CUSTOMER SEGMENTATION ANALYSIS

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BUSINESS CASE

Customer Segmentation Using RFM Model

The client is an online retailer that sells all kinds of unique gift items. They are planning their marketing activities for the coming year and need insights into their customer profile in order to appropriately plan their sales and marketing strategy to the right customer segment.
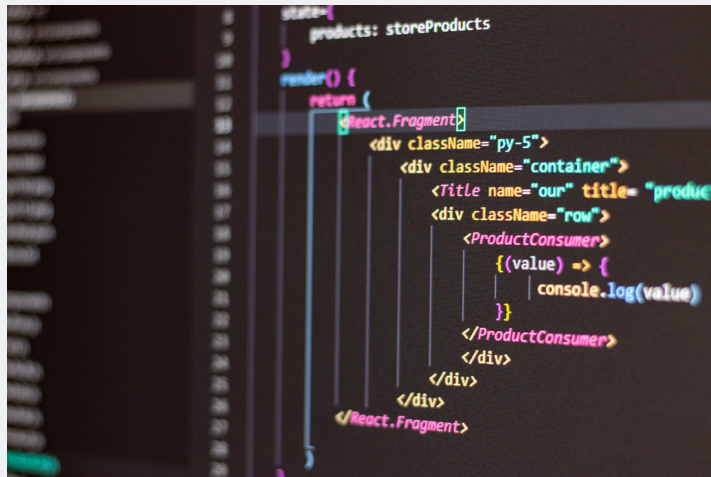
Online Retail Dataset

The Dataset was sourced from UCI and contains **541909** entries and **8** columns that contain the following information;

- Invoice Number
- Stock Code
- Description
- Quantity
- Invoice date
- Unit Price
- Customer Id
- Country

Tools utilized

PYTHON
Data Analysis
Visualization
Cleaning
Modelling

TABLEAU

Visualization

In what country do we have the most sales?

Country	TotalPrice
United Kingdom	8.194778e+06
EIRE	3.522427e+05
Netherlands	2.638634e+05
Germany	1.962904e+05
France	1.307699e+05
Sweden	5.121351e+04
Denmark	4.697295e+04
Switzerland	4.334341e+04
Spain	3.708490e+04
Australia	3.005180e+04

TotalSales By Country

United Kingdom
$8,194,777.53

EIRE
$352,242.73

Netherlands
$263,863.41

Germany
$196,290.35

France

TotalPrice
$37,084.90   8M
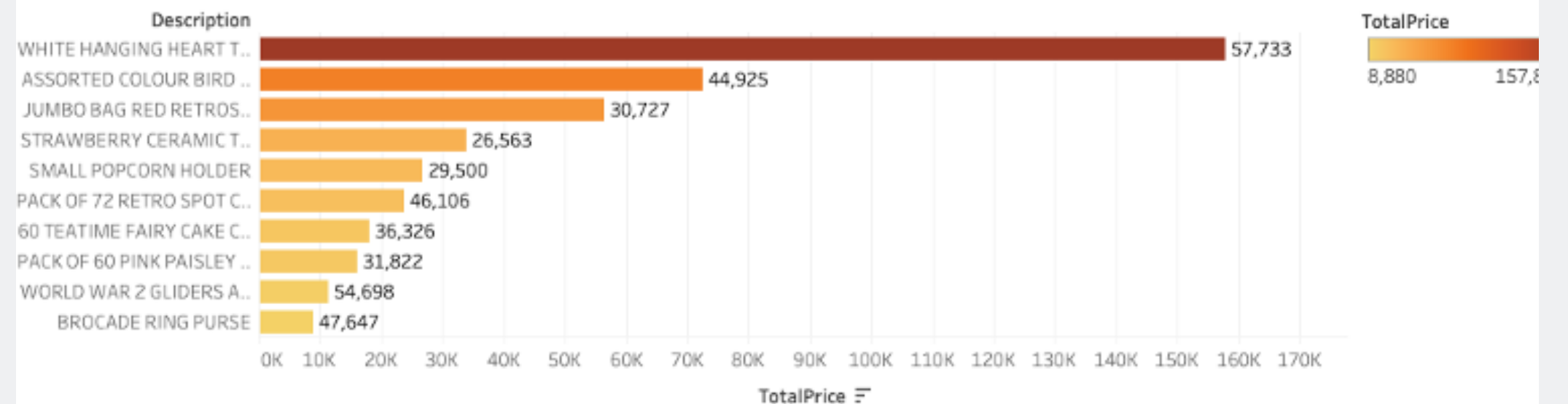
The countries with the best sales are the UK, IERE, Netherlands, Germany and France

What products do our customer like best?

Description	TotalPrice	Quantity
WHITE HANGING HEART T-LIGHT HOLDER	157865.43	57733.0
WORLD WAR 2 GLIDERS ASSTD DESIGNS	11310.29	54698.0
BROCADE RING PURSE	8879.82	47647.0
PACK OF 72 RETRO SPOT CAKE CASES	23759.26	46106.0
ASSORTED COLOUR BIRD ORNAMENT	72454.12	44925.0

