2Market Analysis: Executive Summary

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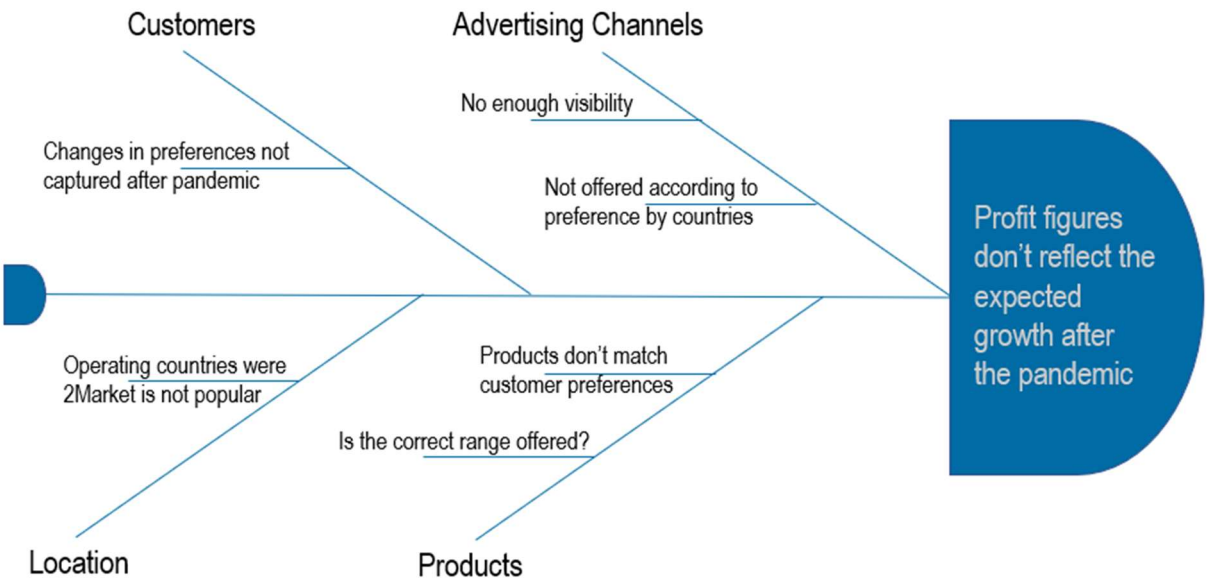
Contents:

2Market: Background and context

2Market, a global supermarket which sells products online and in-store, has gone through a recession period during the Covid pandemic. However while all the restrictions have been lifted in every country 2Market operates, profit figures don't reflect this.

Therefore, measures have to be put in place and for that, we have been asked to look into historical data to give 2Market a clear view of customer demographic, best-selling products and what advertising channels work well with what customer demographic to help inform the next steps regarding sales and marketing efforts (increase sales, reduce costs).

Stakeholders Workflow



Problem-solving Framework and Potential Causes

Analytical Approach

We have first proceed to clean the data in Excel by:

- Identifying and removing duplicates on the basis of customers having the same birth year, education, marital status and income:
    - Total observations in raw data: 2216
    - Remaining observations after removing duplicates: 2015
- Fixing inconsistencies:
    - Date column: all dates to show the same date format
    - Marital status: identification of four main groups: Single, Married, Divorced and Widow. Irregular marital statuses grouped under Other. “Alone” has been replaced with Single, and “Together” with Married, on the basis that we are looking for relationships between demographics, products and sales, so it doesn't matter if a couple is married or not as long as they are sharing a household expenses
    - Income column: $ sign removed to make the data type numbers so it can be analysed
- Identifying and dealing with outliers using scatter plots:
    - Three people older than 100 years replaced with the average age of the group
    - One person earning exactly $666.666 replaced with the average income of the group
- Adding a column which reflects the age of each customer, taken from the current year minus the birth year
- Assumptions: we’ve assumed that 2Market wants to target their existing customer range based on campaigns that might appeal to past customers, hence all customers have a registration date between 2012 and 2014 in the database

Using the same software, we then performed a preliminary exploratory analysis to understand the data by:

- Looking at relationships between age, income, marital status
- Understanding the distribution of these variables across customers

And finally we imported the cleaned data into SQL to develop a deeper exploratory analysis of the data by:

- Understanding sales figures by country and product
- Checking the most popular products based on customer demographics (country, marital status, whether or not there are children or teens in the home, etc.)
- Looking into the effectiveness of each advertising channel by customer demographics. We think that checking this by product could be a good insight for 2Market, however more granular data is needed to be able to perform this action
- The SQL syntax can be found in the addendum

