




DATA VISUALISATION: EMPOWERING BUSINESS WITH EFFECTIVE INSIGHTS

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HELLO!



Warm greetings to all present. I am excited to present this Data analysis and Data visualization project given by TATA Group in Forage job simulation. In this project we will analyze and visualize data of a online retail store and find key insights such as monthly revenue trends, top performing products, top regions by revenue, customers with most purchase history etc.




BACKGROUND OF THE PROJECT

The CEO and CMO have recently met to finalise the requirements and would like you to provide them with some analysis and visuals that would help answer their questions. Both, the executives are interested in viewing and understanding how they can use the data to make more meaningful decisions. You would need to provide insights which they can use to create the expansion strategy. The executives want to analyse the trends and the breakdown by different categories so that they have clarity on how the revenue is being generated and what are the main factors affecting the online store.



DATA CLEANING

In order to start our analysis and visualization, we have to clean our data first. We have a dataset that contains over 530,000 records. And there are a lot of error values in the dataset. we used Microsoft Excel to get rid of the bad data. We have remove those records where Unit price is below 0 and those records where the quantity of orders are negative as number of orders cannot be negative. These are some steps we've completed in order to clean our data. Now we are ready to analyze and visualize our dataset and get our key insights.



■ QUESTION 1

The CEO of the retail store is interested to view the time series of the revenue data for the year 2011 only. He would like to view granular data by looking into revenue for each month. The CEO is interested in viewing the seasonal trends and wants to dig deeper into why these trends occur. This analysis will be helpful for the CEO to forecast for the next year.

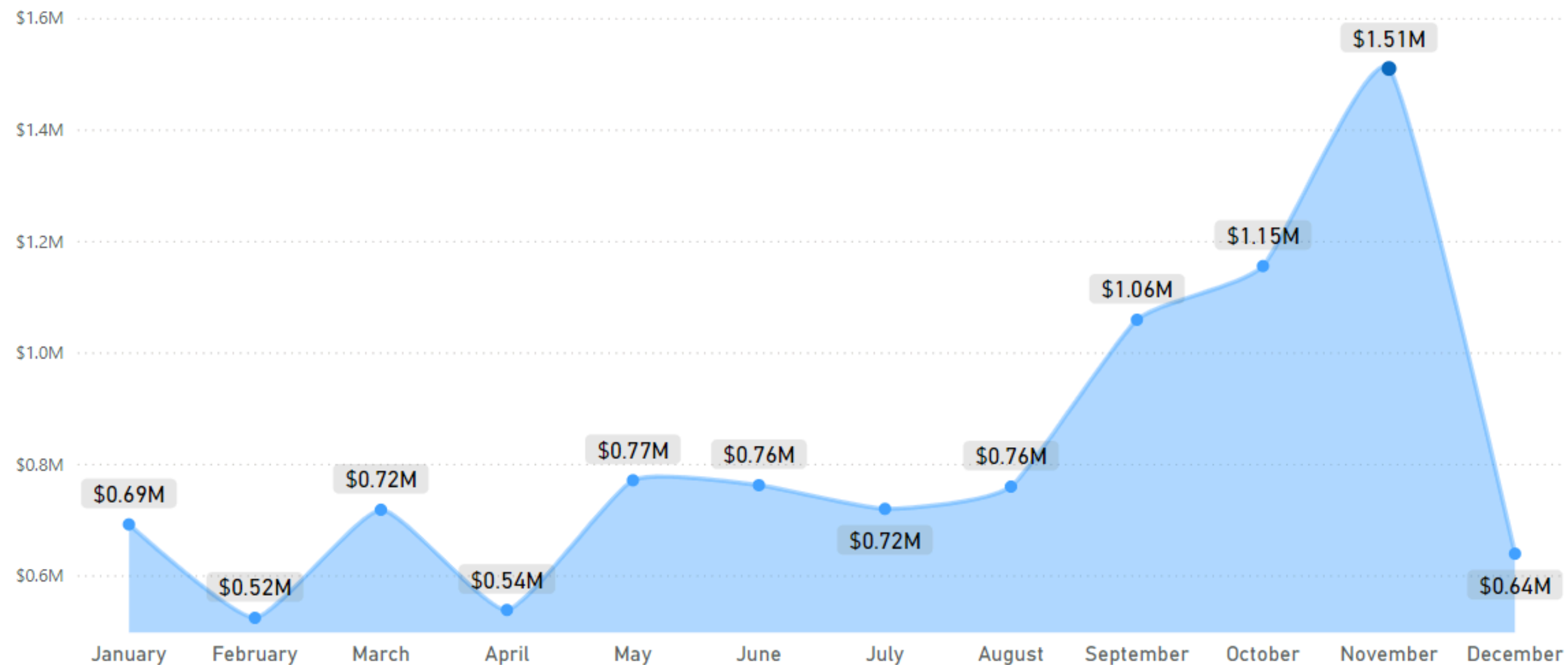


Figure: Monthly Trend of Total Revenue of 2011

■ QUESTION 2

The CMO is interested in viewing the top 10 countries which are generating the highest revenue. Additionally, the CMO is also interested in viewing the quantity sold along with the revenue generated. The CMO does not want to have the United Kingdom in this visual.

