



Data Visualizaion on Online Retail



DA332

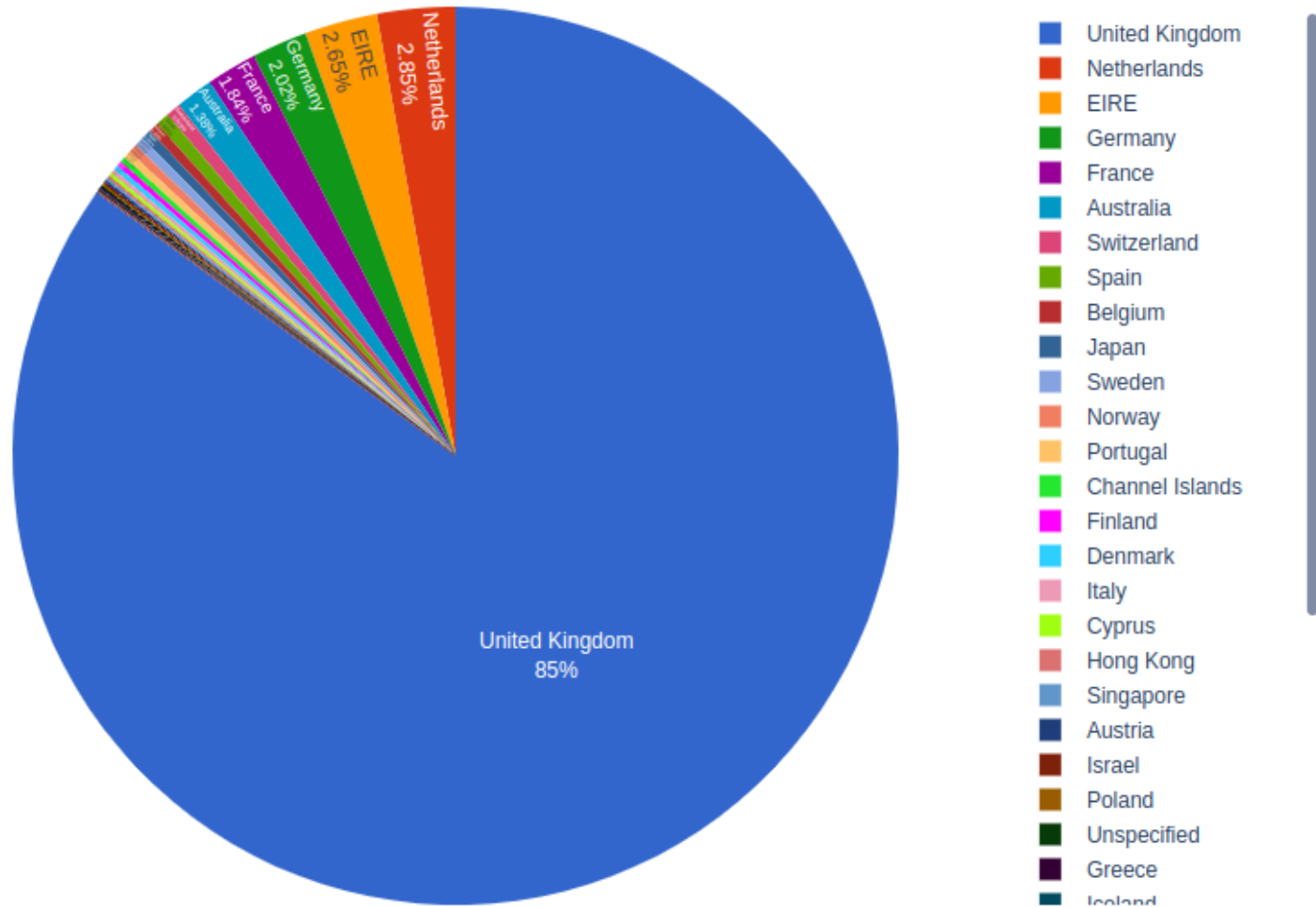
- **Information** : This is a transnational data set which contains all the transactions occurring between 01/12/2010 and 09/12/2011 for a UK-based and registered non-store online retail.
- **Publisher** : Daqing Chen chend@lsbu.ac.uk
- Cleaned Dataset source - [kaggle](https://www.kaggle.com)

A person wearing a white button-down shirt is shown from the chest down, pointing their right index finger towards a screen. The background is blurred.