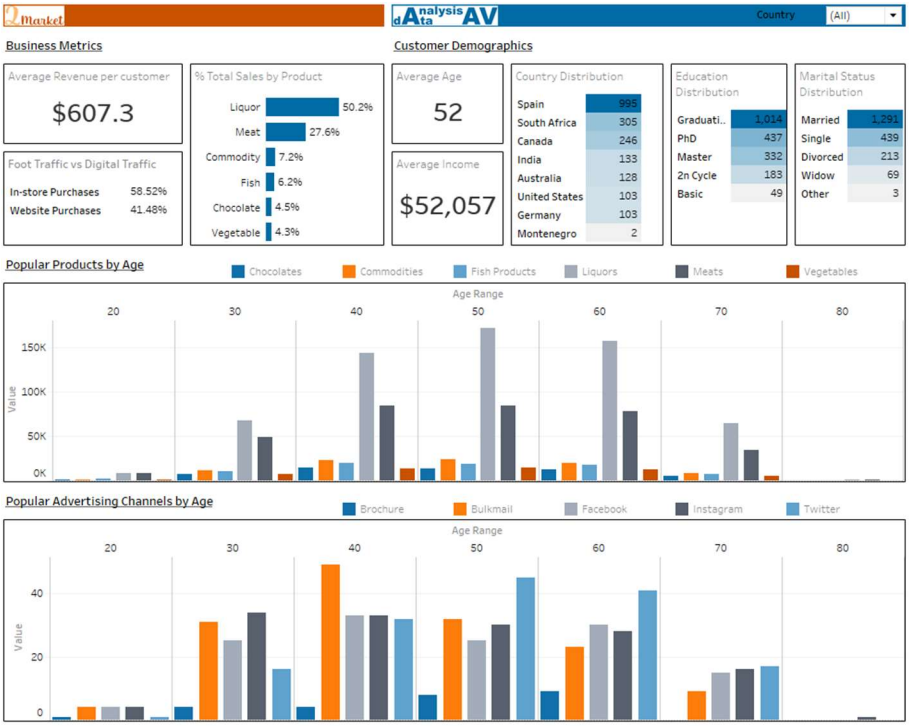
Dashboard design and development

This step aims to perform an explanatory analysis of the data, in this case using Tableau, and the creation of a dashboard which serves as a summary of the findings and trends, but also can be used to interrogate the data at a later stage by 2Market colleagues through its interactive performance.

The design tries to respond the initial queries posed by 2Market:

- The demographics of 2Market customers
- Which advertising channels seem to be the most effective
- Which products seem to sell the best and if that varies based on demographic

And the additional questions identified in the first section.



The visualisations have been chosen carefully to be simple to understand while conveying the message intended: mostly highlighted tables and horizonal/vertical bar charts, which the vast majority of people is familiar with.

The colour palette avoids any colours that could be challenging for people with a colour vision deficiency.

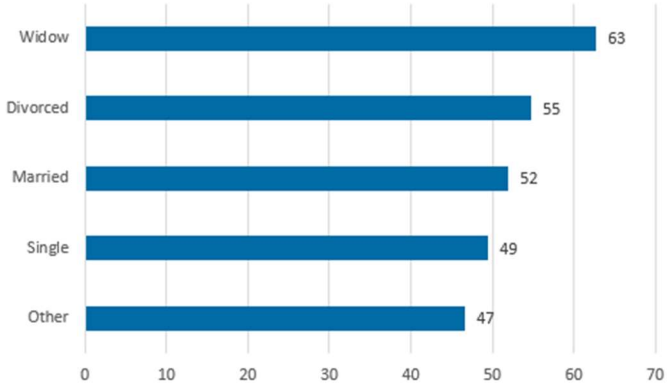
Accessibility has been maximised using headings for each section, titles for each chart or KPI, legends where necessary and easy to read fonts.

The layout also aims to be accessible, dividing the dashboard into four main areas, each with a title for ease of understanding. While trying to add all the information deemed important to pass onto your teams, we have reduced the number of visualisations included in it.

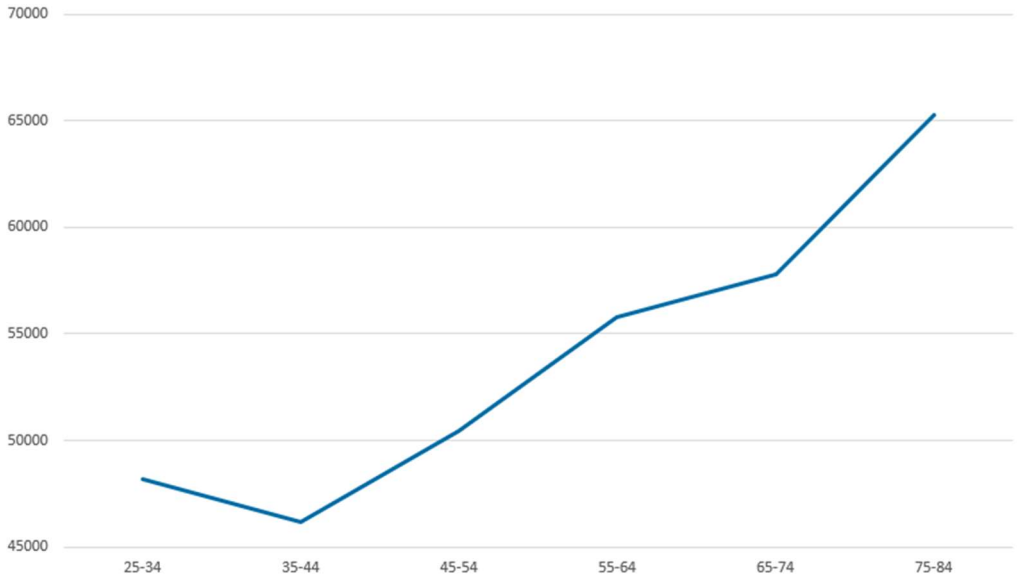
Patterns, trends and insights

Based on the analysis described in sections 2 and 3, we have found the following patterns around the three variables 2Market requested us to look at plus the variable we have added (location):

- Customers demographics: looking at the data the average customer is 52 years old, married, with an average income of $52057 and a graduation degree, with either no children or one child at home.