Best Selling Product by Qty

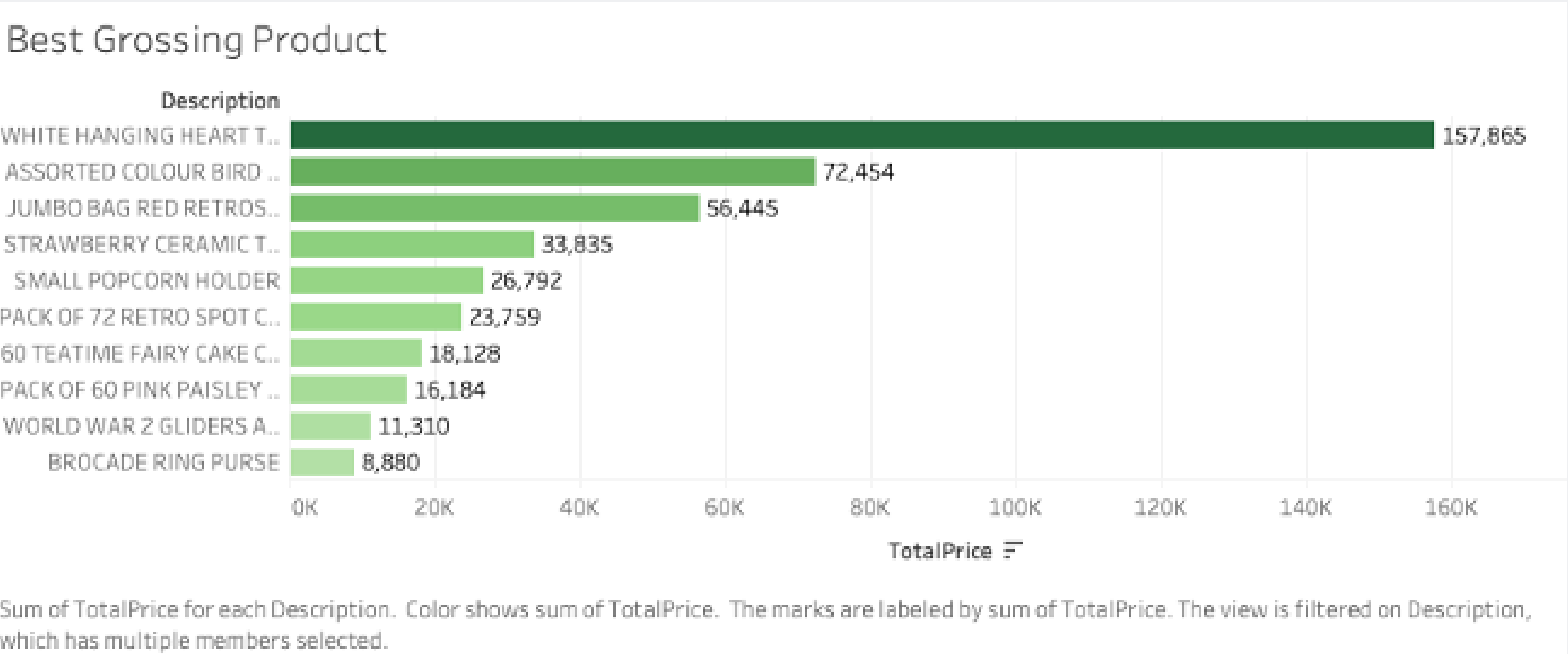| Description	
WHITE HANGING HEART T..	57,733
ASSORTED COLOUR BIRD ..	44,925
JUMBO BAG RED RETROS..	30,727
STRAWBERRY CERAMIC T..	26,563
SMALL POPCORN HOLDER	29,500
PACK OF 72 RETRO SPOT C..	46,106
60 TEATIME FAIRY CAKE C..	36,326
PACK OF 60 PINK PAISLEY ..	31,822
WORLD WAR 2 GLIDERS A..	54,698
BROCADE RING PURSE	47,647

TotalPrice: 8,880 — 157,8

TotalPrice

Sum of TotalPrice for each Description. Color shows sum of TotalPrice. The marks are labeled by sum of Quantity. The view is filtered on Description, which has multiple members selected.

Our best-selling product is the White hanging Heart T-Light Holder, it sold 57,733 pieces and generated $157,865

What product makes us the most money?

Description	TotalPrice	Quantity
REGENCY CAKESTAND 3 TIER	163051.46	13093.0
WHITE HANGING HEART T-LIGHT HOLDER	157865.43	57733.0
DOTCOM POSTAGE	116401.99	731.0
ASSORTED COLOUR BIRD ORNAMENT	72454.12	44925.0
PAPER CHAIN KIT 50'S CHRISTMAS	57870.20	17083.0
JUMBO BAG RED RETROSPOT	56444.61	30727.0
PARTY BUNTING	49645.52	10088.0
ROTATING SILVER ANGELS T-LIGHT HLDR	47672.49	13675.0
POSTAGE	46092.36	2154.0
JUMBO BAG STRAWBERRY	36699.61	19985.0

Best Grossing Product

Description

WHITE HANGING HEART T..	157,865
ASSORTED COLOUR BIRD ..	72,454
JUMBO BAG RED RETROS..	56,445
STRAWBERRY CERAMIC T..	33,835
SMALL POPCORN HOLDER	26,792
PACK OF 72 RETRO SPOT C..	23,759
60 TEATIME FAIRY CAKE C..	18,128
PACK OF 60 PINK PAISLEY ..	16,184
WORLD WAR 2 GLIDERS A..	11,310
BROCADE RING PURSE	8,880