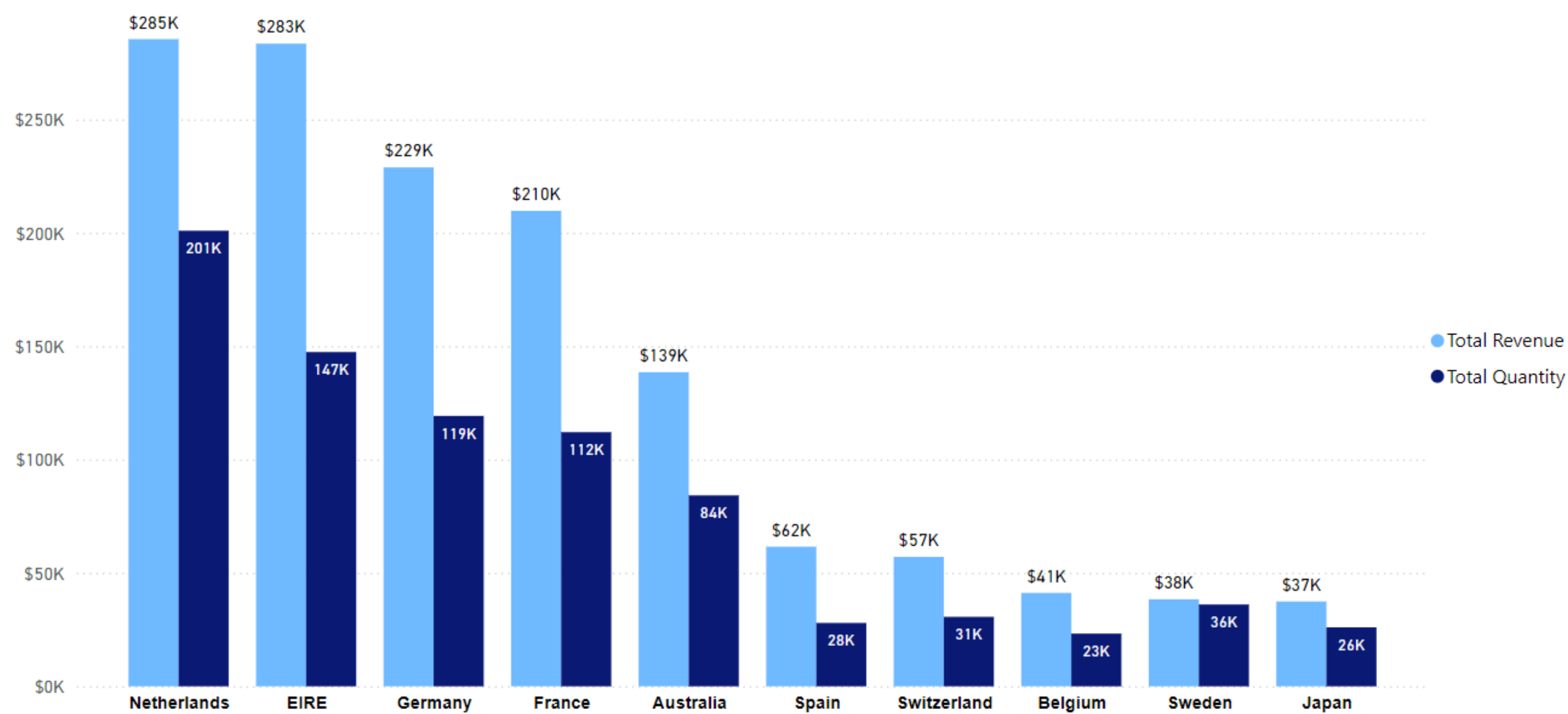


Figure: Top Countries by Total Revenue and Quantity



■ QUESTION 3

The CMO of the online retail store wants to view the information on the top 10 customers by revenue. He is interested in a visual that shows the greatest revenue generating customer at the start and gradually declines to the lower revenue generating customers. The CMO wants to target the higher revenue generating customers and ensure that they remain satisfied with their products.