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



Trend of customer income with the progressing age of the customers

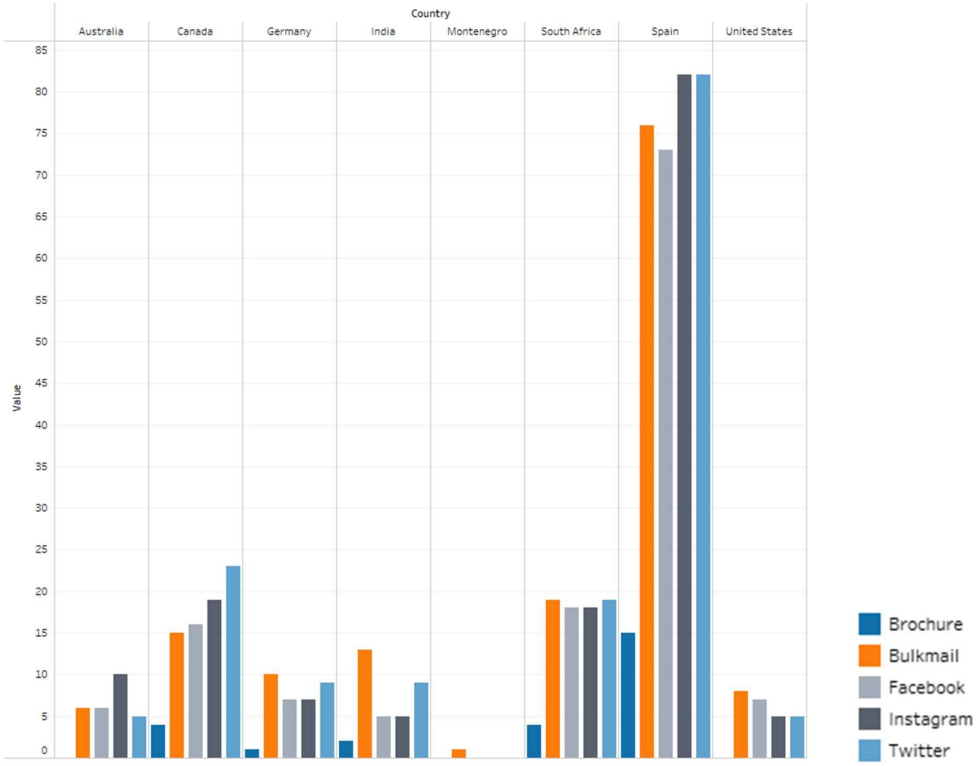
- Location: almost half of the customers are based in Spain, followed by South Africa and Canada, which represent the 15% and 12% of the sample respectively. The rest of the countries represent less than a 6% of the sample each.

- Products: liquors and meat are the best-selling products in all countries, although the sales figures varies across countries with Spain at the head, followed by South Africa and Canada, which represent a third of Spain's sales, while Montenegro has a marginal representation.

Country	Total Spend ($)
Spain	604331
South Africa	189616
Canada	153670
Australia	71673
India	69975
Germany	66468
United States	65797
Montenegro	2132

Total Spend per Country

- Advertising channels: the number of in-store purchases is slightly bigger than website purchases. However, only 21% of customers have purchased a product through an advertising channel. Although this varies per country, and maybe the approach needs to be different for each one. Also, successful lead conversions with brochures are very low in most countries, or even non-existent in Australia, Montenegro and United States.



Popular Advertising Channels per Country

Recommendations and next steps:

- Limit the amount of free text fields in 2Market forms so the data collected is cleaner and assumptions are limited (i.e. with a drop down menu irregular answers can be avoided, including the date format)
- Collect the type of product and spend for each advertising channel conversion so further exploration can be done
- Session to discuss data assumptions and potential dashboard adjustments to be set up at your convenience

