2023

2Market Key Insights

REPORT DOCUMENTING AND EXPLAINING APPROACH AND INSIGHTS

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Background/context of the business

- The organisation can leverage data driven insights to run more efficiently in giving greater attention towards better selling products and customer demographics associated with these products.
- Focus on the advertising channels that will drive purchases and insight into which advertising channels may need more exploration for how to reach more customers and increase purchases.
- Based on problem solving analysis data insights will assist in what decisions to make which align with 2Markets need for looking for solutions to increasing revenue efficiently whilst also better understanding their customers.

Questions to ask?

- Does the general market price for certain products differ from 2Markets products if so by how much and why?
- Where does focus after insights are obtained lie; higher selling products or lower selling products or both?

Questions to ask of the data?

- Is there a relationship between certain products and advertising engagement?
- What products sell the best?

Analytical approach

- Where grouping martial statuses, external references were used to come to the conclusion that "We should also consider encoding "Alone", "Absurd", and "YOLO" on the Marital_Status as "Single" since all three categories seem to indicate a life without any partner." (T, 2021)
- Sorting Age column (Created using Year_Birth column, 3 potential outliers were identified with ages: 129,123 and 122. These ages were included in aggregation calculations based on assumption that these ages are valid, noting that they have impact on average calculations.

Average age of customers belonging to each type of marital status?

- Bar chart (refer to Appendix A) effectively illustrated comparisons between the different marital statuses related to their respective average ages.
- Highest average: widows, (63 years old).
- Lowest average: single and married (52 years old).

Trend of customer income with the progressing age of the customers?

- Proportional relationship between income and average age until a peak average age of 57 years old is reached at the income band ($50,000-$60,000).
- Inversely proportional relationship occurs as the income increases.
- This is an interesting insight and can be analysed further to see if this relationship creates patterns with varying product types.

SQL could then be leveraged to explore data further with three queries being asked.

- Querying the total spend per product per country, the approach involved summation of each product type and selected for viewing individually. (See Appendix C for Syntax)

- Querying most popular products based on marital status the main point in the approach to consider was selecting the “Marital Status” column and making sure to group data by the “Martial Status. (See Appendix D for syntax)
- Querying which social media platform is most effective for advertising in each country, social media columns were selected from the “ad_data” table and joined with the “marketing_data” table to select the “Country” column using the abbreviated JOIN function with “ID” as the unique identifier, as well as the USING function for efficiency, and clarity. (See appendix E for syntax)

Dashboard design and development

Please see the attached dashboard document for further understanding and guidance as well as (Appendix F)

For the first visualisation (Total sales per country for each product):

- a stacked bar chart was selected to show the relationship between the totals sales per country for the varying products available.
- Stacked feature allowed for the sum of individual product groups to be visually divided as a proportion of the total sales for a country.
- Filter was added for independent user querying to allow selection of any combination of product types of sales in each country.

For the second visualisation (Product purchases based on age group):

- horizontal bar chart was used to show the relationship between what products were purchased based on different age groups.
- The age groups were split in increments of 10 as this felt like an appropriate split to distinguish between trends of different age groups without miss skewing patterns.
- A filter has also been added to view each individual age group.
- Effective when analysing individual age groups purchases on their own.

For the third visualisation (Most popular ads per country):

- a horizontal bar chart was used as it effectively and efficiently showed the different countries advertisement usage.
- Interactive filter allows for view of individual countries advertisement to gain understanding of what ads are most popular in each of the eight countries.

Important to note that when designing the dashboard first and second visualisation adopt the same purple colour palette to demonstrate to user, links and similarities in attributes being analysed (Product types), compared with the third visualisation using a green palette as it relates to different attributes that are being analysed in this case (advertisement).

Patterns, trends, and insights

A pattern from sales per country for each product indicates that the majority shareholders of your market lie in Spain, which could therefore indicate that a lot of repeat customers may lie in this region. Therefore, it may be seen as an opportunity to capitalise on this market and invest in your customers in Spain, to increase customer loyalty.