About Data

Visualizing the Sales by Country (Pie Chart)

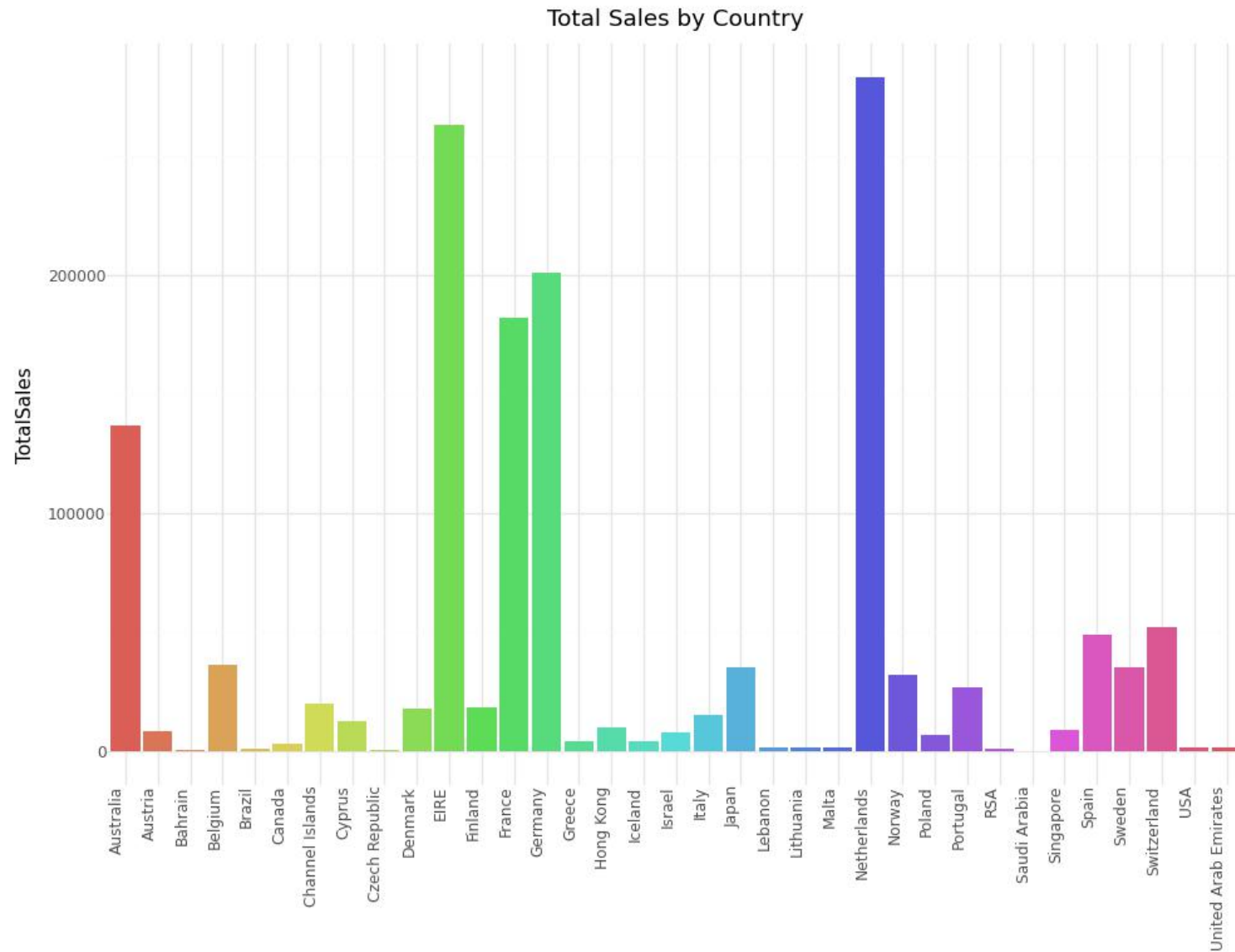
Percent of Total Sales by Country



Visualizing the Sales by Country (Pie Chart)