Addendum: SQL syntax

```
CREATE TABLE public.ad_data (
        id BIGSERIAL PRIMARY KEY,
        bulkmail_ad INTEGER,
        twitter_ad INTEGER,
        instagram_ad INTEGER,
        facebook_ad INTEGER,
        brochure_ad INTEGER);
CREATE TABLE public.marketing_data (
        id BIGSERIAL PRIMARY KEY,
        year_birth INTEGER,
        age INTEGER,
        education VARCHAR(100),
        marital_status VARCHAR(100),
        income INTEGER,
        kidhome INTEGER,
        teenhome INTEGER,
        dt_customer DATE,
        recency INTEGER,
        amtliq INTEGER,
        amtvege INTEGER,
        amtnonveg INTEGER,
        amtpes INTEGER,
        amtchocolates INTEGER,
        amtcomm INTEGER,
        numdeals INTEGER,
        numwebbuy INTEGER,
        numwalkinpur INTEGER,
        numvisits INTEGER,
        response INTEGER,
        complain INTEGER,
        country VARCHAR(10),
        count_success INTEGER);
```

```
/*the total spend per country*/

CREATE VIEW country_spend_v AS
SELECT country AS "Country",
SUM (amtliq + amtvege + amtnonveg + amtpes + amtchocolates + amtcomm) AS "Total Spend"
FROM marketing_data
GROUP BY country
ORDER BY "Total Spend" DESC;

/*rank the total spend per country*/

SELECT country AS "Country", "Total Spend",
RANK() OVER (ORDER BY "Total Spend" DESC) "Rank"
FROM (SELECT country, SUM (amtliq + amtvege + amtnonveg + amtpes + amtchocolates + amtcomm) AS
"Total Spend"
                FROM public.marketing_data
                GROUP BY country) r
ORDER BY "Rank" ASC;

/*the total spend per product per country*/

CREATE VIEW country_product_spend_v AS
SELECT country AS "Country", SUM (amtliq) AS "Total Liquor",
SUM (amtvege) AS "Total Vegetables",
SUM (amtnonveg) AS "Total Meat",
SUM (amtpes) AS "Total Fish",
SUM (amtchocolates) AS "Total Chocolates",
SUM (amtcomm) AS "Total Commodities",
SUM (amtliq + amtvege + amtnonveg + amtpes + amtchocolates + amtcomm) AS "Total Spend"
FROM marketing_data
GROUP BY country
ORDER BY "Total Spend" DESC;
```

```
/*which products are the most popular in each country*/

CREATE VIEW country_popular_product_v AS
SELECT country AS "Country",
'Liquor' product,
SUM (amtliq) AS "Total"
FROM marketing_data
GROUP BY country

UNION ALL

SELECT country AS "Country",
'Vegetables' product,
SUM (amtvege) AS "Total"
FROM marketing_data
GROUP BY country

UNION ALL

SELECT country AS "Country",
'Meat' product,
SUM (amtnonveg) AS "Total"
FROM marketing_data
GROUP BY country

UNION ALL

SELECT country AS "Country",
'Fish' product,
SUM (amtpes) AS "Total"
FROM marketing_data
GROUP BY country

UNION ALL
```

```
SELECT country AS "Country",
'Chocolates' product,
SUM (amtchocolates) AS "Total"
FROM marketing_data
GROUP BY country

UNION ALL

SELECT country AS "Country",
'Commodities' product,
SUM (amtcomm) AS "Total"
FROM marketing_data
GROUP BY "country"
ORDER BY "Total" DESC;

/*the total spend per product per marital status*/

CREATE VIEW marital_product_spend_v AS
SELECT marital_status AS "Marital Status", SUM (amtliq) AS "Total Liquor",
SUM (amtvege) AS "Total Vegetables",
SUM (amtnonveg) AS "Total Meat",
SUM (amtpes) AS "Total Fish",
SUM (amtchocolates) AS "Total Chocolates",
SUM (amtcomm) AS "Total Commodities",
SUM (amtliq + amtvege + amtnonveg + amtpes + amtchocolates + amtcomm) AS "Total Spend"
FROM marketing_data
GROUP BY marital_status
ORDER BY "Total Spend" DESC;

/*which products are the most popular in each country and marital status */

CREATE VIEW country_marital_popular_product_v AS
SELECT country AS "Country", marital_status AS "Marital Status",
```

```
'Liquor' product,
SUM (amtliq) AS "Total"
FROM marketing_data
GROUP BY country, marital_status

UNION ALL

SELECT country AS "Country", marital_status AS "Marital Status",
'Vegetables' product,
SUM (amtvege) AS "Total"
FROM marketing_data
GROUP BY country, marital_status

UNION ALL

SELECT country AS "Country", marital_status AS "Marital Status",
'Meat' product,
SUM (amtnonveg) AS "Total"
FROM marketing_data
GROUP BY country, marital_status

UNION ALL

SELECT country AS "Country", marital_status AS "Marital Status",
'Fish' product,
SUM (amtpes) AS "Total"
FROM marketing_data
GROUP BY country, marital_status

UNION ALL

SELECT country AS "Country", marital_status AS "Marital Status",
'Chocolates' product,
SUM (amtchocolates) AS "Total"
```

```
