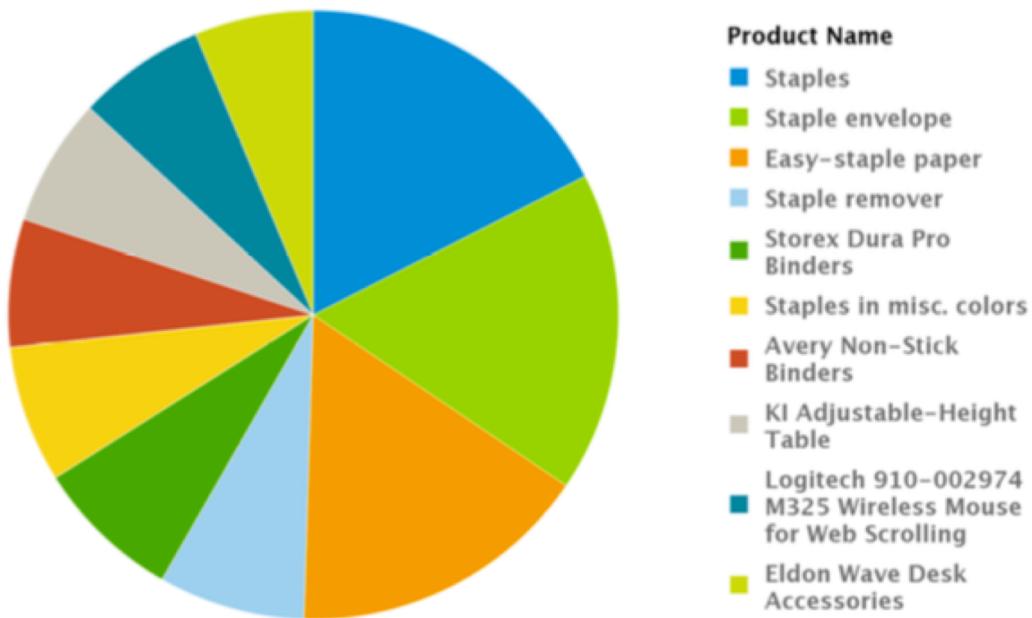
Year	ProductName	Quantity
2017	Staples	68
2016	Staples	56

This trend continues in the last quarter of 2017. Below is the top 10 best sellers in Sales and quantity for Q4 2017. **Canon image CLASS 2200 Advanced Copier** tops in sales and **Staples** tops in quantity.



### 3. Is there any group of products which are often bought together?

Yes analysing the number of Joint Orders, we can confirm that **Staples**, **Staple envelope** and **Easy-staple paper** are often bought together. To be exact 33 times they were bought together from 2014 to 2017.