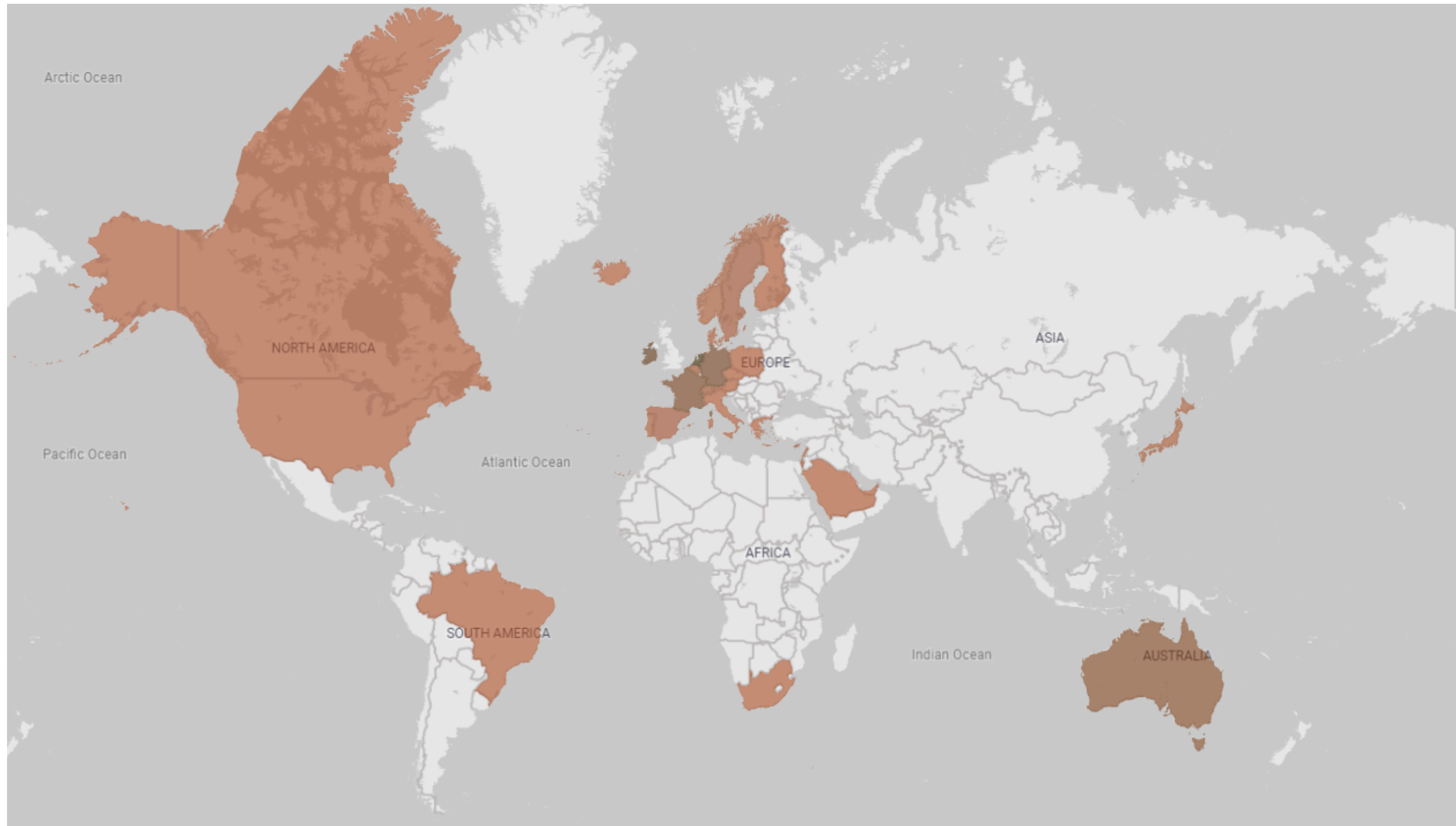


Figure: Top 10 Customers by total revenue



■ QUESTION 4

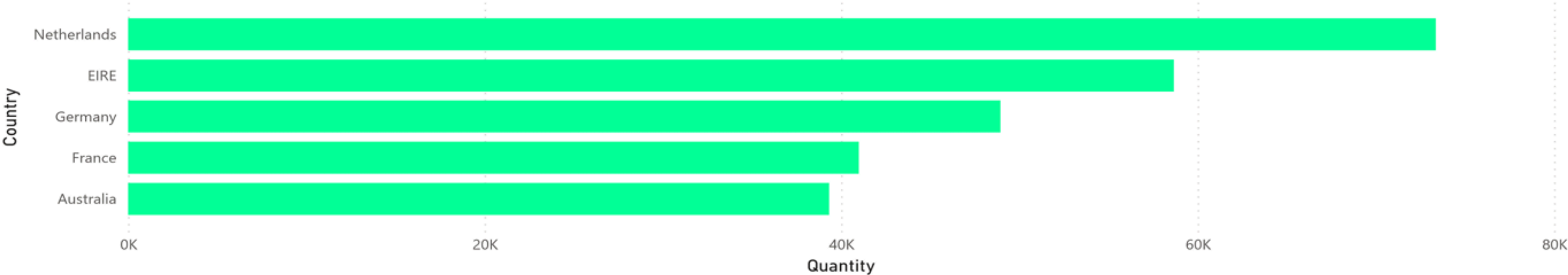
The CEO is looking to gain insights on the demand for their products. He wants to look at all countries and see which regions have the greatest demand for their products. Once the CEO gets an idea of the regions that have high demand, he will initiate an expansion strategy which will allow the company to target these areas and generate more business from these regions. He wants to view the entire data on a single view without the need to scroll or hover over the data points to identify the demand. There is no need to show data for the United Kingdom as the CEO is more interested in viewing the countries that have expansion opportunities.