FROM marketing_data
GROUP BY country, marital_status

UNION ALL

SELECT country AS "Country", marital_status AS "Marital Status",
'Commodities' product,
SUM (amtcomm) AS "Total"
FROM marketing_data
GROUP BY country, marital_status
ORDER BY "Total" DESC;

/*which products are the most popular based on whether or not there are children or teens in the home*/

CREATE VIEW country_product_kids_v AS
SELECT country AS "Country", SUM (amtliq) AS "Total Liquor",
SUM (amtvege) AS "Total Vegetables",
SUM (amtnonveg) AS "Total Meat",
SUM (amtpes) AS "Total Fish",
SUM (amtchocolates) AS "Total Chocolates",
SUM (amtcomm) AS "Total Commodities",
SUM (amtliq + amtvege + amtnonveg + amtpes + amtchocolates + amtcomm) AS "Total Spend"
FROM marketing_data
WHERE kidhome > 0
GROUP BY country
ORDER BY "Total Spend" DESC;

CREATE VIEW marital_product_kids_v AS
SELECT marital_status AS "Marital Status", SUM (amtliq) AS "Total Liquor",
SUM (amtvege) AS "Total Vegetables",
SUM (amtnonveg) AS "Total Meat",
SUM (amtpes) AS "Total Fish",
SUM (amtchocolates) AS "Total Chocolates",
SUM (amtcomm) AS "Total Commodities",
```

```
SUM (amtliq + amtvege + amtnonveg + amtpes + amtchocolates + amtcomm) AS "Total Spend"
FROM marketing_data
WHERE kidhome > 0
GROUP BY marital_status
ORDER BY "Total Spend" DESC;

/*Use the appropriate SQL queries to join the tables*/

CREATE TABLE all_data AS
SELECT *
FROM public.marketing_data
JOIN public.ad_data
USING (id);

/*Which social media platform (Twitter, Instagram, or Facebook) is the most effective
method of advertising in each country? (In this case, consider the total number of
lead conversions as a measure of effectiveness).*/

SELECT country AS "Country",
        SUM (twitter_ad) AS "TwitterConversions",
        SUM (instagram_ad) AS "InstagramConversions",
        SUM (facebook_ad) AS "FacebookConversions",
        SUM (bulkmail_ad) AS "BulkmailConversions",
        SUM (brochure_ad) AS "BrochureConversions"
FROM all_data
GROUP BY country
ORDER BY country;

/*Which social media platform is the most effective method of advertising based on
marital status? (In this case, consider the total number of lead conversions as a
measure of effectiveness).*/

SELECT marital_status AS "Marital_status",
        SUM (twitter_ad) AS "TwitterConversions",
```

```
        SUM (instagram_ad) AS "InstagramConversions",
        SUM (facebook_ad) AS "FacebookConversions",
        SUM (bulkmail_ad) AS "BulkmailConversions",
        SUM (brochure_ad) AS "BrochureConversions"
FROM all_data
GROUP BY marital_status
ORDER BY marital_status;

/*Which social media platform(s) seem(s) to be the most effective per country?
(In this case, assume that purchases were in some way influenced by lead conversions
from a campaign). Hint: You'll want to generate the amount spent per product type per
country and include a total of the ads for each of the social media platforms.
Then, review the output to determine whether there is anything interesting related to
the amount spent per product in each country and which social media platforms were used
for advertising.*/

/*SELECT country AS "Country", 'Instagram' channel,
        SUM (amtliq) AS "Total Liquor",
        SUM (amtvege) AS "Total Vegetables",
        SUM (amtnonveg) AS "Total Meat",
        SUM (amtpes) AS "Total Fish",
        SUM (amtchocolates) AS "Total Chocolates",
        SUM (amtcomm) AS "Total Commodities"
FROM all_data
WHERE instagram_ad = 1
GROUP BY country;*/

/*----------------------------------------------------------------*/

SELECT country AS "Country",
        'Liquor' product,
        SUM (facebook_ad) AS "FacebookConversions",
        SUM (facebook_ad)*100/ COUNT (*) AS "Facebook%",
        SUM (instagram_ad) AS "InstagramConversions",
```

```
        SUM (instagram_ad)*100/ COUNT (*) AS "Instagram%",
        SUM (twitter_ad) AS "TwitterConversions",
        SUM (twitter_ad)*100/ COUNT (*) AS "Twitter%",
        SUM (bulkmail_ad) AS "BulkmailConversions",
        SUM (bulkmail_ad)*100/ COUNT (*) AS "Bulkmail%",
        SUM (brochure_ad) AS "BrochureConversions",
        SUM (brochure_ad)*100/ COUNT (*) AS "Brochure%",
        COUNT (*) AS "TotalTransactions"
FROM public.all_data
WHERE amtliq > 0
GROUP BY country

UNION ALL

SELECT country AS "Country",
        'Vegetables' product,
        SUM (facebook_ad) AS "FacebookConversions",