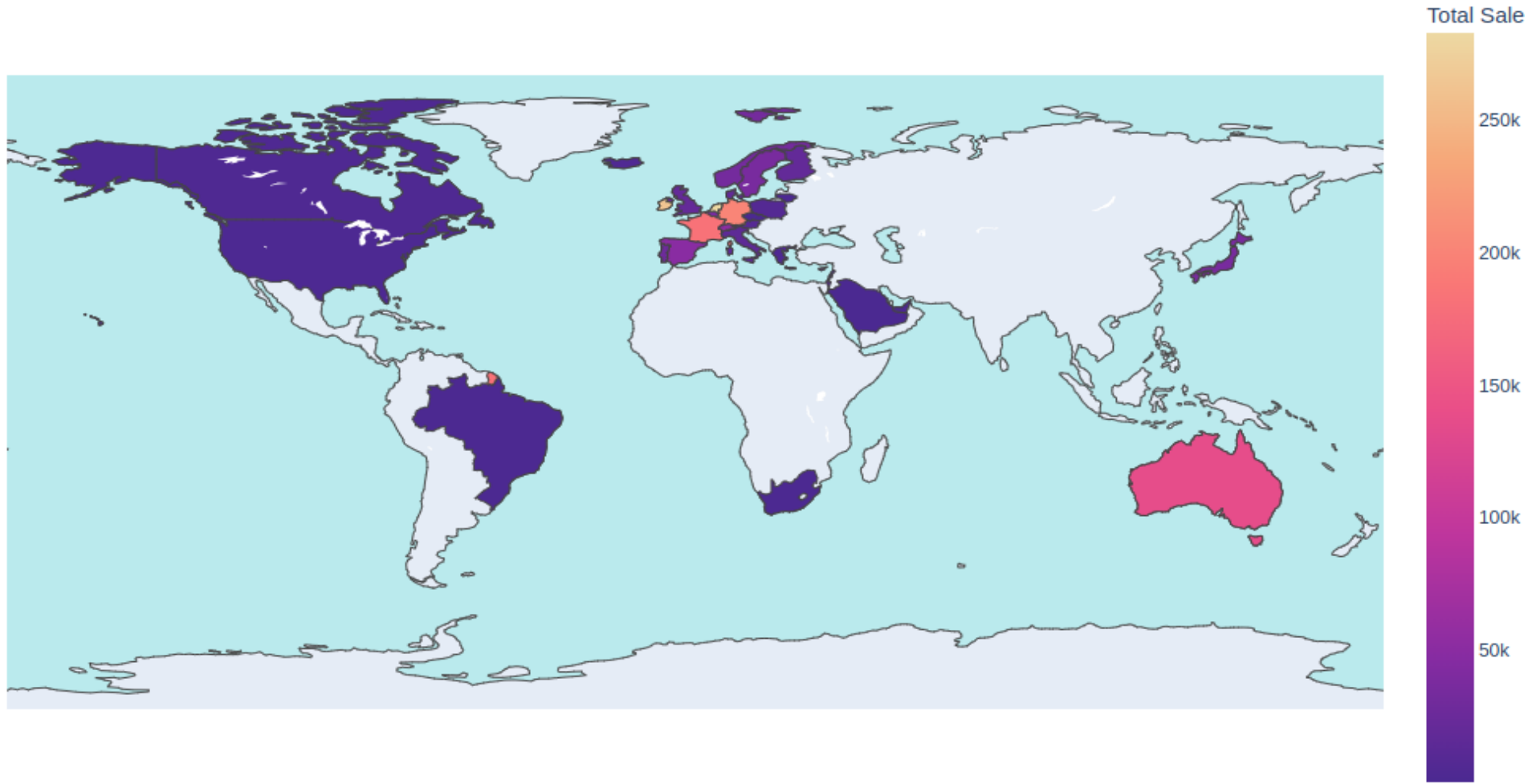
Conclusion : We can see that the UK has a major contribution towards sales.

Visualizing the Sales by Country (Bar Plot)