0K   20K   40K   60K   80K   100K   120K   140K   160K

TotalPrice

Sum of TotalPrice for each Description. Color shows sum of TotalPrice. The marks are labeled by sum of TotalPrice. The view is filtered on Description, which has multiple members selected.
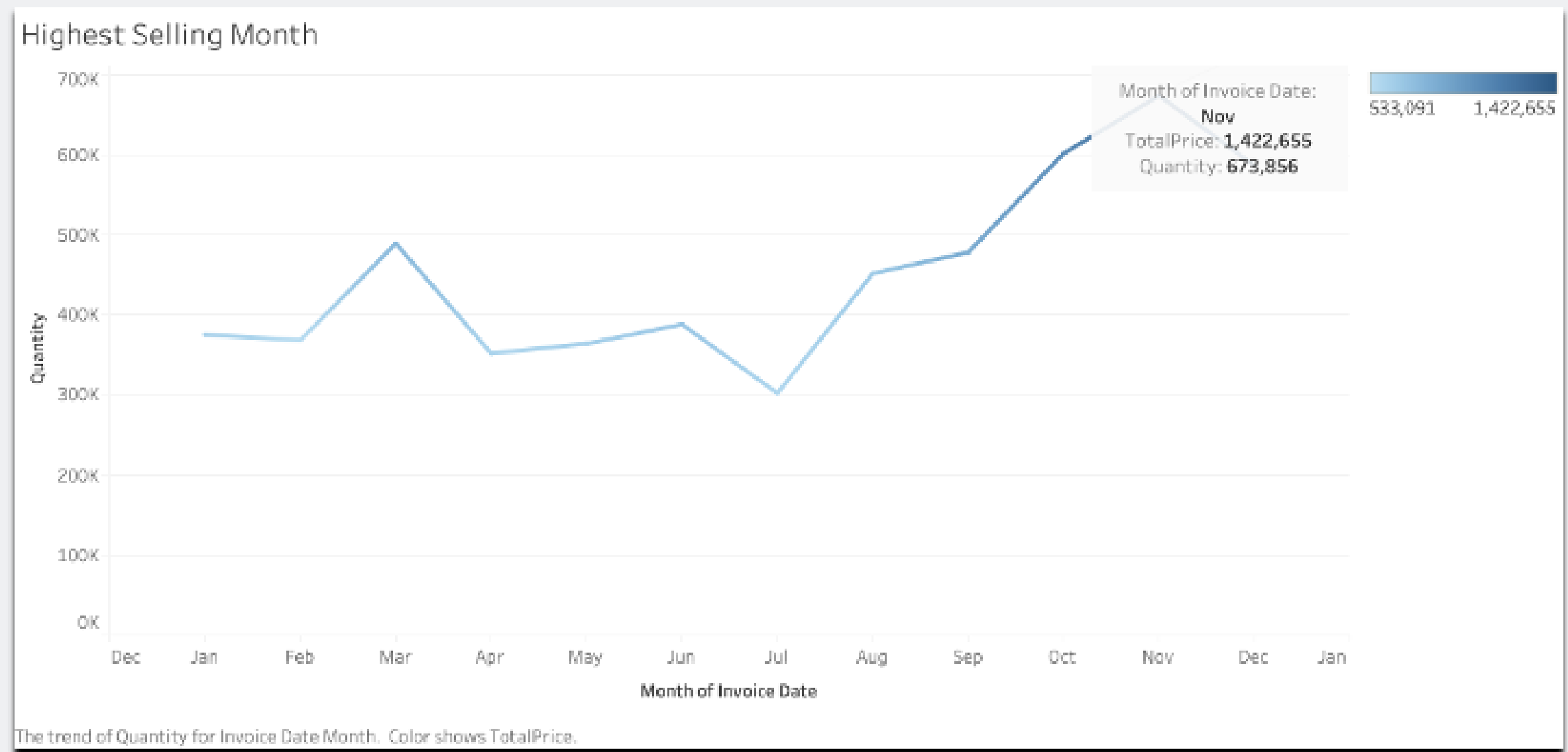
Our highest grossing product is the Regency Cakestand which sold 13,093 pieces but generated $163,051

What was the best and worst months of sales and how much did we make?

Based on revenue, November ($1.4m)and December ($1.1m) respectively, are the best selling months of the year.

July ($533m) is the worst month of sales

July would be a great time to run a sales or discount campaign

Highest Selling Month

Month of Invoice Date:
Nov
TotalPrice: 1,422,655
Quantity: 673,856

533,091   1,422,655

The trend of Quantity for Invoice Date Month. Color shows TotalPrice.

When do our customers spend the most money online?

This would make the most appropriate time of the day to display advertising and maximize the likelihood of customers buying

