

# BLACK DISRUPTOR ACCELERATOR

WMCA DATA ANALYTICS PROJECT

MARKETING DATA ANALYTICS PROJECT - SQL  
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# UNDERSTANDING THE CUSTOMER - MARKETING

A detailed analysis of a company's customer profile and monthly purchases. The following data helps to better understand the target customer and provides an ease to modify products according to the specific needs, behaviours and concerns of different types of customers.

The information extracted can assist business-led decisions and refine a target audience. Marketing is a great opportunity to connect with the customers and predict consumer behaviour.

Customer personality analysis helps a business to modify its product based on its target customers from different types of customer segments.

# FINDING THE MEDIAN SALARY

SUM	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	17301				=MEDIAN(A1,A2216)														
2	2447																		
3	3502																		
4	4023																		
5	4428																		
5	4861																		
7	5305																		
3	5648																		
3	6560																		
0	6835																		
1	7144																		
2	7500																		
3	7500																		
4	7500																		
5	7500																		
6	7500																		
7	7500																		
8	7500																		
9	7500																		
0	7500																		
1	7500																		
2	7500																		
3	7500																		
4	8028																		
5	8820																		
6	8940																		
7	9255																		
8	9548																		
9	9722																		
0	10245																		
1	10404																		
2	10979																		
3	10979																		
4	11012																		
5	11448																		
6	12393																		
7	12571																		
8	13084																		
9	13260																		

To locate the median salary of all customers, I used the MEDIAN function. I took the data from the original Excel sheet; highlighted all salary data available.

=MEDIAN (A1,A2216)

The median salary is = £334,198.

# MOST POPULAR CUSTOMER VIA MARITAL STATUS - COUNT-IF

	A	B	C	D	E	F	G
1	Absurd						
2	Absurd						
3	Alone						
4	Alone						
5	Alone			Married	864		
6	Divorced			Single	480		
7	Divorced			Divorced	232		
8	Divorced			Widow	77		
9	Divorced			Alone	3		
10	Divorced			Absurd	0		
11	Divorced			YOLO	2		
12	Divorced						
13	Divorced						
14	Divorced						
15	Divorced						
16	Divorced						
17	Divorced						
18	Divorced						
19	Divorced						
20	Divorced						
21	Divorced						

To locate the COUNT-IF Marital Status of all customers, I used the COUNT-IF function. I extracted the data from the original Excel sheet; highlighted all martial status available.

Here is an example of the formula used to find the amount of customers who are married:

=COUNTIF(A3:A2241,A6) Married

There the most popular customers are both Married and Single.

# FINDING THE MIN & MAX SALARY

	A	B	C	D	E	F	G	H
1	ID	Education	Income	Marital_Status				
2	5524	Graduation	58138	Single			MAX Salary	666666
3	2174	Graduation	46344	Single			MIN Salary	1730
4	4141	Graduation	71613	Together				
5	6182	Graduation	26646	Together				
5	5324	PhD	58293	Married				
7	7446	Master	62513	Together				
3	965	Graduation	55635	Divorced				
9	6177	PhD	33454	Married				
0	4855	PhD	30351	Together				
1	5899	PhD	5648	Together				
2	1994	Graduation		Married				
3	387	Basic	7500	Married				
4	2125	Graduation	63033	Divorced				
5	8180	Master	59354	Divorced				
6	2569	Graduation	17323	Married				
7	2114	PhD	82800	Single				
8	9736	Graduation	41850	Married				

To locate the MIN and MAX Salary of all customers, I used the MIN and MAX function. I extracted the data from the original Excel sheet; highlighted all Salary available.

Here is an example of the formula used to find the MIN and MAX Salary of all customer data:

=MAX(C2:C2241)

=MIN(C2:C2241)

The lowest salary is £1730. The highest salary is £666,666.

# SQL WORKBENCH - GROUP BY

Discovering how many customers visit the website per month

The screenshot shows the SQL Workbench interface. On the left, the schema browser displays the 'marketing\_campaign' table with various columns like ID, Year\_Birth, Education, etc. The main pane shows a query editor with the following SQL code:

```
1 • SELECT ID, SUM(NumWebVisitsMonth) AS 'Number of Web Visits Per Month' FROM Marketing.marketing_campaign
2 GROUP BY ID
3
4
5
```

The result grid shows the following data:

ID	Number of Web Visits Per Month
4141	4
6182	6
5324	5
7446	6
965	6
6177	8
4855	9
5899	20
1994	7
387	8
2125	2
8180	6
2569	8
2114	3
9736	8

The bottom pane shows the history of executed queries, mostly errors related to the 'Marketing' schema.

To discover the code for the number of website visits in correlation to the customer ID numbers. I uploaded the data visualization wizard. It was difficult at first to locate the areas where I needed to seek the information regarding suitable areas of the table via keywords, resulting in over 50 incorrect executions.