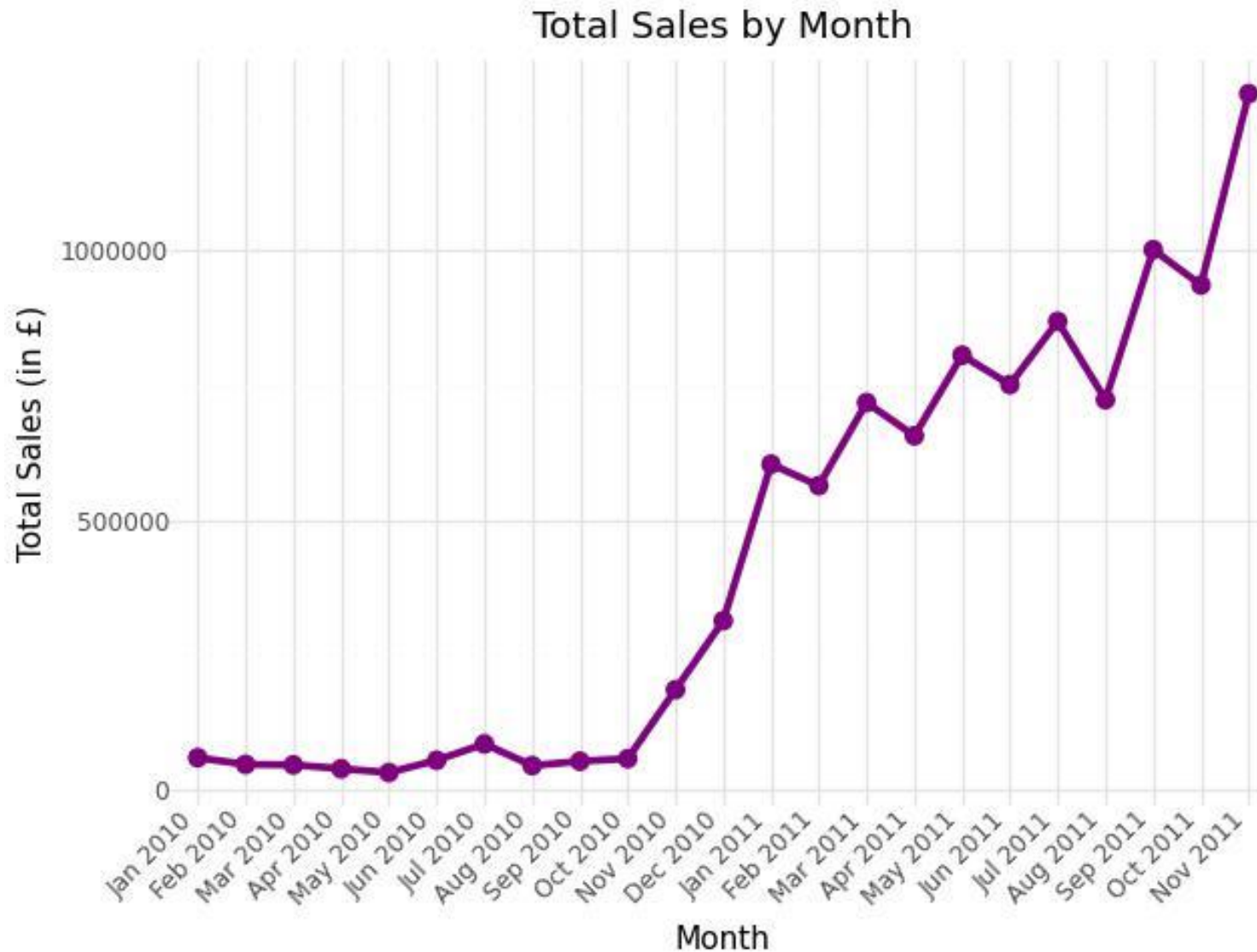


Visualizing the Sales by Country map

Total Sales By Country Excluding the UK



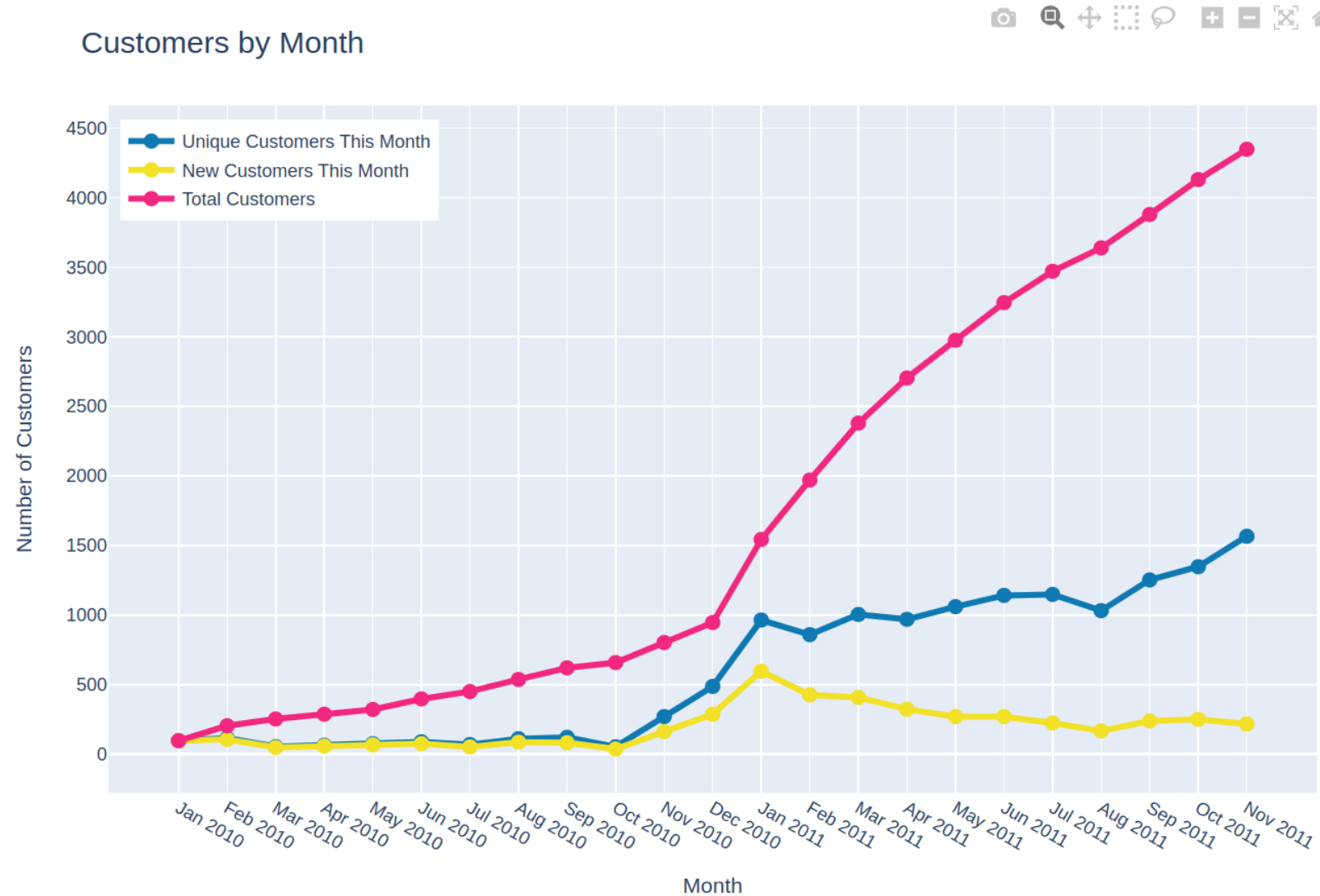
Overall sales trend



Overall sales trend



Conclusion : We can see a clear upward  trend with initial sharp increases towards the end of 2010 and the beginning of 2011. Let's investigate whether the number of customers in each month exhibit a similar trend.

How Many Customers Purchased Products Each Month and How Many New Customers were There Each Month?



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Conclusion :

- We can see a significant jump  in new customers around December 2010 and January 2011, likely related to the Christmas holidays.
- We can see another spike  in customers in November 2011, although there is no spike in new customers. This might suggest that customers were satisfied with their Christmas purchases in 2010, and are now coming back to the online store for their Christmas 2011 purchases.
- We do infact see that the line chart of the number of total customers has a concave shape. In other words, the number of total customers is increasing at a descreasing rate. As commented above, this is directly related to the decreasing number of new customers.

What Time During the Day Do Customers Make the Most Purchases?

Strategy:

- We have seen spikes in sales around December 2010, which is likely related to the Christmas holidays. Since the last date of this dataset is December 2011 (which we assume is the present), we expect that the business would be running marketing campaigns for this year's Christmas holidays as well. Therefore, it would be useful to find out what time of day customers make the most purchases in order to target the marketing campaigns around these times.
