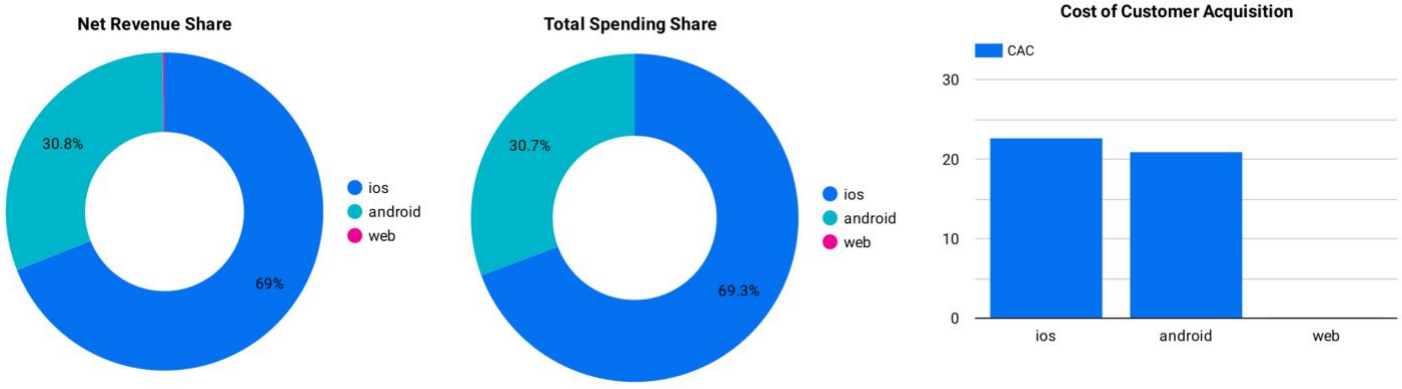
8fit Data analyst case solution

Question 1. Where to invest? ios or android?

Solution:

One of the most important KPIs in marketing analysis is CAC, Cost of customer acquisition.
Below Visualizations help us to have a clearer idea on both platforms' perfromance.



As it is seen above we have spent more in ios and consequently got more revenue from ios.
In terms of CAC android is doing better. CAC for android is around 7% lower than ios. Therefore, I suggest to invest more in ***android.***

Question 2. Is there any specific marketing channel we should be aiming for to get better results? I'm currently thinking that the channel with ID 4 looks promising. What are your thoughts?

Solution:

As it is understood from the data, there are some paid and unpaid channels available. So, I would answer to this question for paid and unpaid categories separately.

I have also defined a new KPI, Marketing Spendings/Revenue, which could be an indicator of marketing ROI in each channel. The lowest the Marketing Spendings/Revenue, the better.

- Unpaid Channels:

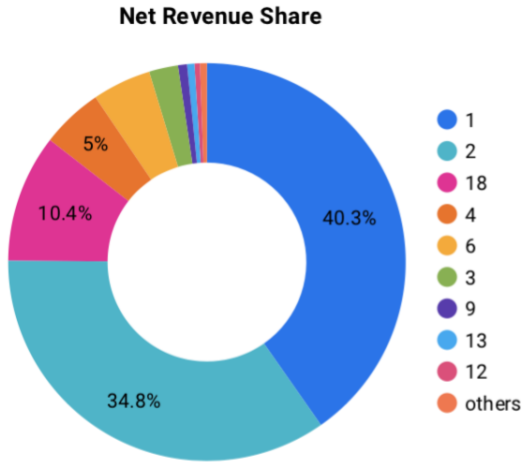
Among unpaid channels, Channel with ID 1 is outperforming both paid and unpaid ones by far. In my opinion, it is the most successful one. And if our startegy is not to necessarily invest in paid channels, channel 1 would be the best to invest in.

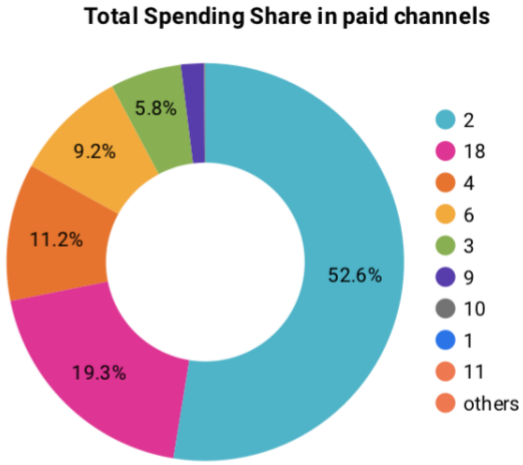
- Paid Channels:

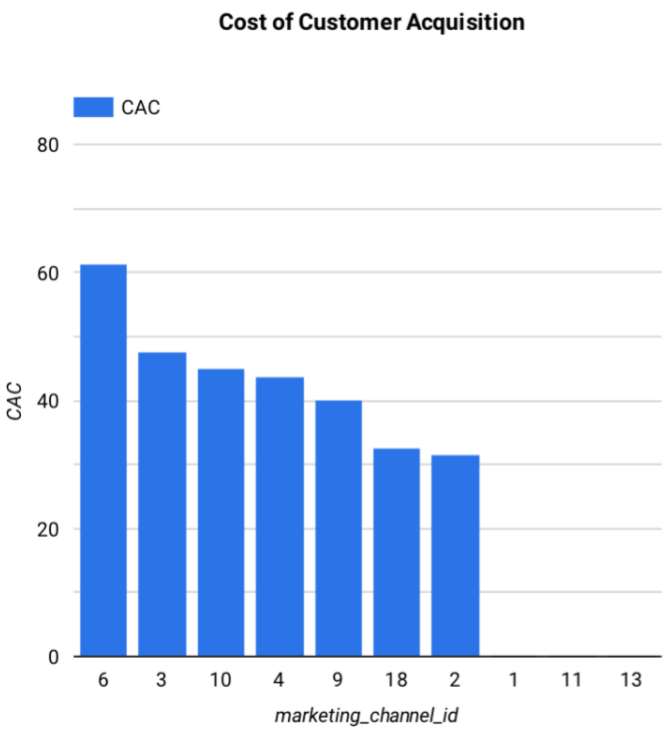
It seems that Channel with ID 2 is the one doing better than other paid channels; as it has the highest revenue share and lowest CAC among paid channels.

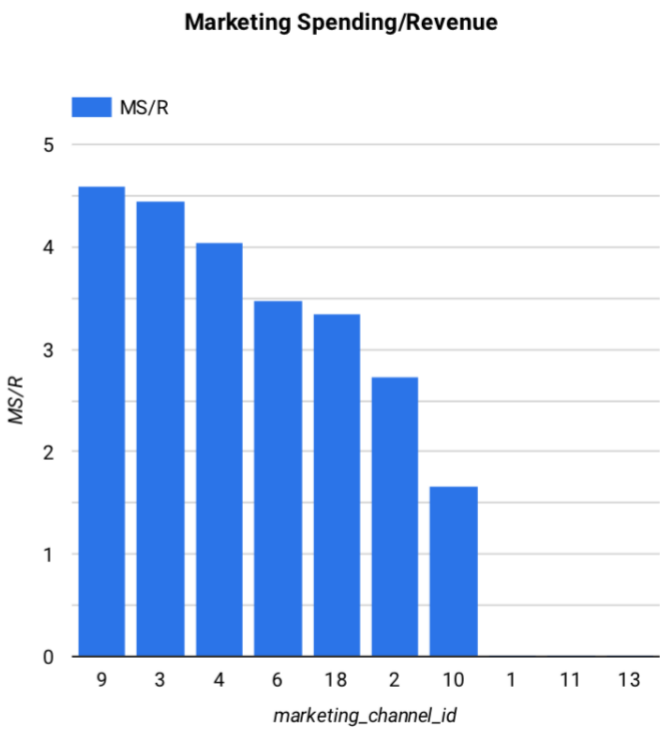
Apart from channel 10, channel 2 has also the lowest Marketing_Spending/Revenue among other paid channels.

I would not choose channel 10 because of its low revenue share.









Question 3. Looking further into the data at hand it looks like UK (United Kingdom) would be a good investment. Do you agree?

signup_country_code	spendings	net_revenue	subscription_count	CAC	MarketingCost/Revenue
US	1.101293e+06	474061.606983	38418	28.666061	2.323100
CA	2.176953e+05	91924.064864	7702	28.264778	2.368208
CH	1.070114e+05	69317.169287	3973	26.934656	1.543793
AU	1.104261e+05	64562.365066	4630	23.850130	1.710379
FR	7.299754e+04	56318.861900	4313	16.925003	1.296147
ES	1.172919e+05	52255.592894	5299	22.134715	2.244580
GB	6.887108e+04	43444.365635	4727	14.569723	1.585271
MX	8.220753e+04	41640.531544	4817	17.066126	1.974219
AR	3.425828e+04	37823.633723	2533	13.524785	0.905737
CL	3.057637e+04	30574.486799	1991	15.357293	1.000062
DE	4.432103e+04	28079.971732	2801	15.823288	1.578386
CO	1.813669e+04	18984.989593	1263	14.360008	0.955317
AE	1.874929e+04	16726.046946	1183	15.848935	1.120964
PE	1.204113e+04	11084.823868	1117	10.779884	1.086272
CR	8.829010e+03	9286.575716	742	11.898935	0.950728

In my opinion among the countries with highest revenue share AR,Argentina, seems to be more intersting as it shows a low CAC and MarketingCost/Revenue, which means that it would be a profitable market with a high marketing ROI.
UK which is available as GB in this dataset seems also a nice choice but its indicators are still worse than AR.