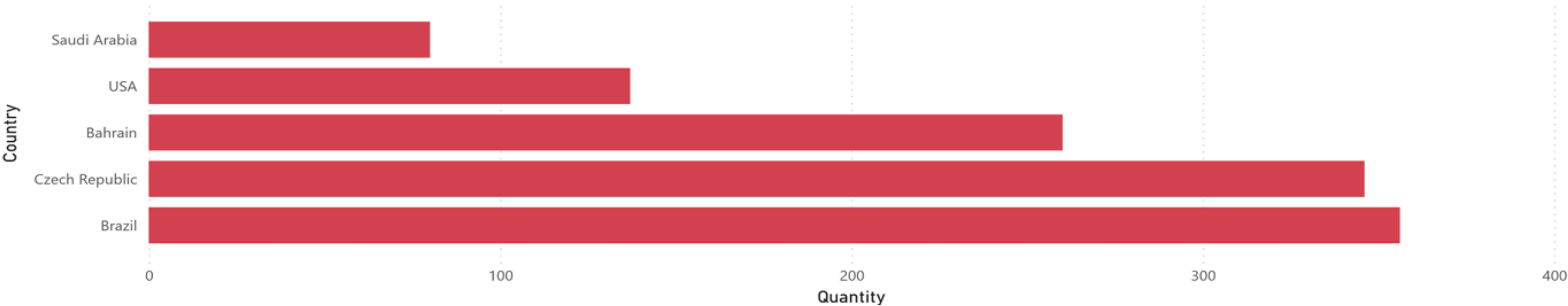
More Insights

Country Wise Performance for Sales

Top 5 Countries by Sales



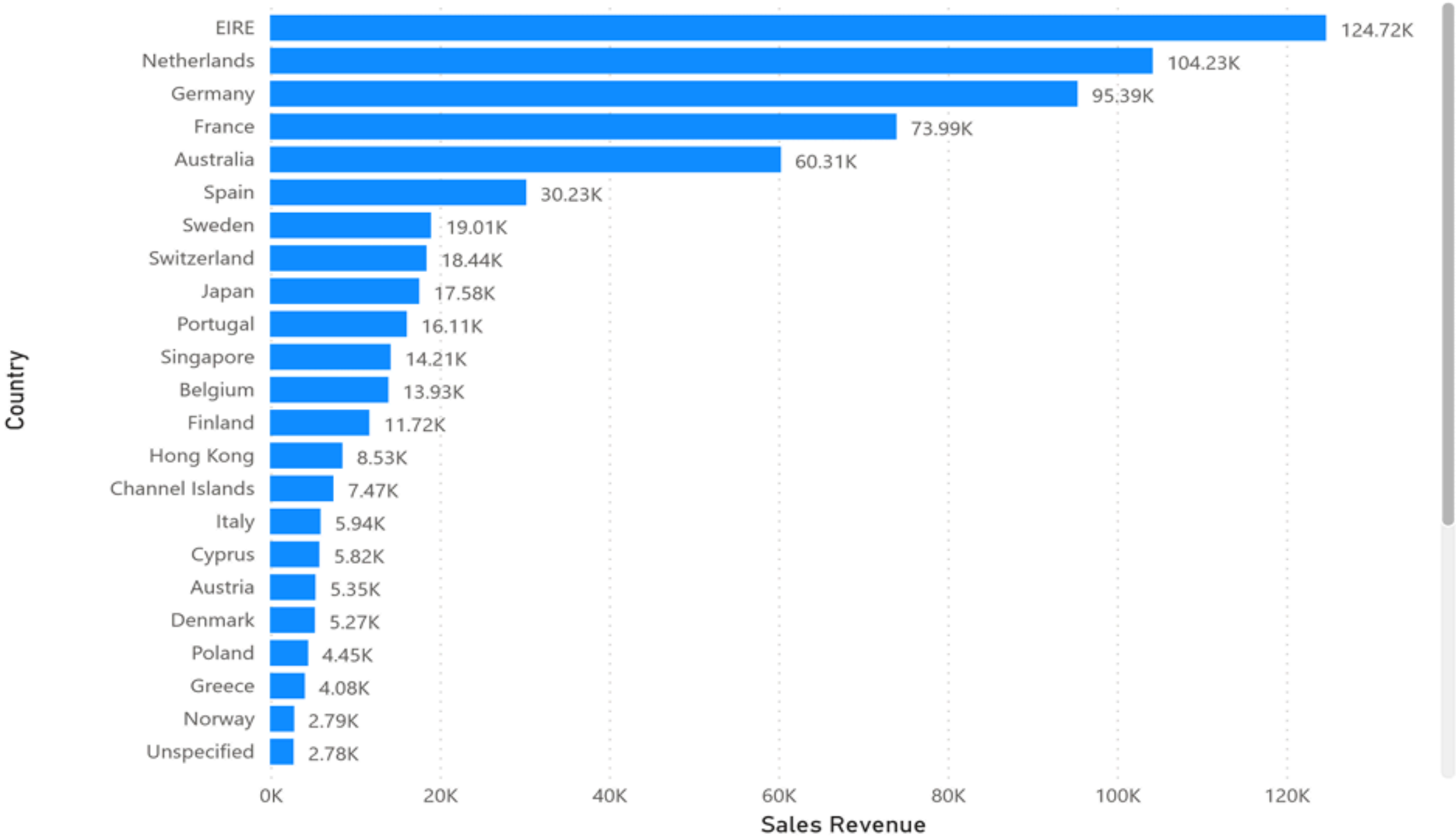
Bottom 5 Countries by Sales



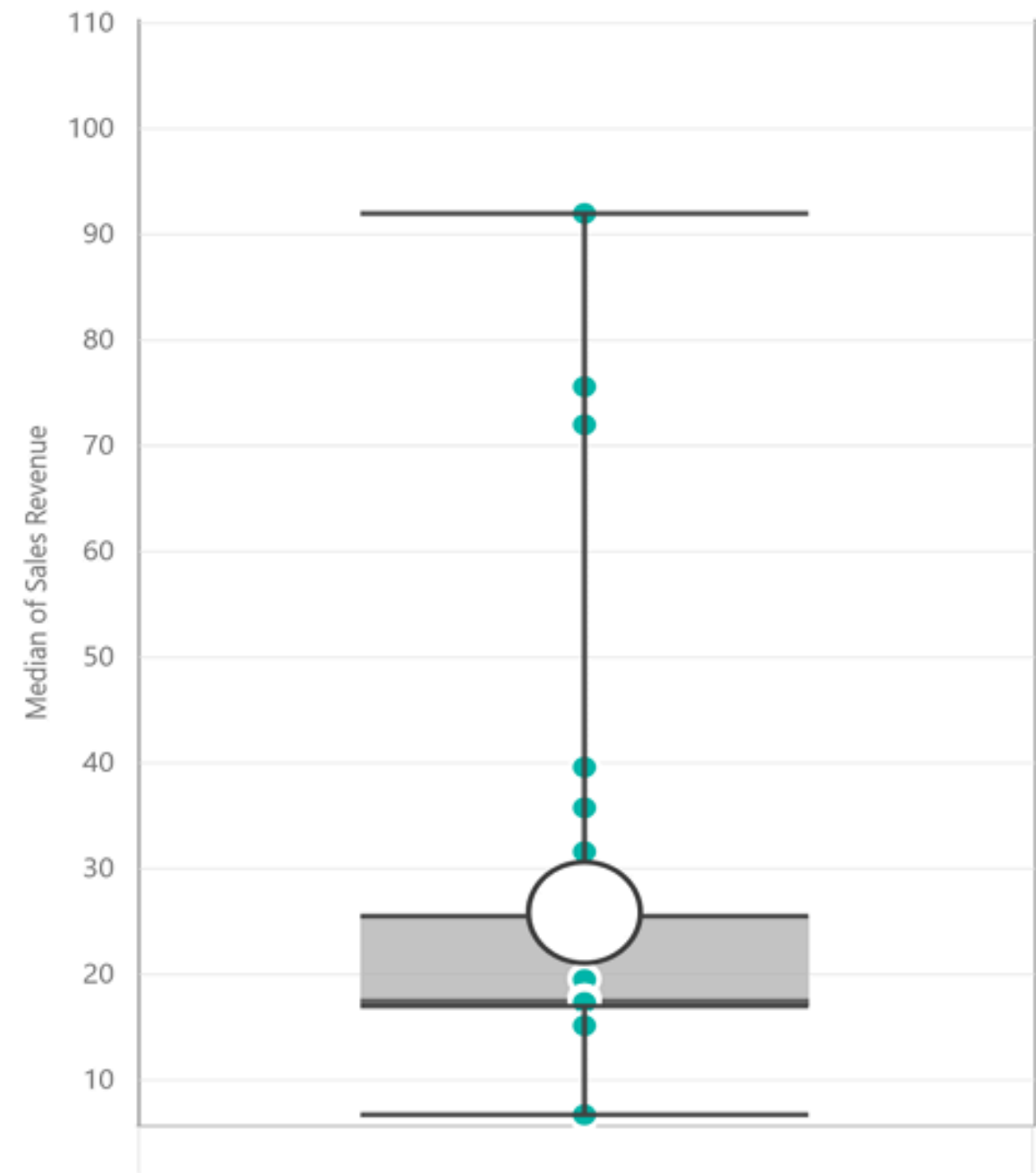
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Sales Revenue Performance by Countries