- To check this, we can look at what time customers were making the most orders the previous December (i.e. December 2010), as well as the most common hours for purchases during the last 2 months (i.e. October and November 2011). Since we have data about 12 days of December 2011, we include these in the analysis as well.

What Time During the Day Do Customers Make the Most Purchases?

Dec 2010 Oct 2011 Nov 2011 Dec 2011

7:00	0	5	2	0
8:00	7	52	111	10
9:00	51	123	201	56
10:00	87	253	301	61
11:00	127	257	343	74
12:00	106	368	423	92
13:00	112	317	401	77
14:00	93	289	335	62
15:00	118	252	318	59
16:00	70	163	239	42
17:00	41	77	113	17
18:00	6	13	10	15
19:00	8	23	8	17
20:00	0	4	1	2

What Time During the Day Do Customers Make the Most Purchases?

Conclusion :

- We can see, that the most orders are placed around midday, more specifically at 12:00. Therefore, the marketing team could target their campaigns around these times to maximize conversions.



Faceting

Which is the Best Selling Product in Each Country?

	Country	Best_Selling_Product	TotalSales	Country_Total_Sales	%_of_Country_Sales
0	Australia	RABBIT NIGHT LIGHT	£3,376	£136,990	2.46%
1	Austria	PACK OF 6 PANNETONE GIFT BOXES	£302	£8,698	3.48%
2	Austria	PACK OF 6 SWEETIE GIFT BOXES	£302	£8,698	3.48%
3	Bahrain	ICE CREAM SUNDAE LIP GLOSS	£120	£548	21.88%
4	Belgium	ROUND SNACK BOXES SET OF4 WOODLAND	£1,181	£36,663	3.22%
5	Brazil	REGENCY CAKESTAND 3 TIER	£175	£1,144	15.32%
6	Canada	RETRO COFFEE MUGS ASSORTED	£534	£3,115	17.15%
7	Channel Islands	REGENCY CAKESTAND 3 TIER	£518	£20,086	2.58%
8	Cyprus	RUSTIC SEVENTEEN DRAWER SIDEBORD	£580	£12,931	4.49%
9	Czech Republic	ROUND SNACK BOXES SET OF4 WOODLAND	£71	£672	10.54%
10	Denmark	RED KITCHEN SCALES	£734	£18,042	4.07%

Which product is the most common best seller?