	TotalPrice
Time	
16:02:00	67594.05
16:45:00	63098.05
12:34:00	62239.45
09:46:00	61764.16
11:36:00	58172.32
...	...
15:04:00	-5170.00
16:52:00	-15673.65
12:04:00	-24155.04
11:24:00	-25912.16
13:36:00	-30609.46
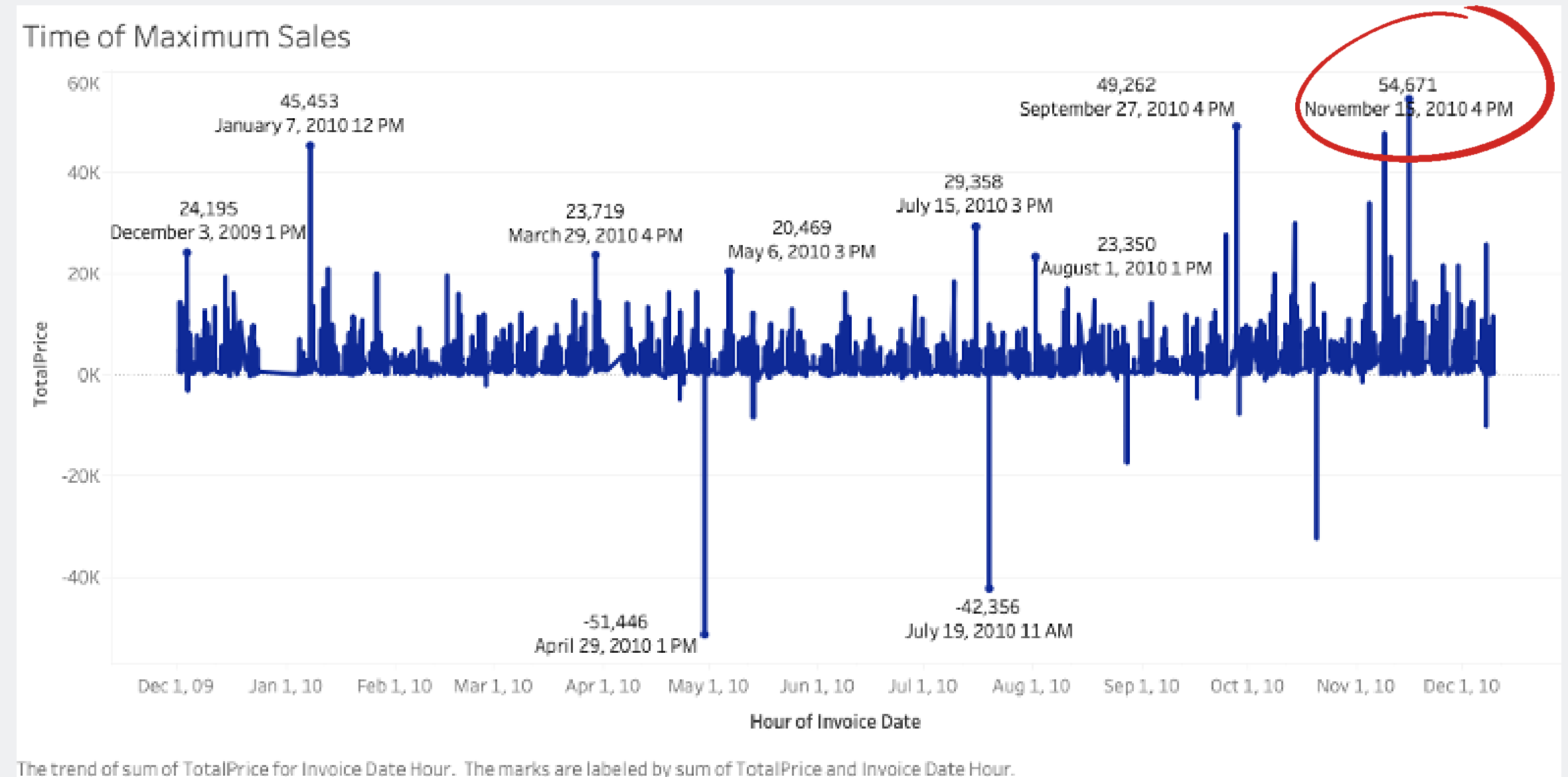
Our best sales are by **4PM - 4:02PM**
Worst sales is by **1:36PM**
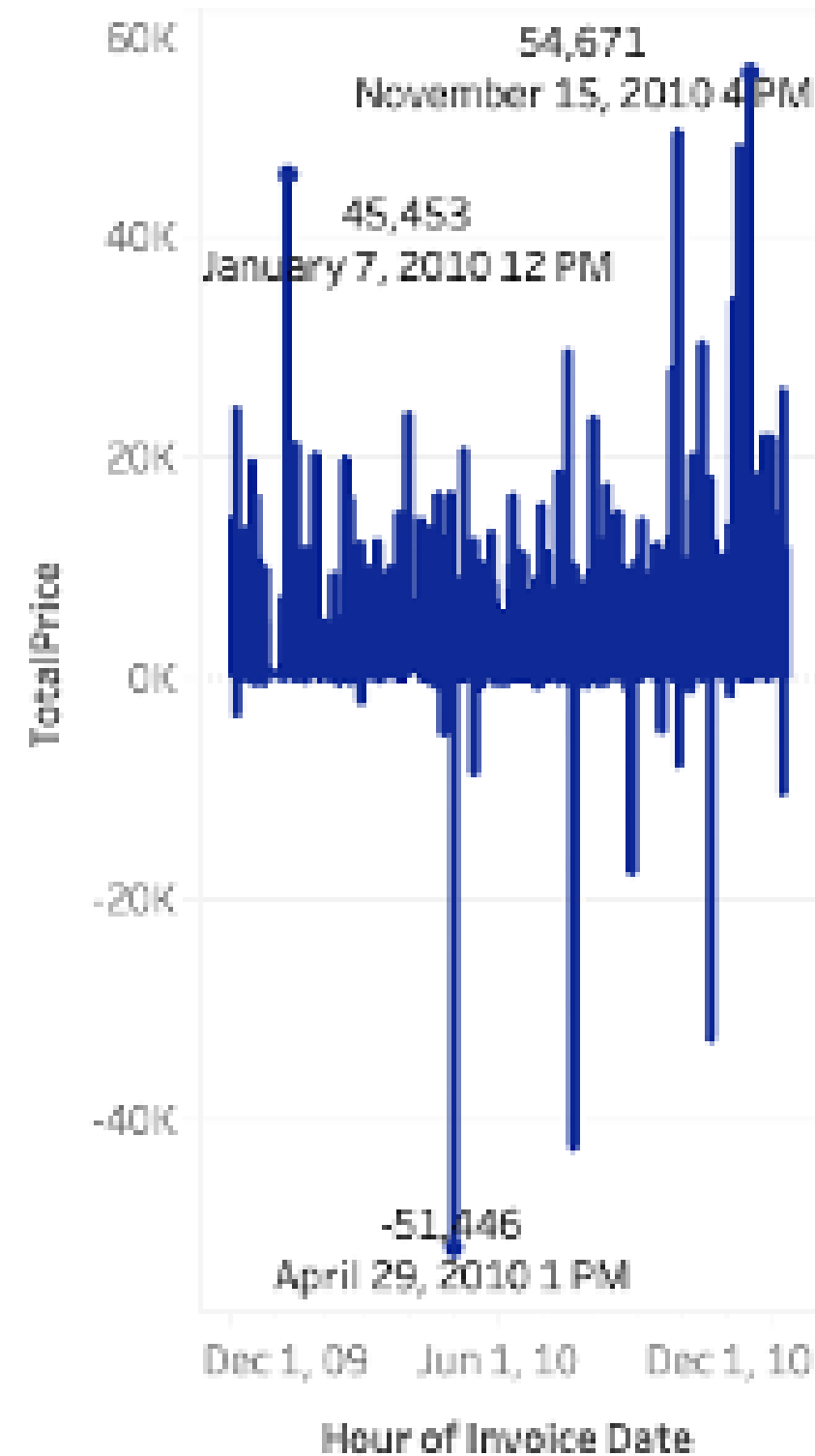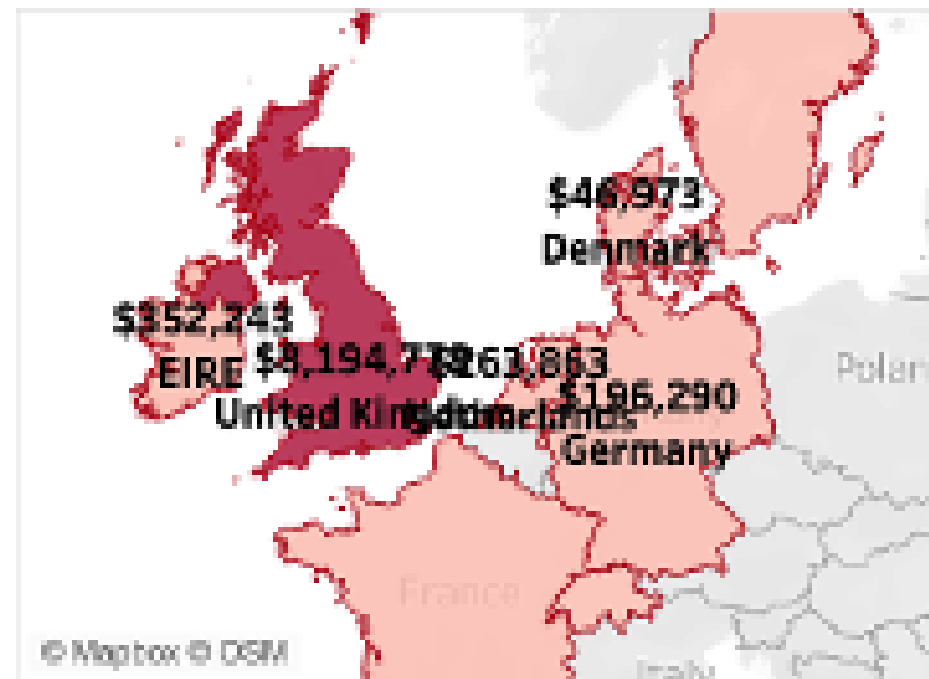