The answer discovered I have listed the formula below, resulting in 2240 customers visiting the website monthly out of 2241.

```
SELECT ID, SUM(NumWebVisitsMonth) AS
'Number of Web Visits Per Month' FROM
Marketing.marketing_campaign
GROUP BY ID
```

# SQL WORKBENCH - WHERE

Discovering how many single customers visit the website per month including education and income

```
13 -- Using WHERE to filter your data
14
15 ✘ SELECT Education, NumWebVisitsMonth, Income
16 FROM Marketing.marketing_campaign
17 WHERE Marital_Status = "Single";
18
19 ✘ Results returned 480 rows
20
21
22
23
24
```

100% 1:15 | 3 errors found

Action Output

Time	Action	Response	Duration / Fetch Time
67 16:36:49	SELECT * FROM ID , SUM (NumWebVisitsMonth) AS 'Number of Web Visits Per Month'	Error Code: 1064. You have an error in your SQL syntax...	0.00038 sec
68 16:36:58	SELECT ID , SUM (NumWebVisitsMonth) AS 'Number of Web Visits Per Month'	Error Code: 1064. You have an error in your SQL syntax...	0.00034 sec
69 16:37:21	SELECT ID, SUM (NumWebVisitsMonth) AS 'Number of Web Visits Per Month' F...	Error Code: 1064. You have an error in your SQL syntax...	0.00038 sec
70 16:37:28	SELECT ID, SUM (NumWebVisitsMonth) AS 'Number of Web Visits Per Month' F...	Error Code: 1064. You have an error in your SQL syntax...	0.00037 sec
71 16:37:37	SELECT ID, SUM(NumWebVisitsMonth) AS 'Number of Web Visits Per Month' F...	Error Code: 1064. You have an error in your SQL syntax...	0.00028 sec
72 16:37:48	SELECT ID, SUM(NumWebVisitsMonth) AS 'Number of Web Visits Per Month' F...	2240 row(s) returned	0.011 sec / 0.00027 s...
73 16:38:01	SELECT ID, SUM(NumWebVisitsMonth) AS 'Number of Web Visits Per Month' F...	2240 row(s) returned	0.0083 sec / 0.0003...
74 16:46:31	SELECT ID, SUM(NumWebVisitsMonth) AS 'Number of Web Visits Per Month' F...	2240 row(s) returned	0.0091 sec / 0.00020...
75 16:46:33	SELECT ID, SUM(NumWebVisitsMonth) AS 'Number of Web Visits Per Month' F...	2240 row(s) returned	0.0091 sec / 0.00030...
76 16:46:34	SELECT ID, SUM(NumWebVisitsMonth) AS 'Number of Web Visits Per Month' F...	2240 row(s) returned	0.0053 sec / 0.00023...
77 16:50:52	SELECT Education, SUM (NumWebVisitsMonth) AS 'Number of Web Visits Per Month'	Error Code: 1046. No database selected Select the de...	0.00048 sec
78 16:51:34	SELECT Education, NumWebVisitsMonth, Income FROM Marketing.marketing_c...	480 row(s) returned	0.0038 sec / 0.00010...
79 16:51:35	SELECT Education, NumWebVisitsMonth, Income FROM Marketing.marketing_c...	480 row(s) returned	0.0063 sec / 0.00007...

The SQL formula here shows the marital status of single customers to locate whom visits the website including income and education from the marketing campaign. 480 rows were returned out of 2401 results.

SELECT Education, NumWebVisitsMonth,  
Income  
FROM Marketing.marketing\_campaign  
WHERE Marital\_Status = "Single";

Results returned 480 rows

# SQL WORKBENCH – CASE WHEN

Discovering how education status and grouping customer by educational achievements

The screenshot shows a SQL editor window with the following code:

```
9 •  SELECT ID,
10   CASE
11     WHEN Education LIKE '%g%' THEN 'Graduation'
12     WHEN Education LIKE '%g%' THEN 'Masters Degree'
13     WHEN Education LIKE '%p%' THEN 'PHD'
14     ELSE 'Other Education'
15   END AS 'Education'
16   FROM Marketing.marketing_campaign
17
18
19
20
```

Below the code, the status bar indicates "100%" zoom, "1:20" scale, and "1 error found". The result grid shows the following data:

ID	Education
4137	Graduation
8082	Graduation
1386	Graduation
9369	Other Education
4477	Graduation
1357	Graduation
1402	Other Education
10629	Other Education
6312	Graduation

The "Result Grid" tab is selected, and the sidebar shows "Result Grid" and "Form Editor". The bottom section shows the "Action Output" with the following log entries:

Action	Time	Action	Response	Duration / Fetch Time
76	16:46:34	SELECT ID, SUM(NumWebVisitsMonth) AS 'Number of Web Visits Per Month' F...	2240 row(s) returned	0.0053 sec / 0.00023...
77	16:50:52	SELECT Education, SUM (NumWebVisitsMonth) AS 'Number of Web Visits Per...	Error Code: 1046. No database selected Select the de...	0.00048 sec
78	16:51:34	SELECT Education, NumWebVisitsMonth, Income FROM Marketing.marketing_c...	480 row(s) returned	0.0038 sec / 0.00010...
79	16:51:35	SELECT Education, NumWebVisitsMonth, Income FROM Marketing.marketing_c...	480 row(s) returned	0.0063 sec / 0.00007...
80	16:57:30	SELECT first_name, CASE WHEN first_name LIKE '%a%' THEN 'Team 1'-- Con...	20 row(s) returned	0.00099 sec / 0.000...