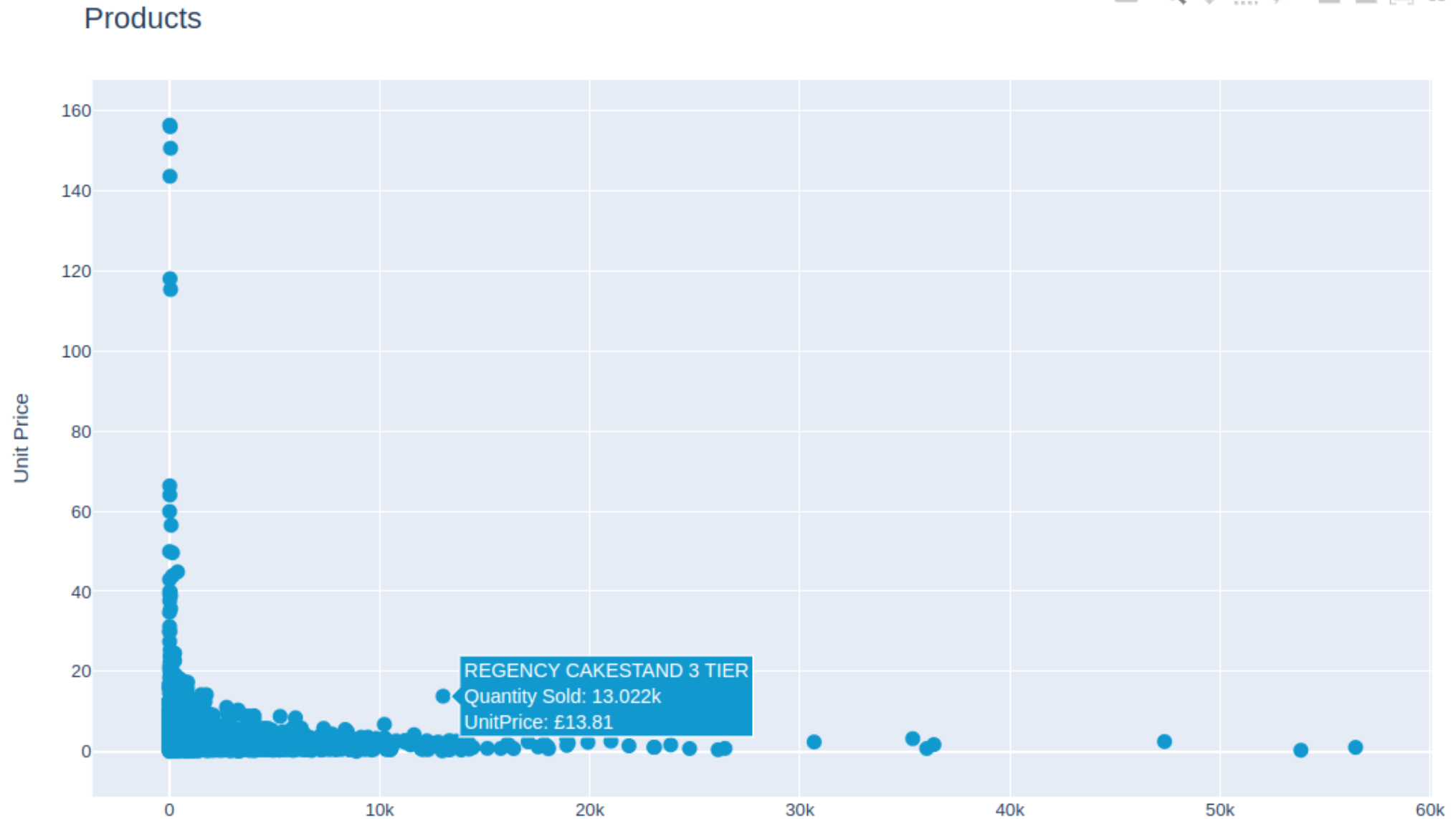
	count
Best_Selling_Product	
REGENCY CAKESTAND 3 TIER	8
RABBIT NIGHT LIGHT	4
ROUND SNACK BOXES SET OF4 WOODLAND	3
PINK 3 PIECE POLKADOT CUTLERY SET	3
RETROSPOT TEA SET CERAMIC 11 PC	2
ICE CREAM SUNDAE LIP GLOSS	1
RETRO COFFEE MUGS ASSORTED	1
DOTCOM	1
SET 6 SCHOOL MILK BOTTLES IN CRATE	1
MINI PAINT SET VINTAGE	1
DOORMAT UNION FLAG	1
PLASTERS IN TIN STRONGMAN	1
PLASTERS IN TIN SKULLS	1

Which are the Most Successful Products Overall?