        SUM (facebook_ad)*100/ COUNT (*) AS "Facebook%",
        SUM (instagram_ad) AS "InstagramConversions",
        SUM (instagram_ad)*100/ COUNT (*) AS "Instagram%",
        SUM (twitter_ad) AS "TwitterConversions",
        SUM (twitter_ad)*100/ COUNT (*) AS "Twitter%",
        SUM (bulkmail_ad) AS "BulkmailConversions",
        SUM (bulkmail_ad)*100/ COUNT (*) AS "Bulkmail%",
        SUM (brochure_ad) AS "BrochureConversions",
        SUM (brochure_ad)*100/ COUNT (*) AS "Brochure%",
        COUNT (*) AS "TotalTransactions"
FROM public.all_data
WHERE amtvege > 0
GROUP BY country

UNION ALL

SELECT country AS "Country",
```

```
        'Meat' product,
        SUM (facebook_ad) AS "FacebookConversions",
        SUM (facebook_ad)*100/ COUNT (*) AS "Facebook%",
        SUM (instagram_ad) AS "InstagramConversions",
        SUM (instagram_ad)*100/ COUNT (*) AS "Instagram%",
        SUM (twitter_ad) AS "TwitterConversions",
        SUM (twitter_ad)*100/ COUNT (*) AS "Twitter%",
        SUM (bulkmail_ad) AS "BulkmailConversions",
        SUM (bulkmail_ad)*100/ COUNT (*) AS "Bulkmail%",
        SUM (brochure_ad) AS "BrochureConversions",
        SUM (brochure_ad)*100/ COUNT (*) AS "Brochure%",
        COUNT (*) AS "TotalTransactions"
FROM public.all_data
WHERE amtnonveg > 0
GROUP BY country

UNION ALL

SELECT country AS "Country",
        'Fish' product,
        SUM (facebook_ad) AS "FacebookConversions",
        SUM (facebook_ad)*100/ COUNT (*) AS "Facebook%",
        SUM (instagram_ad) AS "InstagramConversions",
        SUM (instagram_ad)*100/ COUNT (*) AS "Instagram%",
        SUM (twitter_ad) AS "TwitterConversions",
        SUM (twitter_ad)*100/ COUNT (*) AS "Twitter%",
        SUM (bulkmail_ad) AS "BulkmailConversions",
        SUM (bulkmail_ad)*100/ COUNT (*) AS "Bulkmail%",
        SUM (brochure_ad) AS "BrochureConversions",
        SUM (brochure_ad)*100/ COUNT (*) AS "Brochure%",
        COUNT (*) AS "TotalTransactions"
FROM public.all_data
WHERE amtpes > 0
GROUP BY country
```

```
UNION ALL

SELECT country AS "Country",
        'Chocolates' product,
        SUM (facebook_ad) AS "FacebookConversions",
        SUM (facebook_ad)*100/ COUNT (*) AS "Facebook%",
        SUM (instagram_ad) AS "InstagramConversions",
        SUM (instagram_ad)*100/ COUNT (*) AS "Instagram%",
        SUM (twitter_ad) AS "TwitterConversions",
        SUM (twitter_ad)*100/ COUNT (*) AS "Twitter%",
        SUM (bulkmail_ad) AS "BulkmailConversions",
        SUM (bulkmail_ad)*100/ COUNT (*) AS "Bulkmail%",
        SUM (brochure_ad) AS "BrochureConversions",
        SUM (brochure_ad)*100/ COUNT (*) AS "Brochure%",
        COUNT (*) AS "TotalTransactions"
FROM public.all_data
WHERE amtchocolates > 0
GROUP BY country

UNION ALL

SELECT country AS "Country",
        'Commodities' product,
        SUM (facebook_ad) AS "FacebookConversions",
        SUM (facebook_ad)*100/ COUNT (*) AS "Facebook%",
        SUM (instagram_ad) AS "InstagramConversions",
        SUM (instagram_ad)*100/ COUNT (*) AS "Instagram%",
        SUM (twitter_ad) AS "TwitterConversions",
        SUM (twitter_ad)*100/ COUNT (*) AS "Twitter%",
        SUM (bulkmail_ad) AS "BulkmailConversions",
        SUM (bulkmail_ad)*100/ COUNT (*) AS "Bulkmail%",
        SUM (brochure_ad) AS "BrochureConversions",
        SUM (brochure_ad)*100/ COUNT (*) AS "Brochure%",
        COUNT (*) AS "TotalTransactions"
```

```
FROM public.all_data
WHERE amtcomm > 0
GROUP BY country
ORDER BY "TotalTransactions" DESC;

/*Most popular products per  income range, age range, country, marital status and ID*/

SELECT CASE WHEN income BETWEEN 0 AND 20000 THEN '0-20000'
                    WHEN income BETWEEN 20001 AND 40000 THEN '20001-40000'
                    WHEN income BETWEEN 40001 AND 60000 THEN '40001-60000'
                    WHEN income BETWEEN 60001 AND 80000 THEN '60001-80000'
                    WHEN income BETWEEN 80001 AND 100000 THEN '80001-100000'
                    WHEN income BETWEEN 100001 AND 120000 THEN '100001-120000'
                    WHEN income BETWEEN 120001 AND 140000 THEN '120001-140000'
                    WHEN income BETWEEN 140001 AND 160000 THEN '140001-160000'
                    WHEN income BETWEEN 160001 AND 180000 THEN '160001-180000' END,
                    CASE WHEN age BETWEEN 0 AND 19 THEN '0-19'