Sales Revenue by Country



Median of Sales Revenue by Country

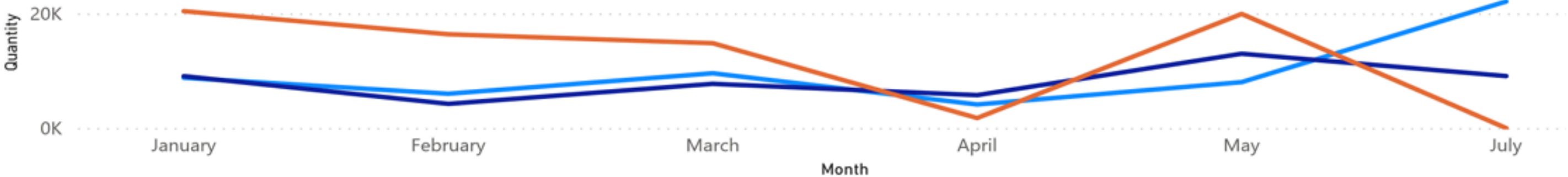


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Sales Trend

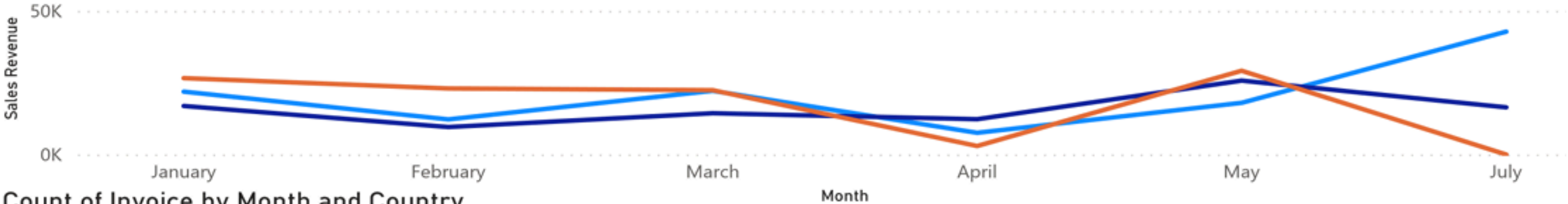
Quantity by Month and Country

Country EIRE Germany Netherlands



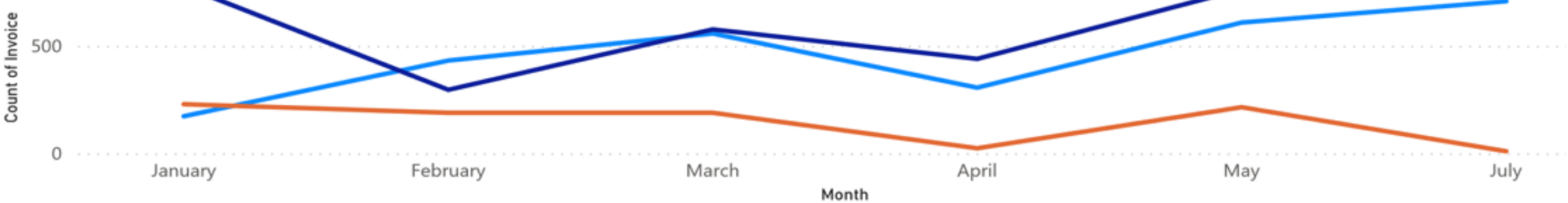
Sales Revenue by Month and Country

Country EIRE Germany Netherlands



Count of Invoice by Month and Country

Country EIRE Germany Netherlands



More Insights

Product Performance

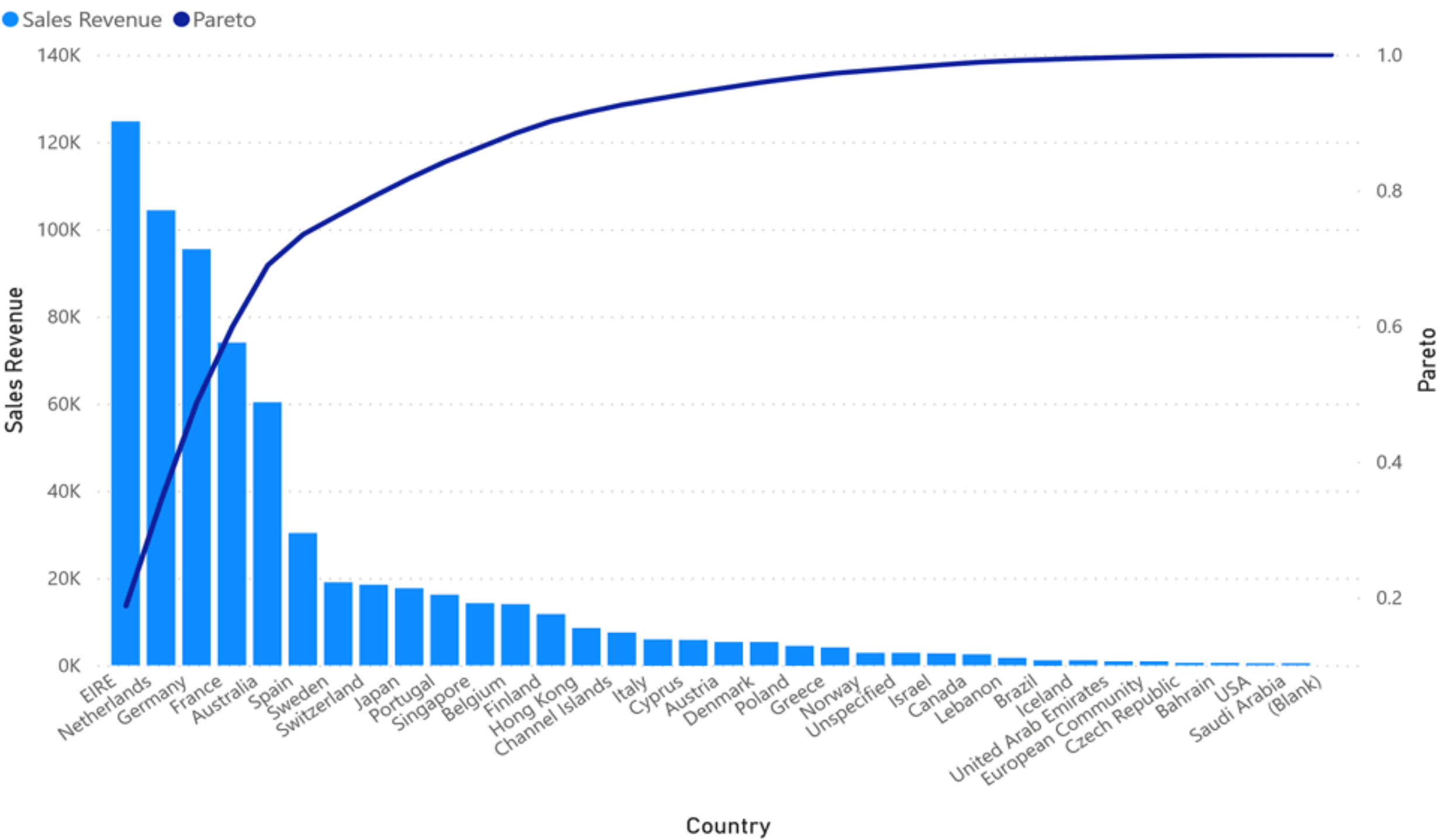
Top 10 Products by Sales Revenue

StockCode	Sales Revenue
POST	27,203.94
M	19,492.26
22423	14,782.80
22629	6,917.10
22326	6,841.70
22630	6,431.55
22720	5,029.95
22960	4,951.50
84997D	4,784.13
84997C	4,386.13

Bottom 10 Products by Sales Revenue

StockCode	Sales Revenue
79063C	0.19
23003	0.42
84596J	0.42
47343A	0.83
20735	0.85
21034	0.95
22096	1.25
22408	1.25
22732	1.25
35646	1.25
47563A	1.25
85049A	1.25

