# Intro

The objective of this document is to give an overview of the data analysis performed with the model “Star Schema 2” that was described in the document “Section A item b - Report”. The way this will be done is by giving answers for each one of the items requested by stakeholders:

### A. Identify how valuable a customer is to the company relative to other customers

B. Build up a picture of their customers’ profiles  
C. Determine whether a customer’s behaviour patterns have changed recently  
D. Identify the call plans which bring in the most revenue

The queries used to give the results presented here are on the file “Section\_B\_-\_DataAnalysisAndQueries.sql” and can be modified to give further insights.

### **A. Identify how valuable a customer is to the company relative to other customers**

The approach here was to see customers from the one with more total Spend to the ones with less total spend and also see if their contracts have ended. The top 10 customers are the following:

PHONE\_NUMBER TOTAL\_SPEND IS\_ENDED

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01 495 7529 1246.16 1

065 450 8045 465.18 0

01 256 4296 461.73 0

048 722 9343 438.05 0

01 560 3750 432.58 0

057 784 5929 431.62 0

01 780 6351 426.93 0

01 781 7312 409.66 0

01 866 4643 408.74 0

01 508 5556 403.08 0

The top customer, 01 495 7529, is actually with his contract ended.

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### **B. Build up a picture of their customers profiles**

For this query, we’ve looked for the top customers of the previous query and outlined some of their characteristics:

PHONE\_NUMBER TOTAL\_SPEND AVG\_CALL DOB PLAN IS\_CONTRACT\_ENDED SOCIAL\_CLASS

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01 495 7529 1246.16 16 20-NOV-53 standard 1 Middle middle class

01 495 7529 1246.16 16 24-MAR-98 standard 1 Middle middle class

065 450 8045 465.18 16 05-NOV-99 standard 0 Skilled working class

01 256 4296 461.73 19 08-NOV-85 off peak 0 Non-working

048 722 9343 438.05 18 07-FEB-95 standard 0 Middle middle class

01 560 3750 432.58 17 19-SEP-94 off peak 0 Upper middle class

057 784 5929 431.62 18 10-AUG-76 standard 0 Non-working

01 780 6351 426.93 17 12-MAY-63 off peak 0 Middle middle class

01 781 7312 409.66 16 24-OCT-53 off peak 0 Lower middle class

01 866 4643 408.74 17 29-OCT-86 standard 0 Middle middle class

As you can see, the top 2 items are actually for the same account (same phone\_number) but two different individuals (given their phone\_number), which means that the same phone\_number was probably inherited by another individual. This was our most valuable account and was terminated. It was also a huge outlier in terms of total spending.

The other top accounts are all active and are a mix of all Social Classes with contract plans for Standard and Off-peak also. There are people from generation X, millennials, generation Z and Baby Boomers. The average call time is also pretty close. This means there is no clear profile for top spenders looking just at the first 10 results with this data.

PHONE\_NUMBER TOTAL\_SPEND TOTAL\_CALLS

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01 495 7529 1246.16 312

065 450 8045 465.18 86

01 256 4296 461.73 67

048 722 9343 438.05 83

01 560 3750 432.58 77

057 784 5929 431.62 83

01 780 6351 426.93 87

01 781 7312 409.66 82

01 866 4643 408.74 89

01 508 5556 403.08 79

Also, regarding the number of total calls, aside from the huge outlier number one customer, they are all somewhat similar in numbers.

PHONE\_NUMBER TOTAL\_SPEND %Customer Service %Int Calls %Roaming Calls %Peak Calls %Offpeak Calls %Voicemails

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01 495 7529 1246.16 3.1 13.3 9.2 46.9 10.2 17.3

065 450 8045 465.18 2.9 7.8 4.9 45.1 26.5 12.7

01 256 4296 461.73 5.1 2.6 6.4 50 26.9 9

048 722 9343 438.05 1.9 8.5 2.8 51.9 15.1 19.8

01 560 3750 432.58 6.4 10.6 8.5 41.5 21.3 11.7

057 784 5929 431.62 3.1 12.2 10.2 43.9 18.4 12.2

01 780 6351 426.93 2.7 10.9 2.7 51.8 13.6 18.2

01 781 7312 409.66 8.5 8.5 7.5 37.7 23.6 14.2

01 866 4643 408.74 6.4 12.7 9.1 49.1 10 12.7

01 508 5556 403.08 4 8.1 6.1 45.5 20.2 16.2

Above we can also see, for the same customers, what percentage of their activity was a particular type of call, voicemail or even customer service call. What we can see here is that usually, half of the calls made were Peak calls.