When analysing the proportion of the ads in each country, Facebook only most popular in Canada. Twitter was considered the most popular advertisement platform in 3 countries (Spain, South Africa, and India [joint most popular with Instagram]). Another trend to document is that brochure advertising is considered the least popular platform in all countries. Further exploration could go into how much is being spent on each advertising platform if this data is available.

Insights that were found included the most popular product for all age groups being alcohol beverages and if you dig deeper into that insight alcohol beverages are most popular with 41–50-year-olds with 230,208 units being sold in this age bracket. This is insightful as it indicates customer demand for these products are very high. It would be interesting to know if gradually raising prices for alcohol beverages would affect consumer mentality too much to the point where sales drop for each age group. For this to be analysed further you can take the 41 – 50-year-olds for example and analyse their incomes to determine whether this might be attainable.

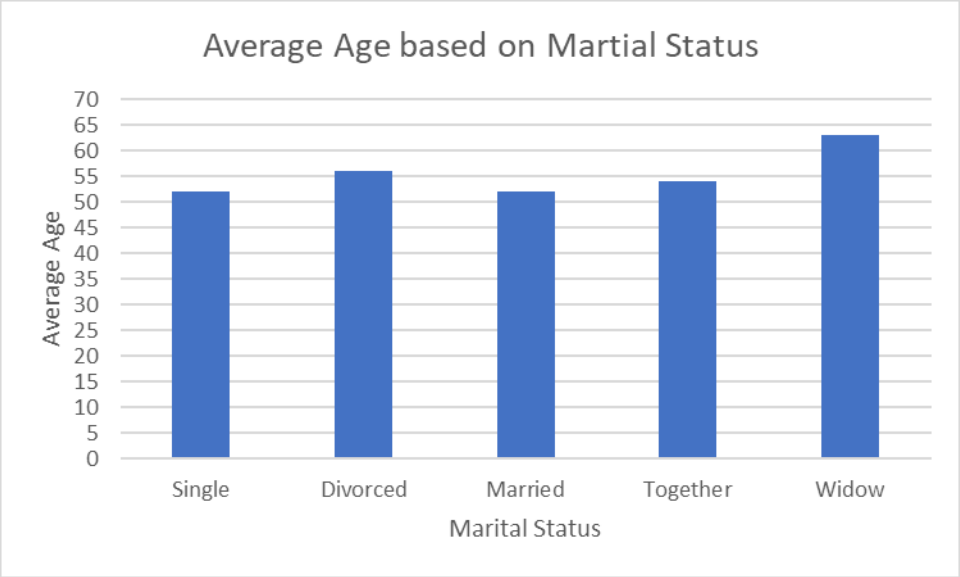
References

T, S. Y., 2021. *Discovering Customer Segments using Machine Learning — Part 1 (Data Exploration).* [Online]
Available at: https://medium.com/analytics-vidhya/discovering-customer-segments-using-machine-learning-part-1-data-exploration-7c171c21206a#:~:text=We%20should%20also%20consider%20encoding,a%20life%20without%20any%20partner.