Sales Revenue and Pareto by Country

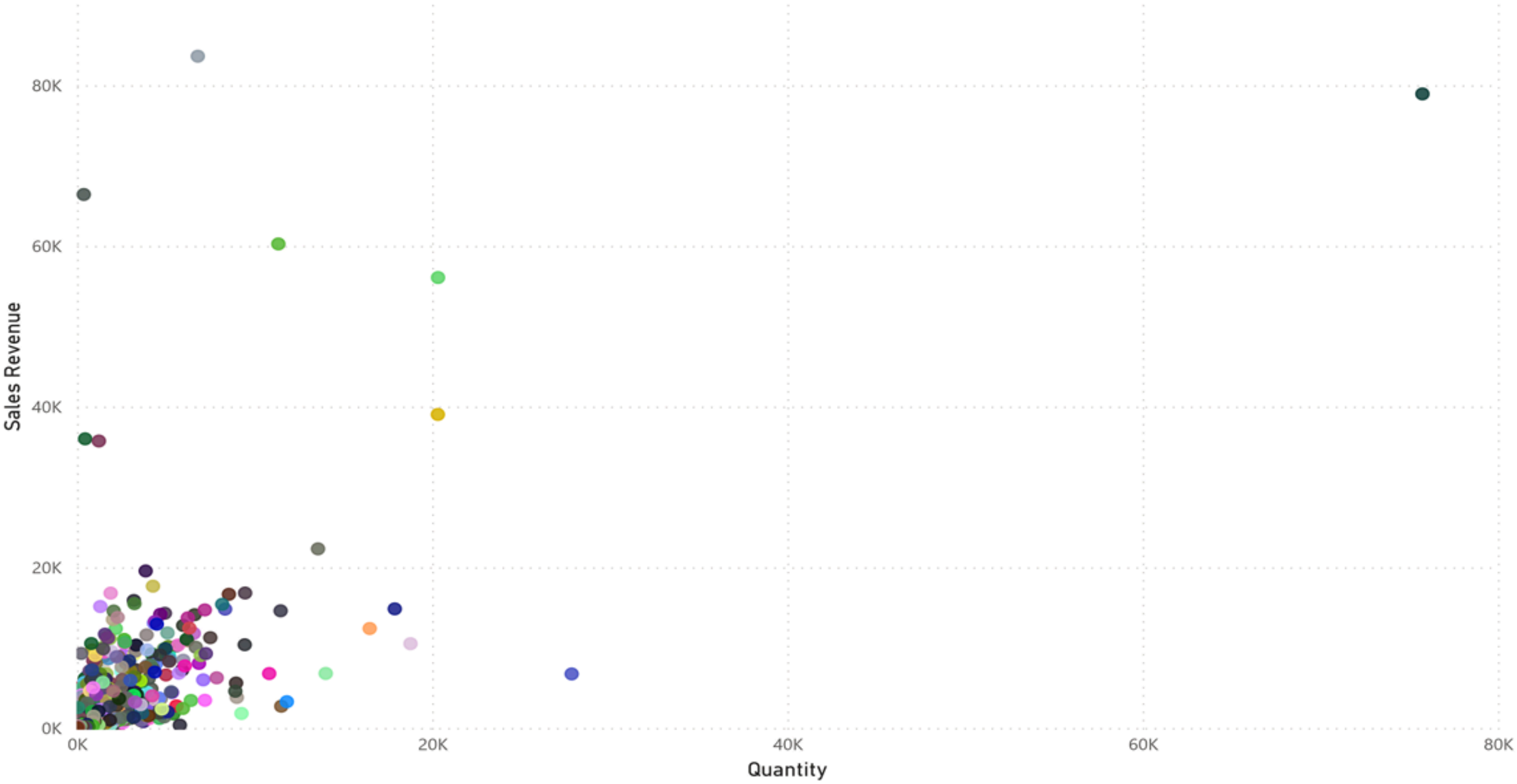


More Insights

Product Wise Sales Revenue vs Quantity

Quantity and Sales Revenue by StockCode

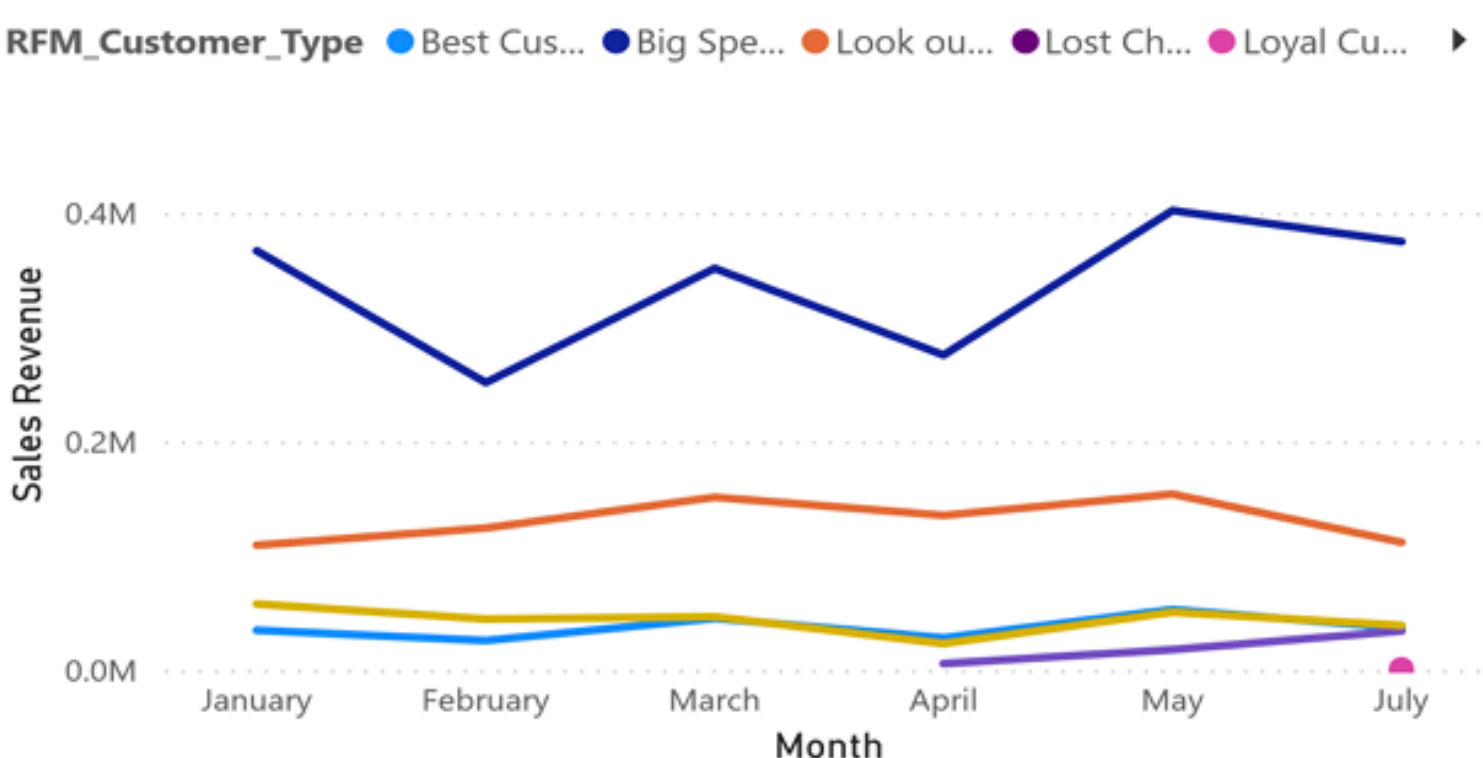
StockCode 10002 10080 10120 10123C 10124A 10124G 10125 10133 10135 11001 15030 15034 15036 15039 15044A