                    WHEN age BETWEEN 20 AND 39 THEN '20-39'
                    WHEN age BETWEEN 40 AND 59 THEN '40-59'
                    WHEN age BETWEEN 60 AND 79 THEN '60-79'
                    WHEN age BETWEEN 80 AND 99 THEN '20-39'END,
                    md.country,
                    md.marital_status,
                    md.id,
      'Liquor' product,
            SUM(amtliq) "Total"
FROM public.marketing_data md
GROUP BY md.country,md.marital_status, md.income, md.age,md.id

UNION ALL

SELECT CASE WHEN income BETWEEN 0 AND 20000 THEN '0-20000'
                    WHEN income BETWEEN 20001 AND 40000 THEN '20001-40000'
                    WHEN income BETWEEN 40001 AND 60000 THEN '40001-60000'
```

```
                WHEN income BETWEEN 60001 AND 80000 THEN '60001-80000'
                WHEN income BETWEEN 80001 AND 100000 THEN '80001-100000'
                WHEN income BETWEEN 100001 AND 120000 THEN '100001-120000'
                WHEN income BETWEEN 120001 AND 140000 THEN '120001-140000'
                WHEN income BETWEEN 140001 AND 160000 THEN '140001-160000'
                WHEN income BETWEEN 160001 AND 180000 THEN '160001-180000' END,
                CASE WHEN age BETWEEN 0 AND 19 THEN '0-19'
                WHEN age BETWEEN 20 AND 39 THEN '20-39'
                WHEN age BETWEEN 40 AND 59 THEN '40-59'
                WHEN age BETWEEN 60 AND 79 THEN '60-79'
                WHEN age BETWEEN 80 AND 99 THEN '20-39'END,
                md.country,
                md.marital_status,
                md.id,
                'Vegetables' product,
                SUM (amtvege) AS "Total"
FROM public.marketing_data md
GROUP BY md.country,md.marital_status, md.income, md.age,md.id

UNION ALL

SELECT CASE WHEN income BETWEEN 0 AND 20000 THEN '0-20000'
                WHEN income BETWEEN 20001 AND 40000 THEN '20001-40000'
                WHEN income BETWEEN 40001 AND 60000 THEN '40001-60000'
                WHEN income BETWEEN 60001 AND 80000 THEN '60001-80000'
                WHEN income BETWEEN 80001 AND 100000 THEN '80001-100000'
                WHEN income BETWEEN 100001 AND 120000 THEN '100001-120000'
                WHEN income BETWEEN 120001 AND 140000 THEN '120001-140000'
                WHEN income BETWEEN 140001 AND 160000 THEN '140001-160000'
                WHEN income BETWEEN 160001 AND 180000 THEN '160001-180000' END,
                CASE WHEN age BETWEEN 0 AND 19 THEN '0-19'
                WHEN age BETWEEN 20 AND 39 THEN '20-39'
                WHEN age BETWEEN 40 AND 59 THEN '40-59'
                WHEN age BETWEEN 60 AND 79 THEN '60-79'
```

```
                WHEN age BETWEEN 80 AND 99 THEN '20-39'END,
                md.country,
                md.marital_status,
                md.id,
                'Meat' product,
                SUM (amtnonveg) AS "Total"
FROM public.marketing_data md
GROUP BY md.country,md.marital_status, md.income, md.age,md.id

UNION ALL

SELECT CASE WHEN income BETWEEN 0 AND 20000 THEN '0-20000'
                WHEN income BETWEEN 20001 AND 40000 THEN '20001-40000'
                WHEN income BETWEEN 40001 AND 60000 THEN '40001-60000'
                WHEN income BETWEEN 60001 AND 80000 THEN '60001-80000'
                WHEN income BETWEEN 80001 AND 100000 THEN '80001-100000'
                WHEN income BETWEEN 100001 AND 120000 THEN '100001-120000'
                WHEN income BETWEEN 120001 AND 140000 THEN '120001-140000'
                WHEN income BETWEEN 140001 AND 160000 THEN '140001-160000'
                WHEN income BETWEEN 160001 AND 180000 THEN '160001-180000' END,
                CASE WHEN age BETWEEN 0 AND 19 THEN '0-19'
                WHEN age BETWEEN 20 AND 39 THEN '20-39'
                WHEN age BETWEEN 40 AND 59 THEN '40-59'
                WHEN age BETWEEN 60 AND 79 THEN '60-79'
                WHEN age BETWEEN 80 AND 99 THEN '20-39'END,
                md.country,
                md.marital_status,
                md.id,
                'Fish' product,
                SUM (amtpes) AS "Total"
FROM public.marketing_data md
GROUP BY md.country,md.marital_status, md.income, md.age,md.id

UNION ALL
```

```
SELECT CASE WHEN income BETWEEN 0 AND 20000 THEN '0-20000'
            WHEN income BETWEEN 20001 AND 40000 THEN '20001-40000'
            WHEN income BETWEEN 40001 AND 60000 THEN '40001-60000'