Appendices

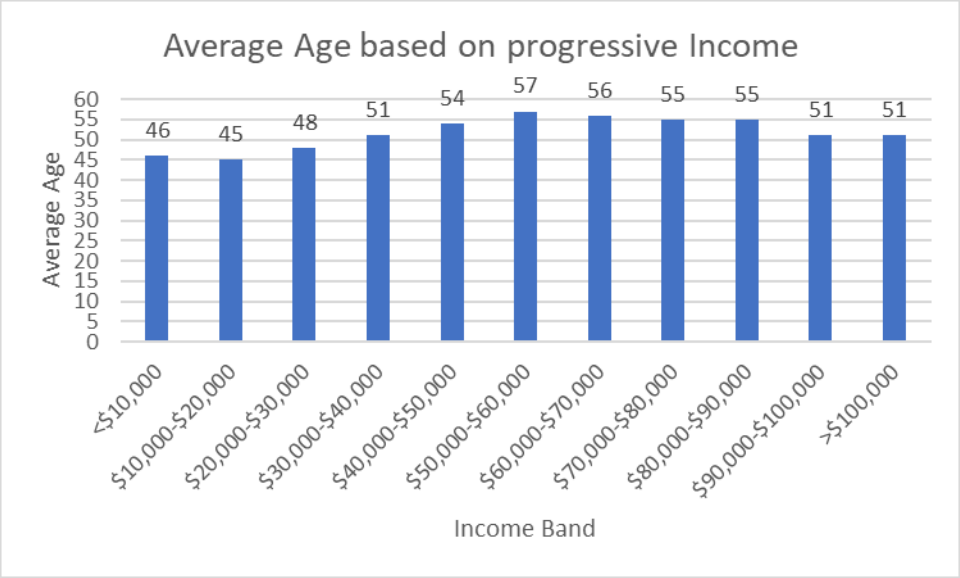
Appendix A

Graph showing initial analysis related to customers average age and marital status.



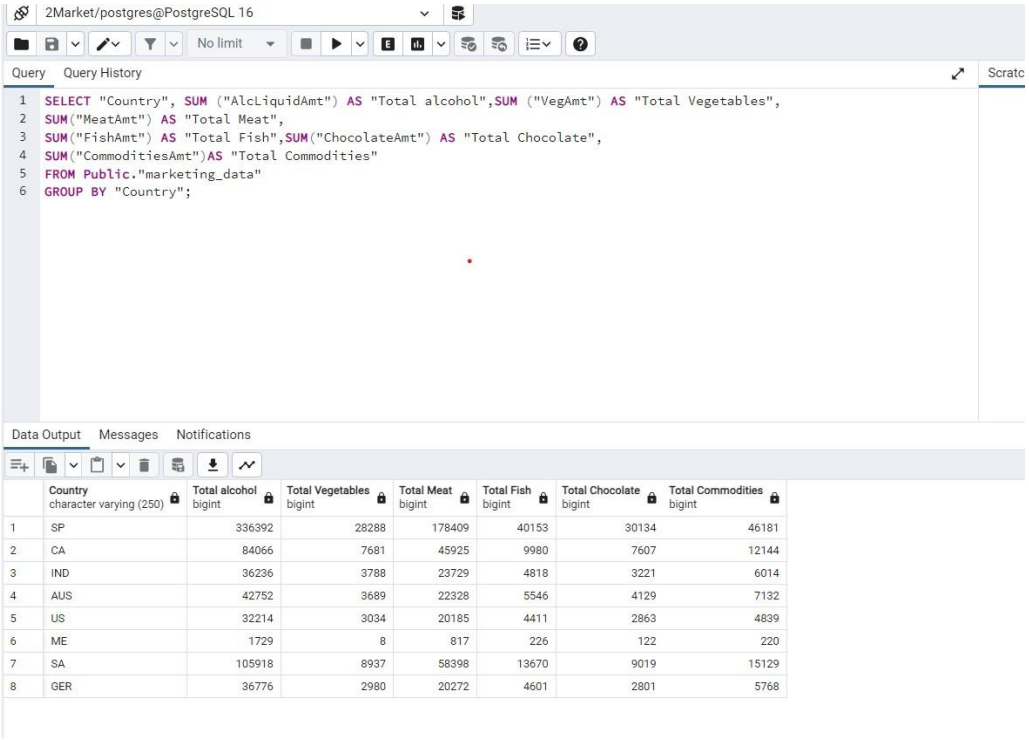
Appendix B

Graph showing initial analysis related to customers average age and progressive income.



Appendix C

Syntax querying the total spend per product per country in SQL.