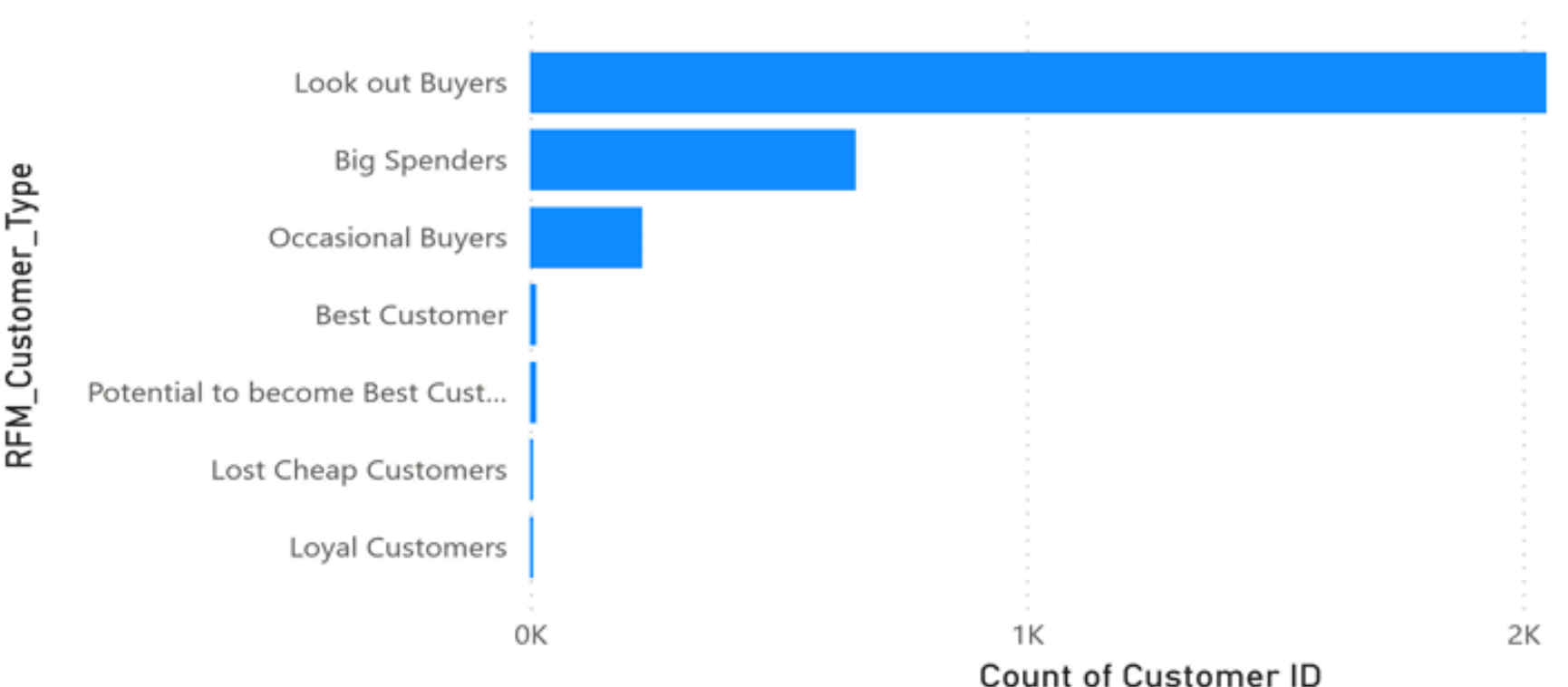
StockCode	Quantity	Sales Revenue
22423	6798	83,628.12
23166	75747	78,932.49
DOT	379	66,417.78
47566	11333	60,262.00
85123A	20323	56,077.45
85099B	20313	39,037.95
M	454	36,008.26
POST	1229	35,735.35
84879	13565	22,315.49
79321	3863	19,559.67
22960	4273	17,667.93
20725	9461	16,815.74
21621	1892	16,801.21
22386	8548	16,659.24
22720	3198	15,881.89
23298	3230	15,494.02
85099F	8173	15,408.58
22501	1309	15,138.38
22197	17887	14,842.49
22469	8334	14,805.26
21175	7192	14,714.38
22178	11461	14,600.40
48185	2062	14,572.38
22084	4942	14,296.46
22090	4685	14,159.57
21108	6616	14,115.63
82484	2282	13,782.61
21931	6234	13,723.39
20685	2026	13,517.85
22470	4382	13,266.60
22457	4327	13,055.41

More Insights

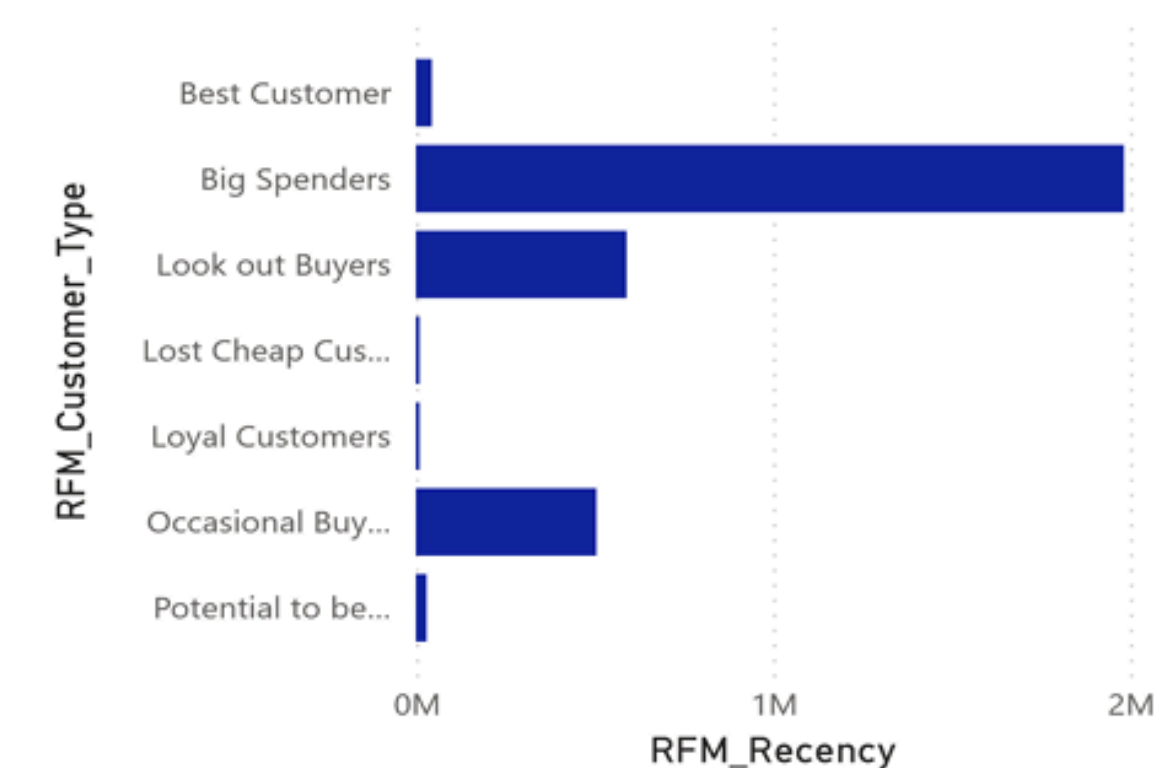
Sales Revenue by Month and RFM_Customer_Type