            WHEN income BETWEEN 60001 AND 80000 THEN '60001-80000'
            WHEN income BETWEEN 80001 AND 100000 THEN '80001-100000'
            WHEN income BETWEEN 100001 AND 120000 THEN '100001-120000'
            WHEN income BETWEEN 120001 AND 140000 THEN '120001-140000'
            WHEN income BETWEEN 140001 AND 160000 THEN '140001-160000'
            WHEN income BETWEEN 160001 AND 180000 THEN '160001-180000' END,
            CASE WHEN age BETWEEN 0 AND 19 THEN '0-19'
            WHEN age BETWEEN 20 AND 39 THEN '20-39'
            WHEN age BETWEEN 40 AND 59 THEN '40-59'
            WHEN age BETWEEN 60 AND 79 THEN '60-79'
            WHEN age BETWEEN 80 AND 99 THEN '20-39'END,
            md.country,
            md.marital_status,
            md.id,
            'Chocolates' product,
            SUM (amtchocolates) AS "Total"
FROM public.marketing_data md
GROUP BY md.country,md.marital_status, md.income, md.age,md.id

UNION ALL

SELECT CASE WHEN income BETWEEN 0 AND 20000 THEN '0-20000'
            WHEN income BETWEEN 20001 AND 40000 THEN '20001-40000'
            WHEN income BETWEEN 40001 AND 60000 THEN '40001-60000'
            WHEN income BETWEEN 60001 AND 80000 THEN '60001-80000'
            WHEN income BETWEEN 80001 AND 100000 THEN '80001-100000'
            WHEN income BETWEEN 100001 AND 120000 THEN '100001-120000'
            WHEN income BETWEEN 120001 AND 140000 THEN '120001-140000'
            WHEN income BETWEEN 140001 AND 160000 THEN '140001-160000'
            WHEN income BETWEEN 160001 AND 180000 THEN '160001-180000' END,
            CASE WHEN age BETWEEN 0 AND 19 THEN '0-19'
```

```
                WHEN age BETWEEN 20 AND 39 THEN '20-39'
                WHEN age BETWEEN 40 AND 59 THEN '40-59'
                WHEN age BETWEEN 60 AND 79 THEN '60-79'
                WHEN age BETWEEN 80 AND 99 THEN '20-39'END,
                md.country,
                md.marital_status,
                md.id,
                'Commodities' product,
                SUM (amtcomm) AS "Total"
FROM public.marketing_data md
GROUP BY md.country,md.marital_status, md.income, md.age,md.id
ORDER BY "Total" DESC;

/*Average revenue by advertising channel
Assumption: some customers have converted on more than one advertising channel and therefore the
revenue can be counted more than once*/
/*After executing this syntax and comparing with the original sales by country, I have realised the figures are
almost the same and therefore I have discarded this calculation*/

SELECT country
        ,SUM(amtliq + amtvege + amtnonveg + amtpes + amtchocolates + amtcomm) AS "Total Spend"
    ,SUM(bulkmail_spend) bulkmail_spend
        ,SUM(twitter_spend) twitter_spend
        ,SUM(facebook_spend) facebook_spend
        ,SUM(instagram_spend) instagram_spend
        ,SUM(brochure_spend) brochure_spend
    ,SUM(bulkmail_spend)/SUM(num_customers) avg_bulkmail_spend
        ,SUM(twitter_spend)/SUM(num_customers) avg_twitter_spend
        ,SUM(facebook_spend)/SUM(num_customers) avg_facebook_spend
        ,SUM(instagram_spend)/SUM(num_customers) avg_instagram_spend
        ,SUM(brochure_spend)/SUM(num_customers) avg_brochure_spend
FROM (
SELECT id
    ,country
```

```
	,bulkmail_ad num_bulkmail
	,twitter_ad num_twitter
	,facebook_ad num_facebook
		,instagram_ad num_instagram
	,brochure_ad num_brochure
		,amtliq
		,amtvege
		,amtnonveg
		,amtpes
		,amtchocolates
		,amtcomm
		,CASE WHEN bulkmail_ad > 0 THEN amtliq + amtvege + amtnonveg + amtpes + amtchocolates +
amtcomm ELSE 0 END bulkmail_spend
		,CASE WHEN twitter_ad > 0 THEN amtliq + amtvege + amtnonveg + amtpes + amtchocolates +
amtcomm ELSE 0 END twitter_spend
		,CASE WHEN facebook_ad > 0 THEN amtliq + amtvege + amtnonveg + amtpes + amtchocolates +
amtcomm ELSE 0 END facebook_spend
		,CASE WHEN instagram_ad > 0 THEN amtliq + amtvege + amtnonveg + amtpes + amtchocolates +
amtcomm ELSE 0 END instagram_spend
		,CASE WHEN brochure_ad > 0 THEN amtliq + amtvege + amtnonveg + amtpes + amtchocolates +
amtcomm ELSE 0 END brochure_spend
		,1 num_customers
		,numwebbuy
FROM public.all_data
WHERE numwebbuy > 0
) s
GROUP BY country;
```

DECLARATION
Names, companies and logos used on this assignment (report, dashboard and presentation)
are my own invention for the purpose of this exercise and should not be used
outside the LSE Data Analytics Career Accelerator programme