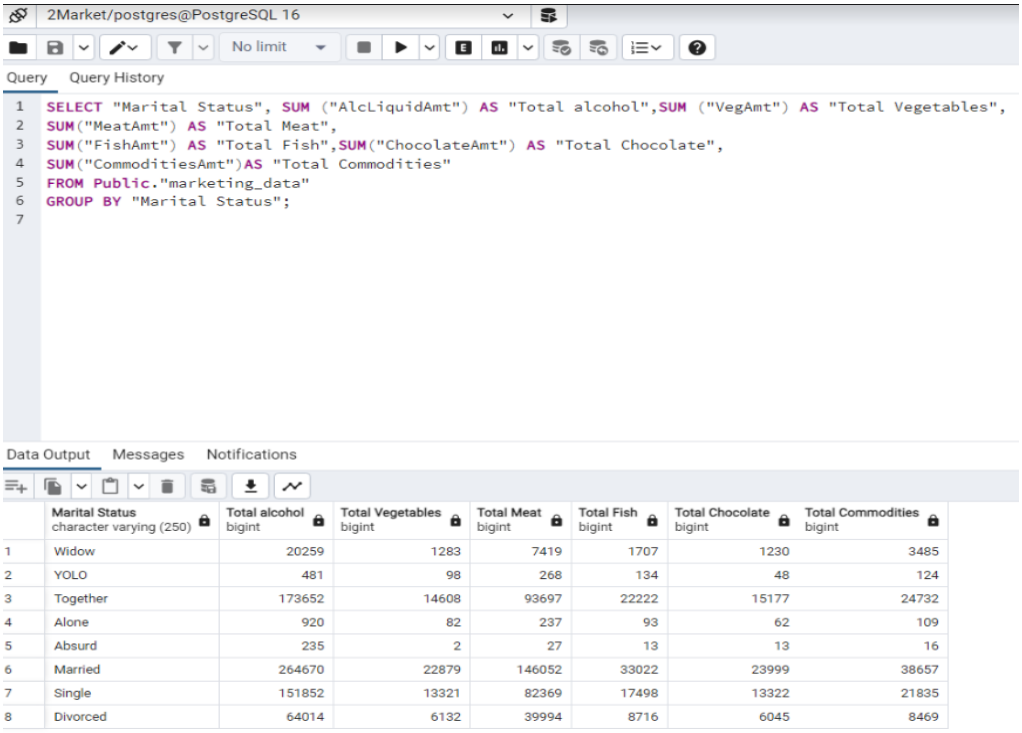


```
SELECT "Country", SUM ("AlcLiquidAmt") AS "Total alcohol",SUM ("VegAmt") AS "Total Vegetables",
SUM("MeatAmt") AS "Total Meat",
SUM("FishAmt") AS "Total Fish",SUM("ChocolateAmt") AS "Total Chocolate",
SUM("CommoditiesAmt")AS "Total Commodities"
FROM Public."marketing_data"
GROUP BY "Country";
```

	Country character varying (250)	Total alcohol bigint	Total Vegetables bigint	Total Meat bigint	Total Fish bigint	Total Chocolate bigint	Total Commodities bigint
1	SP	336392	28288	178409	40153	30134	46181
2	CA	84066	7681	45925	9980	7607	12144
3	IND	36236	3788	23729	4818	3221	6014
4	AUS	42752	3689	22328	5546	4129	7132
5	US	32214	3034	20185	4411	2863	4839
6	ME	1729	8	817	226	122	220
7	SA	105918	8937	58398	13670	9019	15129
8	GER	36776	2980	20272	4601	2801	5768

Appendix D

Syntax querying most popular products based on marital status in SQL.