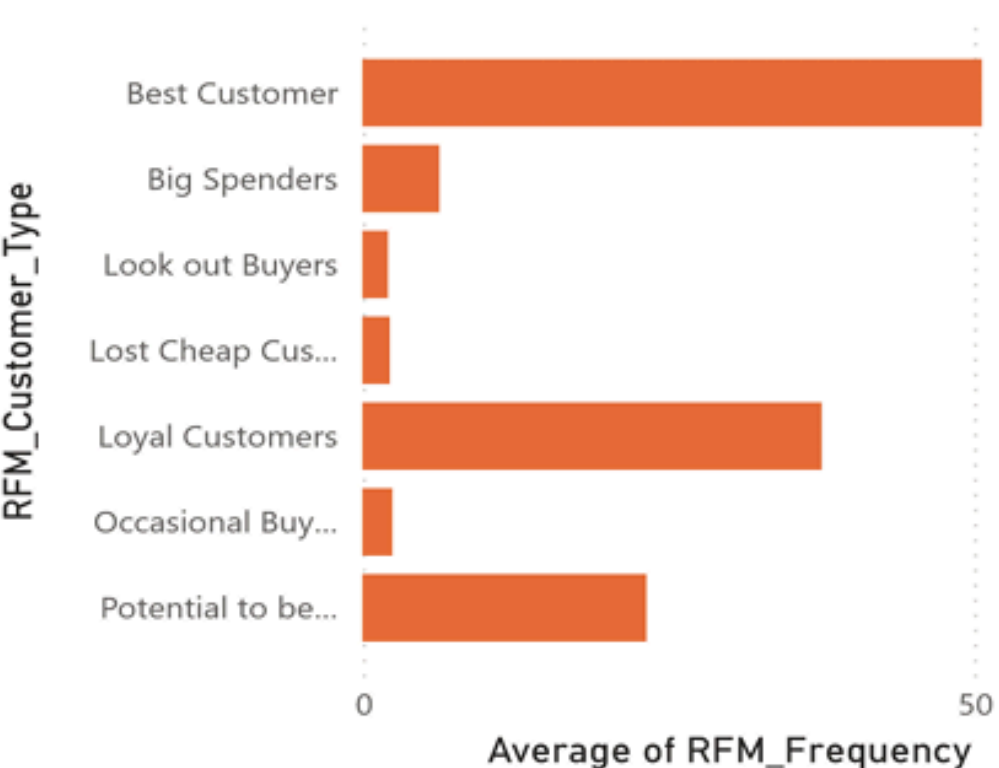
Count of Customer ID by RFM_Customer_Type



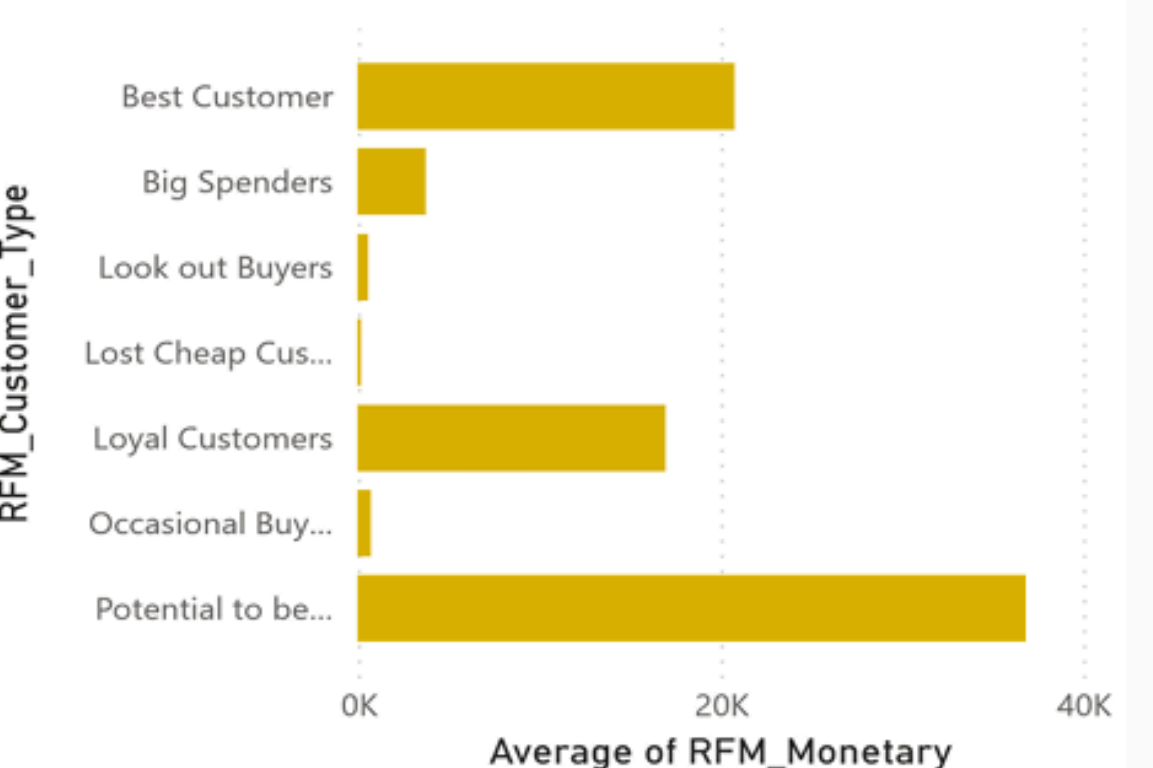
Recency by Customer Type



Frequency by Customer Type



Monetary Values by Customer Type





THANK YOU