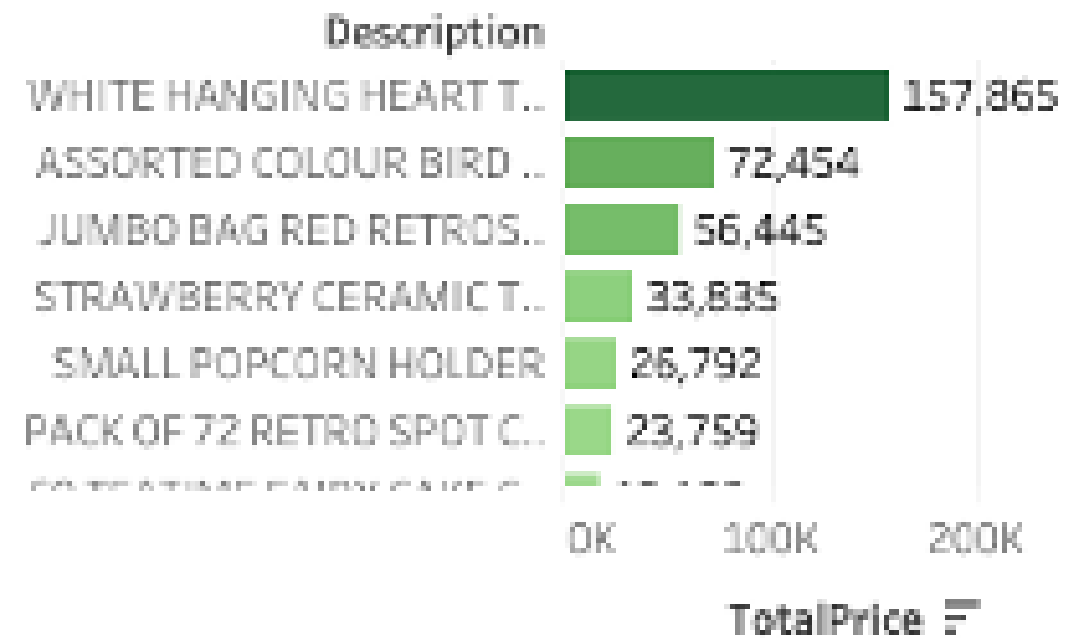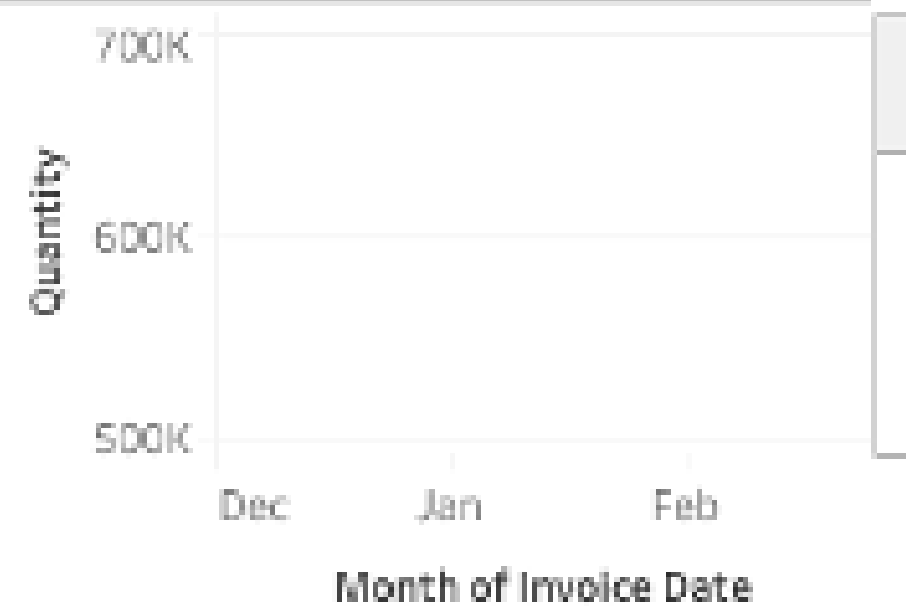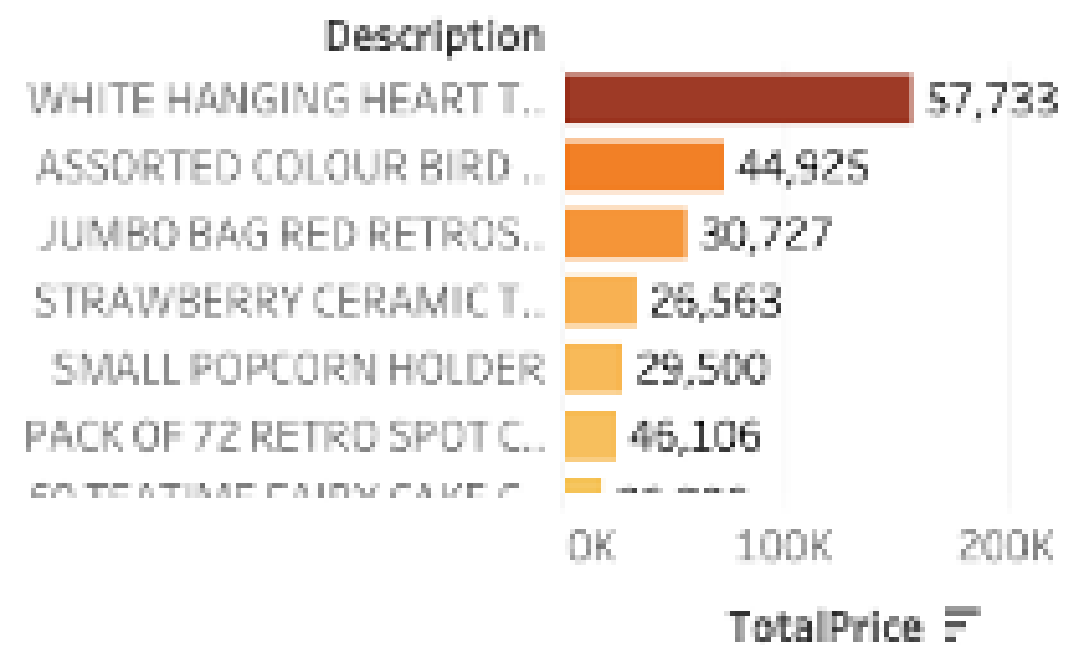
Implementing the RFM Model for Customer Segmentation