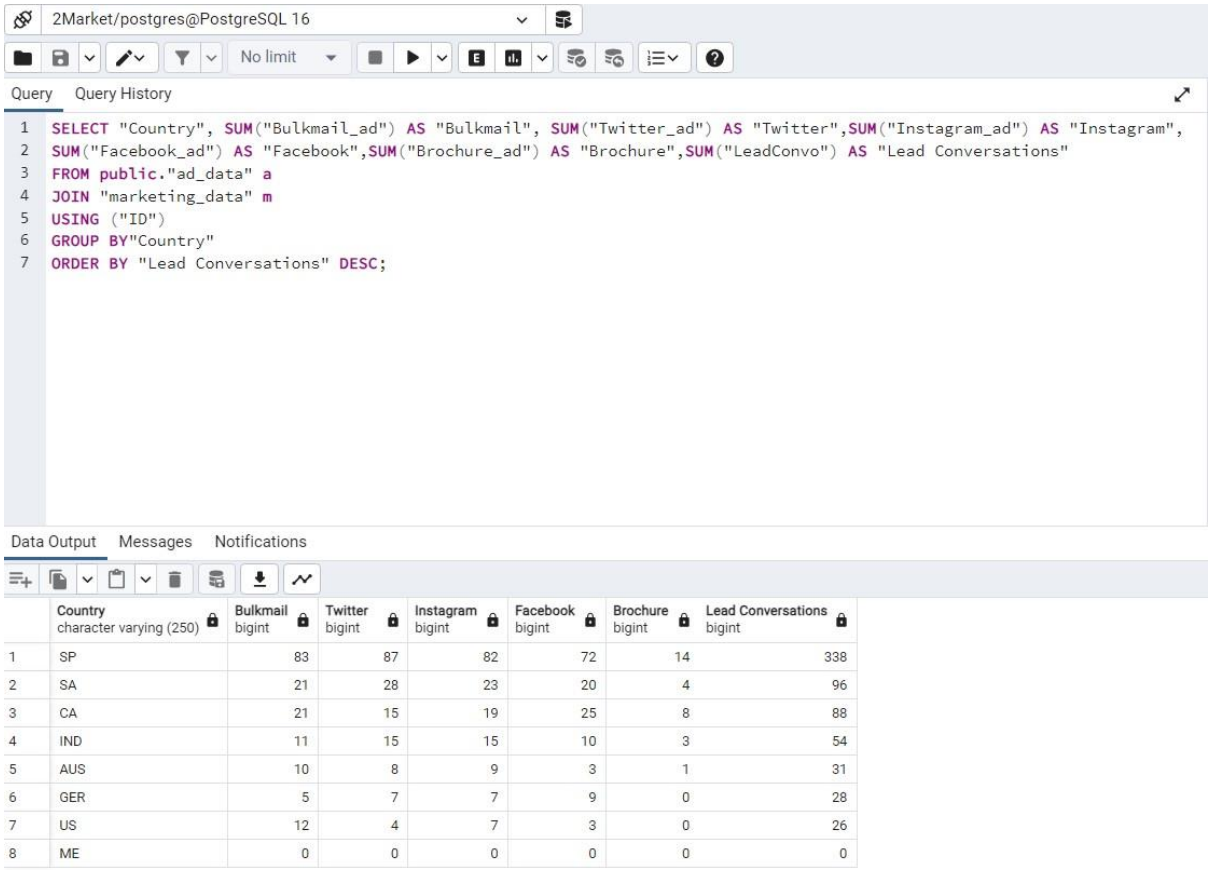


```
SELECT "Marital Status", SUM ("AlcLiquidAmt") AS "Total alcohol",SUM ("VegAmt") AS "Total Vegetables",
SUM("MeatAmt") AS "Total Meat",
SUM("FishAmt") AS "Total Fish",SUM("ChocolateAmt") AS "Total Chocolate",
SUM("CommoditiesAmt")AS "Total Commodities"
FROM Public."marketing_data"
GROUP BY "Marital Status";
```

	Marital Status character varying (250)	Total alcohol bigint	Total Vegetables bigint	Total Meat bigint	Total Fish bigint	Total Chocolate bigint	Total Commodities bigint
1	Widow	20259	1283	7419	1707	1230	3485
2	YOLO	481	98	268	134	48	124
3	Together	173652	14608	93697	22222	15177	24732
4	Alone	920	82	237	93	62	109
5	Absurd	235	2	27	13	13	16
6	Married	264670	22879	146052	33022	23999	38657
7	Single	151852	13321	82369	17498	13322	21835
8	Divorced	64014	6132	39994	8716	6045	8469

Appendix E

Syntax querying which social media platform is most effective for advertising in each country.



	Country character varying (250)	Bulkmail bigint	Twitter bigint	Instagram bigint	Facebook bigint	Brochure bigint	Lead Conversations bigint
1	SP	83	87	82	72	14	338
2	SA	21	28	23	20	4	96
3	CA	21	15	19	25	8	88
4	IND	11	15	15	10	3	54
5	AUS	10	8	9	3	1	31
6	GER	5	7	7	9	0	28
7	US	12	4	7	3	0	26
8	ME	0	0	0	0	0	0

Appendix F

Screenshot of 2Market key insight dashboard on Tableau