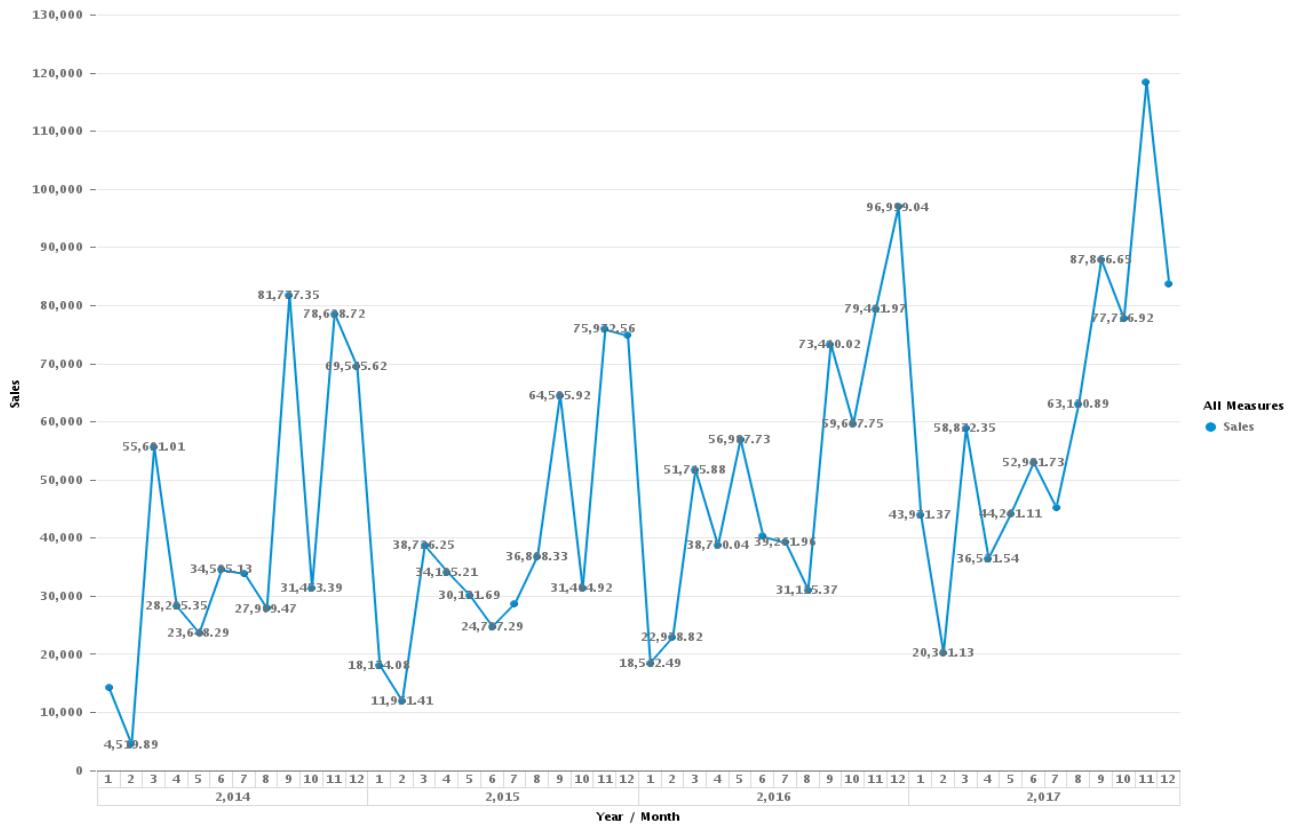


Product Name	Number of Joint Orders
Staples	36
Staple envelope	35
Easy-staple paper	33
Staple remover	16
Storex Dura Pro Binders	16
Staples in misc. colors	15
Avery Non-Stick Binders	14
KI Adjustable-Height Table	14
Logitech 910-002974	14
M325 Wireless Mouse for Web Scrolling	14
Eldon Wave Desk Accessories	13

Top 10 Products that were bought together

#### 4. Is there any other insight you can get to help to improve sales number?

- Analysing the sales trend, the month of January and February have low sales and this can be boosted through online campaigns and promotional activities.



- Usually sales is high from September to December. During this time, actions should be taken to retain the trend and maintain the customer satisfaction.

- There are 87 products that were sold in all years from 2014 to 2016 but were not bought in 2017. Below are the top 10 among the 87, based on historical sales. So this has to be analysed by the R&D or Marketing team to set it right.

Product	2014	2015	2016	2017
Bretford CR8500 Series Meeting Room Furniture	1,202.94	2,085.1	3,488.53	0
Cisco Unified IP Phone 7945G VoIP phone	1,909.54	1,022.97	3,819.09	0
Fellowes Strictly Business Drawer File, Letter/Legal Size	704.25	563.4	3,211.38	0
Hon 2111 Invitation Series Corner Table	1,758.71	1,004.98	376.87	0
Hon Non-Folding Utility Tables	764.69	446.07	2,564.89	0
Okidata C331dn Printer	418.8	558.4	2,233.6	0
O'Sullivan Living Dimensions 5-Shelf Bookcases	1,538.02	1,352.4	530.35	0
Stur-D-Stor Shelving, Vertical 5-Shelf: 72"H x 36"W x 18 1/2"D	665.88	1,553.72	332.94	0
Tennsco Snap-Together Open Shelving Units, Starter Sets and Add-On Units	2,794.8	1,788.67	2,235.84	0
Wireless Extenders zBoost YX545 SOHO Signal Booster	2,078.89	453.58	1,511.92	0

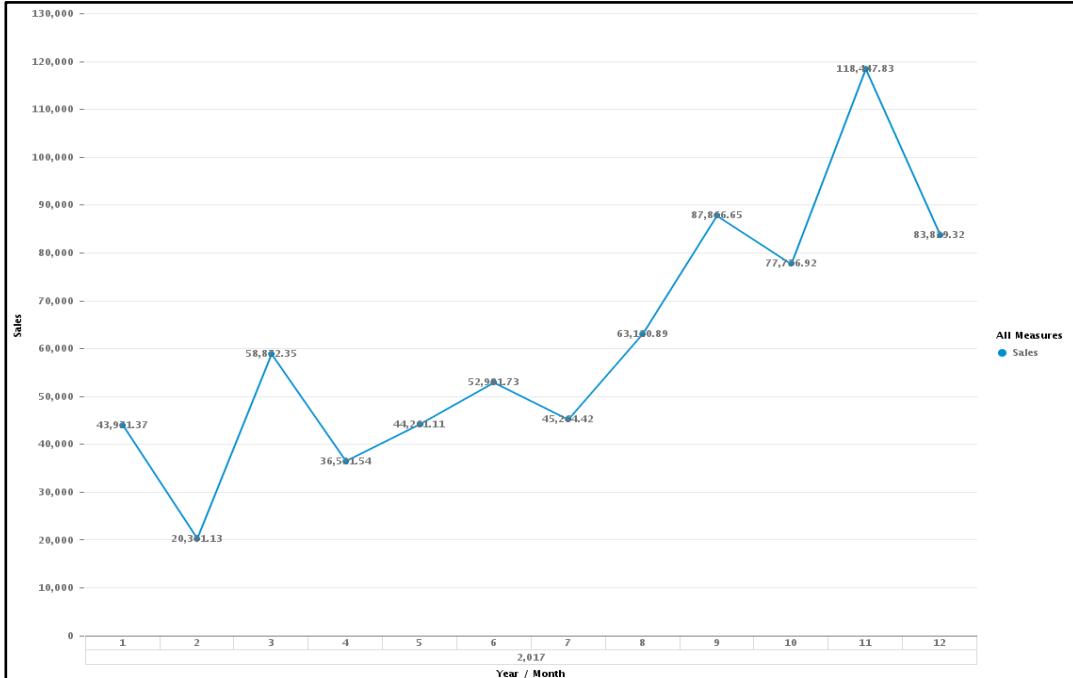
- There are 44 customers who placed orders in all three years from 2014 to 2016 but never placed any order in 2017. Below are the top 10 customers who never placed orders in 2017. This has to be analysed by the Customer relationship team.