A characteristic we could use to answer this is: which products of relatively high price have sold relatively high quantities. This can be easily visualized with a scatter plot of all products with total quantity sold and average unitprice on the x and y axes. Products' markers to the north-east on the scatter plot suggest relatively high quantities sold at a relatively high price.

Which are the Most Successful Products Overall?



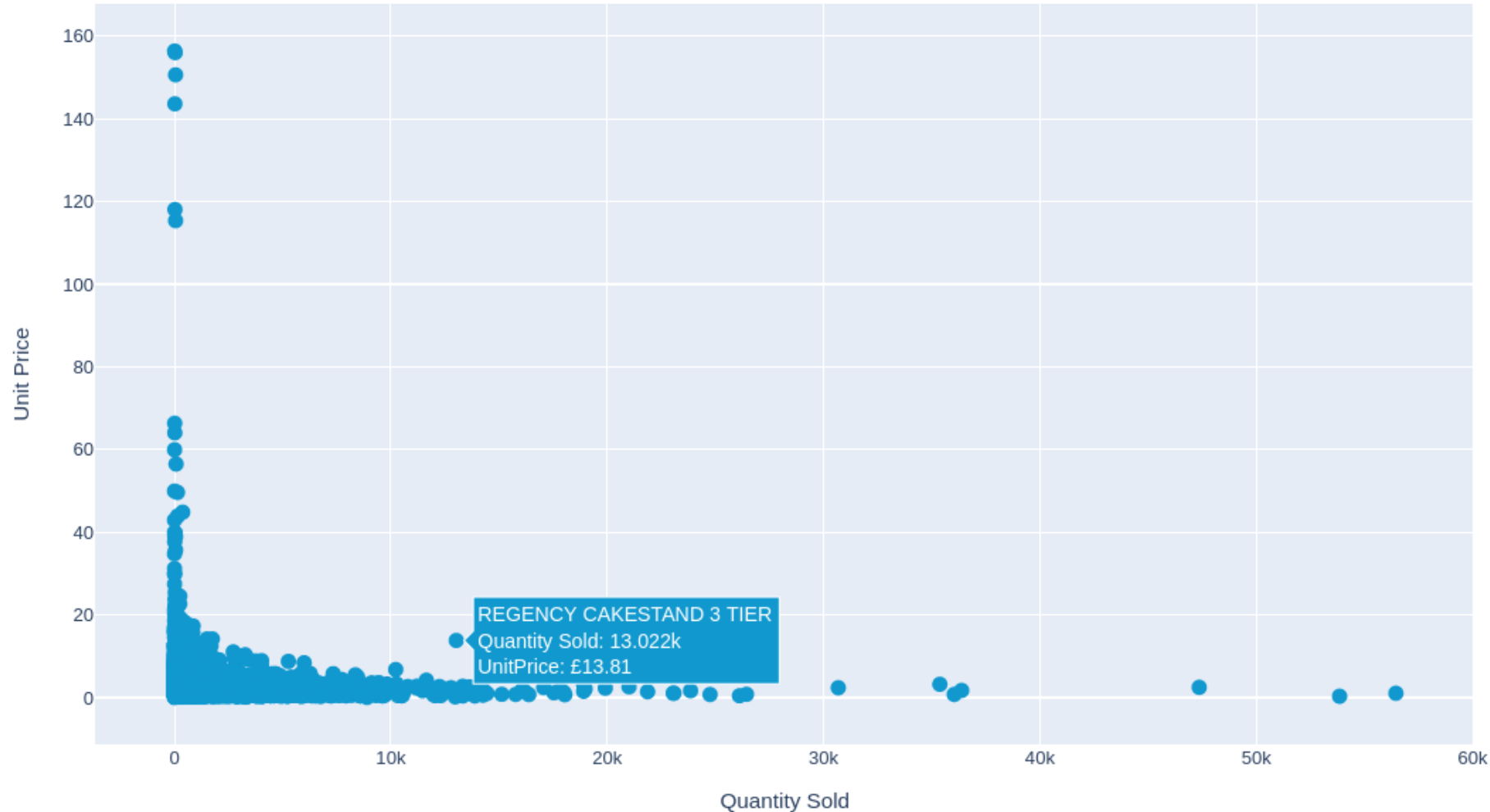
Which are the Most Successful Products Overall?

Conclusion : Above we saw "REGENCY CAKESTAND 3 TIER" as the most common best seller (8 countries) and here we see it as a high selling product as well - its marker is visually separated from the other products on the plot.

Which Customers Contributed the Most to Total Sales?