Using the Recency, Frequency and, Monetary value model, we got the quartile for each element and used it to create a Customer group.

Customer ID	monetary	frequency	recency	r_quartile	f_quartile	m_quartile	RFM_Group
12346.0	431	46	-64	1	2	2	122
12347.0	367	71	1323	3	2	4	324
12348.0	438	20	222	1	3	2	132
12349.0	407	107	2646	4	1	3	413
12351.0	375	21	300	2	3	4	234

What this tells us about our Customer Segments

RFM_Group Marketing Analysis

| Segment	RFM	Description	Marketing
Best Customers	111	Bought most recently and most often, and spend the most	No price incentives, new products, and loyalty programs
Loyal Customers	X1X	Buy most frequently	Use R and M to further segment
Big Spenders	XX1	Spend the most	Market your most expensive products
Almost Lost	311	Haven't purchased for some time, but purchased frequently and spend the most	Aggressive price incentives
Lost Customers	411	Haven't purchased for some time, but purchased frequently and spend the most	Aggressive price incentives
Lost Cheap Customers	444	Last purchased long ago, purchased few, and spent little	Don't spend too much trying to re-acquire

What does the data say?

Most of our customers fall between big spenders and those who do not buy frequently. We can break them down further based on their level of loyalty to different customer group
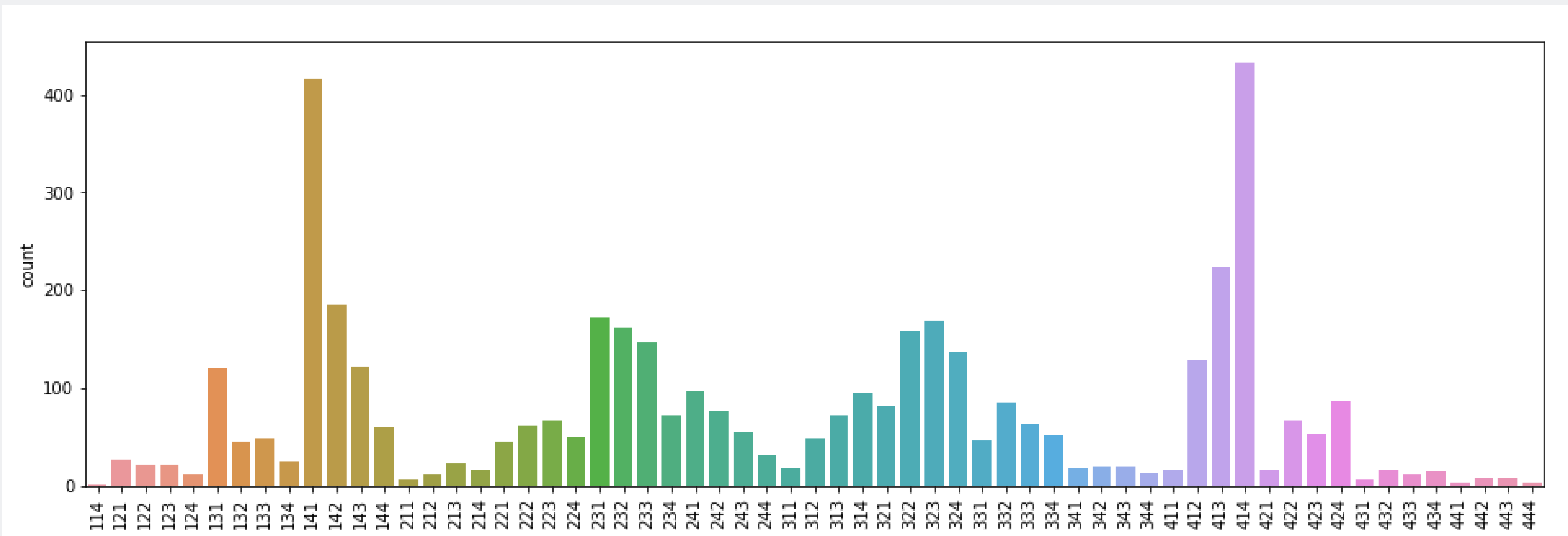
Our most valued customers have an RFMScore of 4 & 5

Our most valued customers are less than 5% of our entire customer base
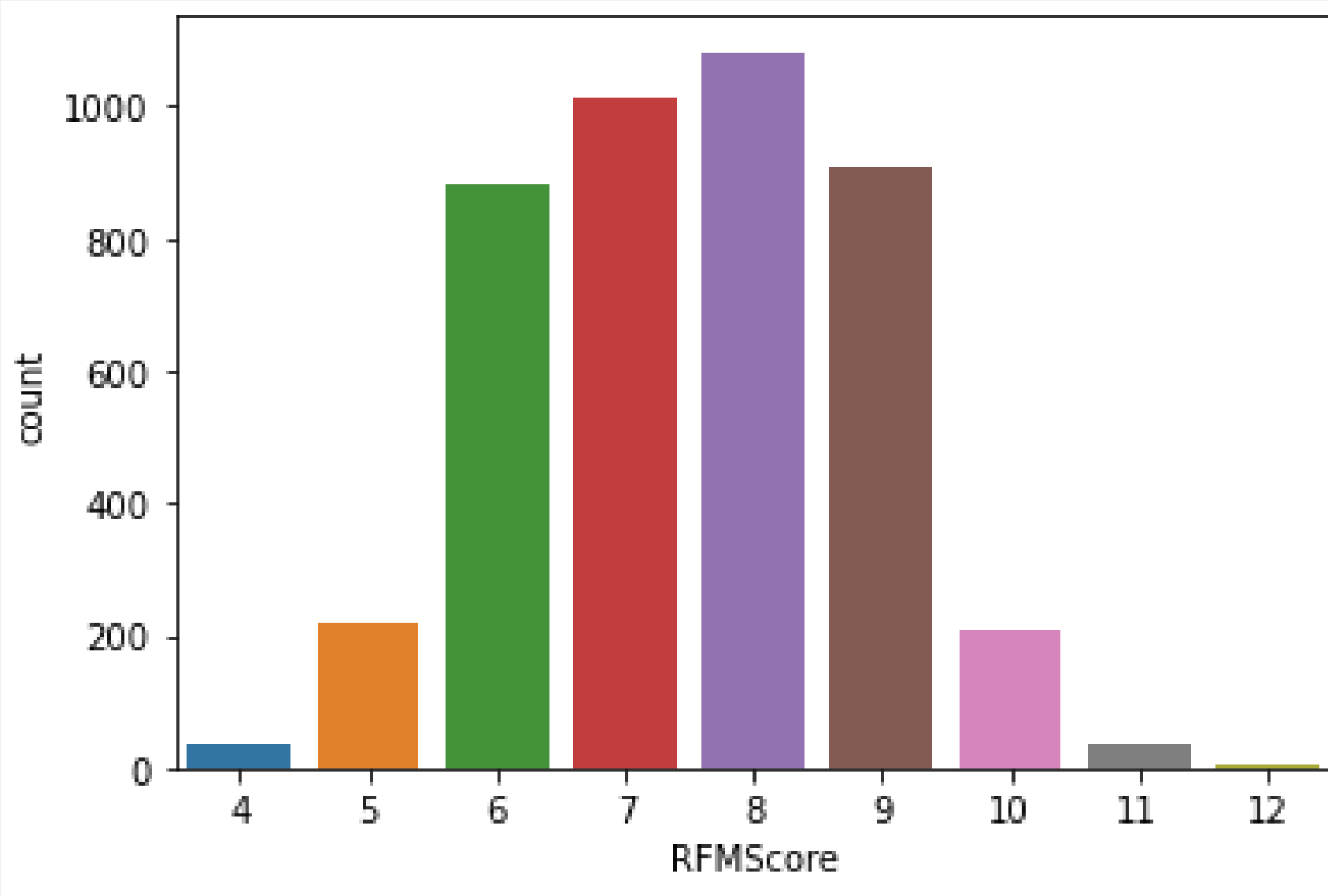
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12347.0	367	71	1323	3	2	4	324	9
12348.0	438	20	222	1	3	2	132	6
12349.0	407	107	2646	4	1	3	413	8
12351.0	375	21	300	2	3	4	234	9
12352.0	375	18	343	2	4	4	244	10
12353.0	408	20	317	2	3	3	233	8
12355.0	567	22	488	2	3	1	231	6
12356.0	380	84	3562	4	2	4	424	10
12357.0	388	165	12079	4	1	3	413	8