Customer	2014	2015	2016	2017	Total Historical Sales
TC-20980	622.32	85.85	18,344.05	0	19,052.22
KD-16270	1,639.5	325.7	6,317.16	0	8,282.36
AH-10690	177.68	1,945.84	5,764.77	0	7,888.29
JD-15895	1,299.48	130.28	6,181.11	0	7,610.86
RH-19510	273.96	731.25	5,973.97	0	6,979.18
VD-21670	2,126.03	4,130.34	185.88	0	6,442.25
IM-15070	1,979.89	1,841.61	1,108.98	0	4,930.47
MC-17425	719.98	130.4	3,581.76	0	4,432.14
PW-19240	181.79	3,730.54	10.09	0	3,922.42
JS-15880	172.11	1,717.97	1,977.94	0	3,868.02

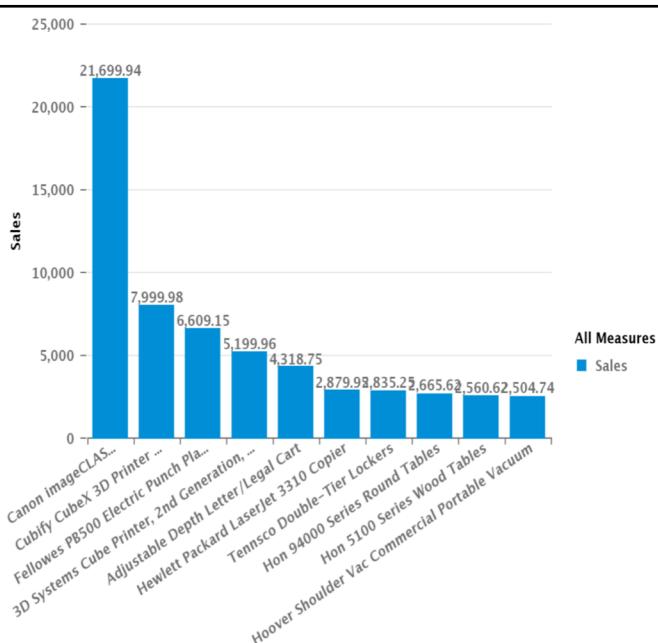
## 5. Based on the data we have, what kind of BI dashboards you would build in order to help the sales team monitoring the performance?

### Sales Trend Analysis

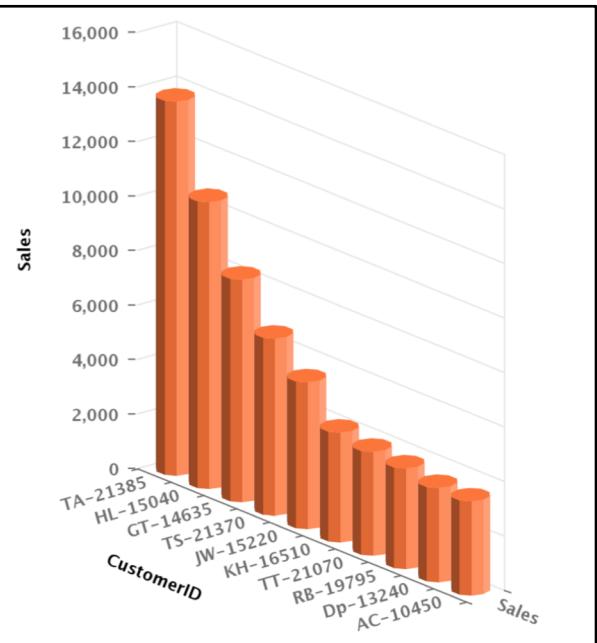
Select Year 2017▼



Current Year – Sales trend



Best Sellers – Last Quarter



Top 10 Customers – Last Quarter