CustomerID	Number_of_Orders	TotalPurchases
14646.0	74	278466.02
18102.0	62	256438.49
17450.0	51	188420.57
14911.0	247	132572.62
12415.0	24	123638.18
14156.0	66	113384.14
17511.0	45	88127.55
16684.0	31	65892.08
14096.0	18	65054.34
13694.0	60	62653.10
15311.0	118	59419.34
13089.0	118	57385.88
15061.0	55	54228.74
17949.0	52	52750.84
15769.0	29	51823.72

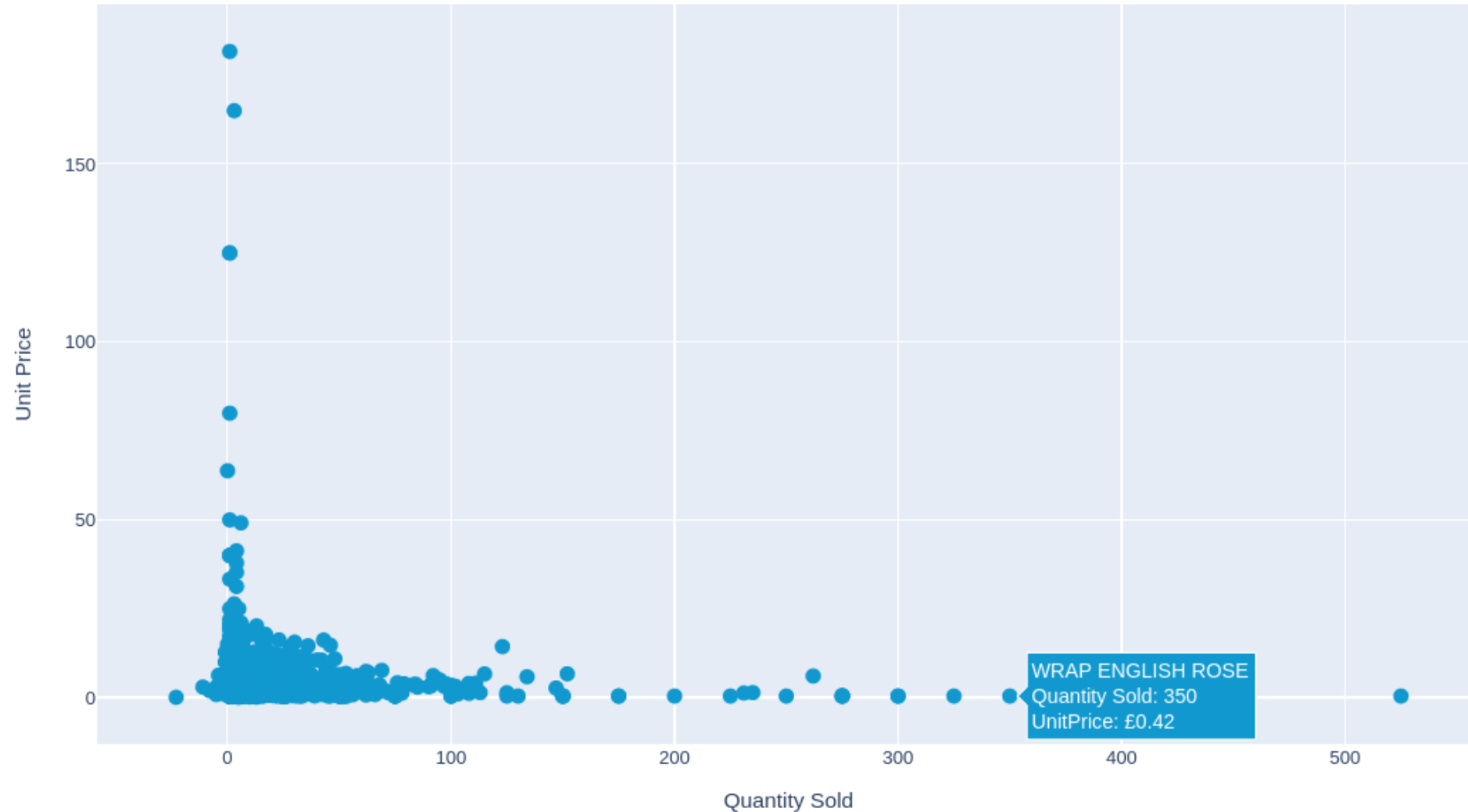
We saw that the sales were increasing at relatively larger rate during october 2010 to january 2011 , Now we'll see that which product has made larger contribution during this interval



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Conclusion : We can see that the same product RAGENCY CAKESTAND 3 TIER has again contributed the most. So, it's not like any Christmas-specific changed behavior on that single product.

As we know that in february month there is valentines day. So, let's see if we can find any product which is more specific to this



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Conclusion : We can see that the products such as WRAP ENGLISH ROSE, GINGHAM ROSE WRAP, WRAP PINK FAIRY CAKES, SET OF 3 CAKE TINS PANTRY DESIGN are relatively sold in higher quantity. So, during this month, the marketing team can target these types of customers to sell products.



Thank You

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