### **C. Determine whether a customer’s behaviour patterns have changed recently**

To answer this, the approach was to look at what the customer usually does on average and look at what the customer did last month. This data is ordered so show the customer who most changed the percentage of calls that he was doing last month vs. what he usually does. This query also filters just customers that have a total spend above the average since we have too many customers below the average of spending that don’t have that much activity overall and filters out customers that no longer have an active contract.

PHONE\_NUMBER TOTAL\_SPEND Avg Calls Per Month Total Calls Last Month % of last month calls form avg

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045 562 7184 110.24 .8 0 0

01 411 7204 166.03 578.8 14 2.4

061 796 9233 303.13 477.5 23 4.8

025 788 5447 216.25 367.6 20 5.4

01 875 8043 144 299.7 19 6.3

026 324 6242 127.92 174.4 12 6.9

01 873 7427 180.97 177.6 17 9.6

01 002 3138 126.99 99.6 10 10

01 260 0073 310.4 225.5 28 12.4

01 919 5508 195.86 128.1 16 12.5

The fist in the list didn’t make any call at all in the last month and the others, most of them made less than 10% of the amount of calls that they usually do

PHONE\_NUMBER TOTAL\_SPEND % of last month calls form avg % Customer Service % Customer Service Last Month

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045 562 7184 110.24 0 0 0

01 411 7204 166.03 2.4 3 5.3

061 796 9233 303.13 4.8 4.5 6.9

025 788 5447 216.25 5.4 1 0

01 875 8043 144 6.3 2.7 0

026 324 6242 127.92 6.9 4.9 6.3

01 873 7427 180.97 9.6 5.1 5

01 002 3138 126.99 10 5.9 8.3

01 260 0073 310.4 12.4 5.4 3.3

01 919 5508 195.86 12.5 6.6 0

A few of those customers had an increase in the amount of customer service calls, maybe would worth a while to check for what reason those customers are calling customer service.

PHONE\_NUMBER TOTAL\_SPEND % of last month calls form avg % Voicemails % Voicemails Last Month

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045 562 7184 110.24 0 14.3 100

01 411 7204 166.03 2.4 13.4 21.1

061 796 9233 303.13 4.8 9 13.8

025 788 5447 216.25 5.4 17.6 23.1

01 875 8043 144 6.3 17.8 9.5

026 324 6242 127.92 6.9 21.3 18.8

01 873 7427 180.97 9.6 14.1 10

01 002 3138 126.99 10 5.9 8.3

01 260 0073 310.4 12.4 7.6 3.3

01 919 5508 195.86 12.5 11.8 11.1

The top 4 customers on this list had an increase in the amount of voicemails, for the top one actually, 100% of all his activity was voicemails. That might explain some of this drop in the percentage of calls.

### **D. Identify the call plans which bring in the most revenue**

The approach here was simply to sum, for each plan, how much customers spent in total

NAME CONTRACT\_PLAN\_REVENUE TOTAL\_CALLS AVERAGE\_REVENUE\_PER\_CALL\_MINUTE AVERARE\_REVENUE\_PER\_CALL

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off peak 207424.16 56077 .25 3.7

standard 206509.87 54267 .25 3.81

cosmopolitan 124673.12 52410 .16 2.38

As we can see, off peak is the plan with more revenue, although it’s pretty close to the standard plan. Cosmopolitan is the plan with the lowest revenue, even though it’s amount of total calls is pretty close to the others. Interesting to note that the standard plan has a higher revenue per call than off peak.