Overal, if we aim for investing in Europe UK would be a promising market, but globally AR outperforms it. Therefore, if 8fit does not have any strategic prefrences in order to grow first in EU, it should go for AR otherwise UK would be the best.

SQL Question

I did not use the docker setup, therefore; I loaded the two datasets into two tables, subscriptions and spendings, in my local postgresql and did the query.

1. How much did we spend per channel in December?

```
fit=#  SELECT marketing_channel_id,SUM(spendings) AS total_spendings from spendings
fit-# WHERE EXTRACT(MONTH FROM report_date)=12
fit-# GROUP BY marketing_channel_id
fit-# ORDER BY total_spendings DESC;
 marketing_channel_id | total_spendings
----------------------+-----------------
 2                    |        89519.72
 18                   |        51299.70
 4                    |        35628.32
 6                    |        16128.33
 3                    |         8501.77
 9                    |         1358.80
 10                   |           27.41
 7                    |            0.00
 16                   |            0.00
 1                    |            0.00
 11                   |            0.00
 12                   |            0.00
 13                   |            0.00
 14                   |            0.00
 0                    |            0.00
(15 rows)
```

2. What is the average cost of acquisition for a subscription per country?

```
[fit=# SELECT signup_country_code as country, SUM(spendings)/SUM(subscription_count) AS CAC
[fit-# FROM subscriptions S INNER JOIN spendings M ON
[fit-# S.signup_country_code=M.country_code
[fit-# AND S.marketing_channel_id=M.marketing_channel_id
[fit-# AND S.subscription_date=M.report_date
[fit-# GROUP BY signup_country_code
[fit-# ORDER BY CAC DESC;
 country |          cac
---------+-----------------------
 CH      |    25.9093504338948443
 CA      |    25.8222626582278481
 US      |    24.1238057084978184
 AU      |    23.0793662975550926
 ES      |    20.6060934955455503
 PR      |    19.8725243902439024
 PT      |    18.5336607142857143
 IT      |    18.2452024291497976
 AT      |    16.9960482654600302
 MX      |    16.2406389126712329
 DO      |    16.0030128840436075
 BE      |    15.8589052890528905
 GR      |    15.2043911439114391
 HR      |    14.6883647798742138
 FR      |    13.8385631559898661
 GB      |    13.7378738797106144
 AE      |    13.4770677035681610
 AR      |    13.4017051437829081
 CL      |    13.2485229540918164
 NL      |    12.9488750000000000
 SK      |    12.6101242236024845
 ZA      |    12.5421222606689735
 DE      |    12.3071090387374462
 CO      |    12.2549256993006993
 HT      |    12.1474509803921569
 LV      |    11.7650413223140496
 MU      |    11.3561643835616438
 NZ      |    11.3164256026600166
```

3. What is our average revenue and spending per day of the week (Monday, Tuesday...)?

```
fit=# SELECT to_char(subscription_date,'Day') as DayOfWeek, AVG(net_revenue) as avg_revenue, AVG(spendings) as avg_spendings
FROM subscriptions S INNER JOIN spendings M ON
S.signup_country_code=M.country_code
AND S.marketing_channel_id=M.marketing_channel_id
AND S.subscription_date=M.report_date
GROUP BY to_char(subscription_date,'Day');
 dayofweek |     avg_revenue     |    avg_spendings
-----------+---------------------+---------------------
 Saturday  | 46.2748628589867699 |  77.1268957728299451
 Thursday  | 44.8652815775448570 |  69.3086285308225262
 Sunday    | 61.4993571705176197 | 109.4418071511552859
 Monday    | 59.7555546459271388 |  88.7108336744439896
 Tuesday   | 55.3313972798854689 |  86.4103507516105941
 Friday    | 39.3417799889441680 |  63.8776506357103372
 Wednesday | 45.9788184841589358 |  71.2432119726938561
(7 rows)
```