In what category do most of our customers fall?

Silver and Gold!
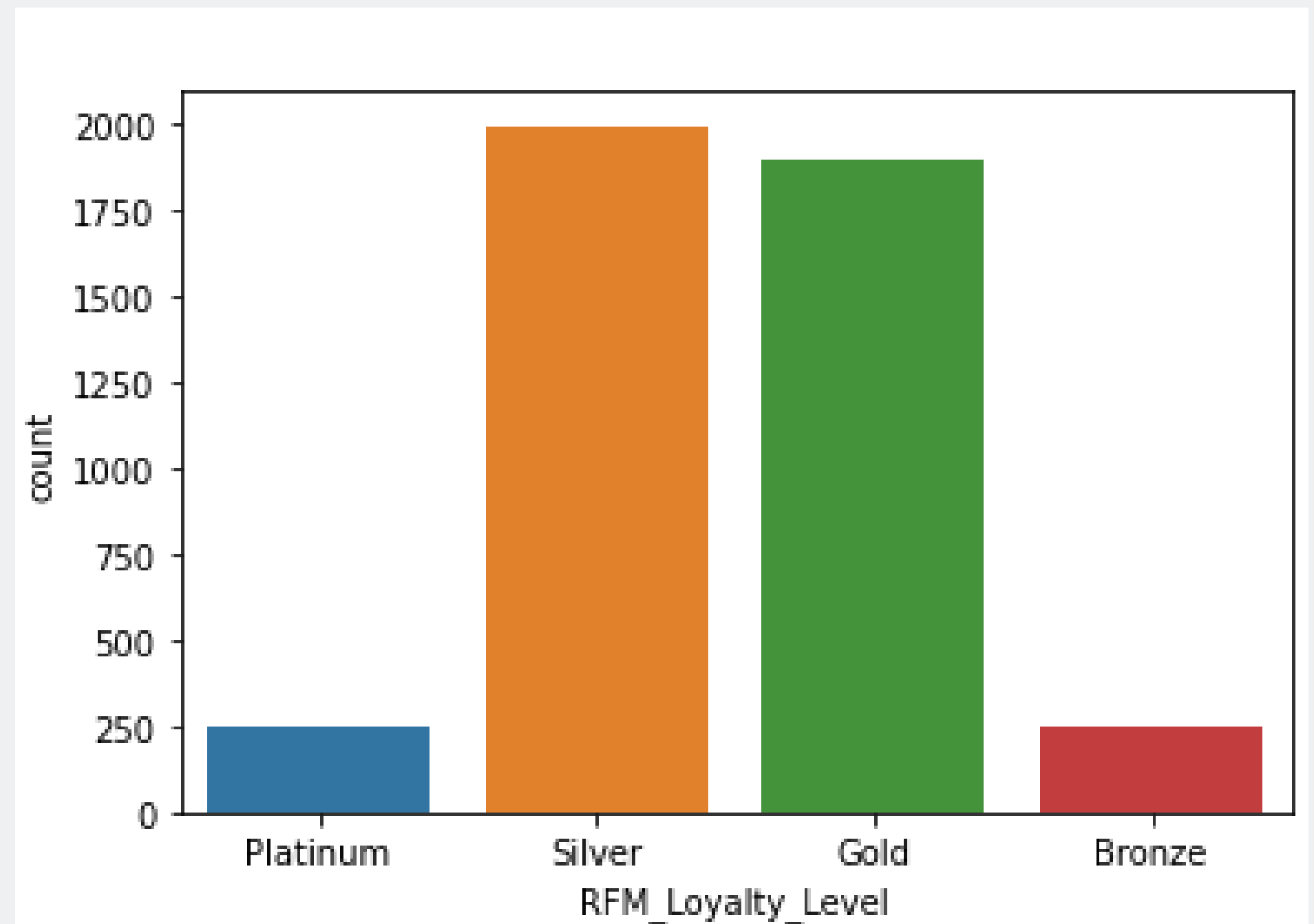
How do we implement?

Platinum - High valued customers (*Reward*)

- Avoid price incentives
- Offer loyalty and rewards/customer retention programs
- Engage regularly i.e emails, events
- Offer high-level customer service

Silver & Gold - One-hit buyers/big spenders (*Keep engaged*)

- Offer price incentives
- Aggressive targeting and remarketing ads
- Consistent engagement and communication i.e social media, emails, newsletters
- Offer referral bonus
- Upsell and cross-sell

Bronze - Gone too soon (*Reacquire*)

- Offer incentives such as free shipping, deep discounts, personalized offers, sampling
- Consistent email sequence for to win them back
- Avoid spending too much to reacquire

References

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02

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Thank you!