The SQL formula here shows discovering how education status and grouping customers by educational achievements.

Grouping customers by education and other education relating to the customer geographic purchase for the month. Results returned 2240 rows. This has helped group education achievements. Graduates as the most popular customer for web purchases.

```
SELECT ID,  
CASE  
WHEN Education LIKE '%g%' THEN 'Graduation'  
WHEN Education LIKE '%g%' THEN 'Masters Degree'  
WHEN Education LIKE '%p%' THEN 'PHD'  
ELSE 'Other Education'  
END AS 'Education'  
FROM Marketing.marketing_campaign
```

# PUBLIC TABLEAU DASHBOARD

## WMCA Data Analytics Project by Henrietta Peart (Tableau)

Marketing Data Analytics Project - SQL



A detailed analysis of a company's customer profile and monthly purchases. The following data helps to better understand the target customer and provides an ease to modify products according to the specific needs, behaviours and concerns of different types of customers.

Customer personality analysis helps a business to modify its product based on its target customers from different types of customer segments.

The following information states The lowest quantity of website visitation is 0 per month. The highest quantity is 20 visits per month. if shopping, this could highly average to visiting once a week minimum. The salary of customers ranges between £1730 and £666,666.

The customer that made the most purchases within the month is 245 Divorcees with an average of 6 Web Purchases per month.

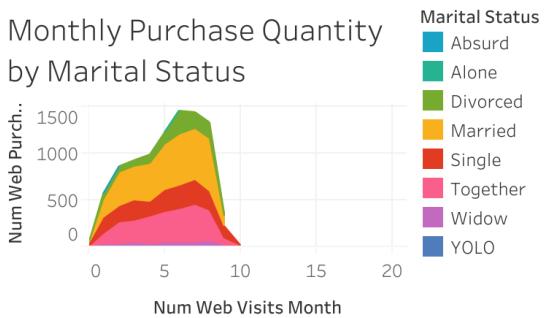
The data visualisation here shows the marital status of single customers to locate who visit the website including income and education from the marketing campaign. 480 rows were returned out of 2401 results. Additionally, showcasing how education status and grouping customers by educational achievements. Most web purchaser is Graduate, followed by PhD then Masters.

Analysing the data provided it can be shown the rise of divorcees using the web pur..

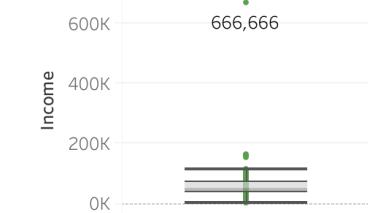
## Monthly Number of Web Visits by Customer ID



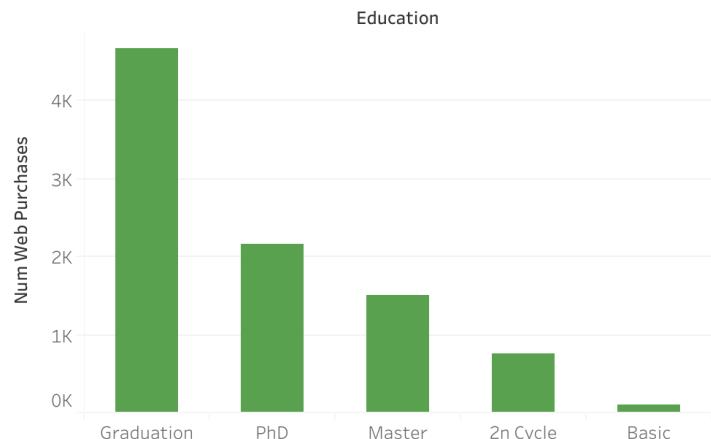
## Monthly Purchase Quantity by Marital Status



## MIN & MAX Salary of Customer (2012 - 2014)



## Monthly Purchase Amount by Education Status



## CONCLUSION OF DATA

The following information states The lowest quantity of website visitation is 0 per month. The highest quantity is 20 visits per month. if shopping, this could highly average to visiting once a week minimum. The salary of customers ranges between £1730 and £666,666.

The customer that made the most purchases within the month is 245 Divorcees out of 2401 customers with an average of 6 Web Purchases per month.

The data visualisation here shows the marital status of single customers to locate who visit the website including income and education from the marketing campaign. 480 rows were returned out of 2401 results. Additionally, showcasing how education status and grouping customers by educational achievements. Most web purchaser is Graduate, followed by PHD then Masters.

Analysing the data provided it can be shown the rise of divorcees using the web purchase option is increasing along with the use of graduates over the time span of two years.

## HIGHLIGHTS

- Being selected as a student for WMCA BLACK DISRUPTOR DATA ANALYTICS BOOTCAMP in January 2022 I have learned and reflected on the following:
- Critical Thinking and Problem Solving; not giving up with confidence the answer will eventually come to light!
- Transferable skills to utilize within a future technology career; to simplify the question and stay focused.
- Determination and Perseverance; working full time whilst studying yet creating a healthy balance.

THANK YOU FOR LISTENING