

Exercise 1: SQL

Note: The code must be written on Amazon Redshift SQL and must be scalable.

1. Let's say you have two tables: **orders** and **order_points**.

Create an SQL query that shows the distance between the courier starting position and the pickup point, as well as the distance between the pickup point and the delivery point.

The **orders** table has 20M+ rows; here's the first row:

id	customer_id	courier_id	acceptance_latitude	acceptance_longitude
70989363	16440619	10798260	41.4837787	2.0535802

The **order_points** table also has 40M+ rows. As FYI there are two types of point, 'DELIVERY' and 'PICKUP'. Here's an example:

order_id	point_type	latitude	longitude
70989363	PICKUP	41.4827549	2.0528974
70989363	DELIVERY	41.4873773	2.0650261

2. Build one SQL query to create a cohort of Signup to First Order and show the result.

The objective of this cohort is to see, out of the users that signed up in Week N, how many did their first order in Week N+1, N+2, N+3...

The **users** table has 5M+ rows; here's the first three rows:

id	first_order_id	registration_date
5722	51189589	2015-09-08 09:40:29.000000
1708	65981902	2015-04-23 13:25:47.000000
3313	69182470	2015-06-16 08:20:46.000000

The **orders** table has 20M+ rows; here's the first row:

id	customer_id	activation_time
985	596	2015-03-15 21:10:34.000000

The output must be scalable for all weeks and does not require to be in a cohort format. The end user could potentially use the pivot function from Excel or Google sheets to do so.

3. Build a SQL query that returns a table with the following fields:

- **City Group**

Is a construction from the city field. We want the following groups:

- Group1 (contains Barcelona)
- Group2 (contains Madrid)
- Group3 (contains Valencia and Murcia)
- Group4 (contains the rest of cities, but no Gen1 cities. A Gen1 city is a city where ALL its orders are Gen1)

- **Last Week Number of Orders** (closed week)

- **Week over Week Number of Orders** (The increase or decrease of Last week Number of Orders vs the previous)
- **Last Week Number of Registrations** (The number of user registrations in the app)
- **Average Number of Food Orders by User Last Month**
- **Last Month Number of Old Active Users** (number of old users that ordered last month. Old = user that did its first order the previous month or before)

There are 2 table given:

- Orders:
 - id (one unique ID for row)
 - city
 - user_id
 - Gen1 (1 if it's a Gen1 order, 0 if it's Gen2. A Gen1 order is an order that is delivered by the partner itself)
 - category (FOOD or GROCERIES)
 - order_date (the date of the order)
- users:
 - id (one unique ID for row)
 - city
 - registration_date (date of registration in the app)
 - first_order_date (date of their first order in the app)

EXERCISE #2: New Customer cohorts

This chart contains raw information about the evolution of users over a year (user cohorts):

Num Users	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Jan	276	166	152	137	139	145	138	140	139	136	137	135
Feb		2,242	1,218	1,055	1,028	965	948	929	845	868	822	812
Mar			8,031	4,423	3,956	3,794	3,529	3,479	3,216	3,121	3,007	2,828
Apr				12,133	6,344	5,790	5,350	5,044	4,751	4,480	4,403	4,007
May					14,278	6,782	5,918	5,546	5,196	4,913	4,856	4,441
Jun						19,030	8,677	7,582	6,869	6,334	6,273	5,651
Jul							31,427	13,935	11,781	10,448	10,110	9,223
Aug								43,726	17,300	14,160	13,412	12,236
Sep									46,559	16,190	14,087	12,664
Oct										46,959	13,810	11,643
Nov											43,117	13,192
Dec												38,936

Task:

1. List 3 metrics or ratios you would build with this data that you consider key to understand and manage the business
2. Define 2-3 actions based on this data that could help you improve your current performance

Exercise 3: Partner OOH & promotion analysis

You need to assess the results of an OOH & promotion action with one of our partners. The product on promotion is KFC's Streetwise 2. Here are the 4 questions for you to answer:

Questions

1. Is the Streetwise 2 cannibalizing from other orders from KFC?
2. Does the campaign have positive ROI for Glovo and should Glovo repeat the campaign? Support the conclusion with numbers.
3. Should KFC repeat the campaign?
4. Assuming Glovo wanted to launch a new OOH campaign with KFC: what changes in media investment / promo funding would you recommend Glovo to make?

					Promo Period							
	w1	w2	w3	w4	w5	w6	w7	w8	w9	w10	w11	w12
Glovo New Customers	6 215	5 530	5 408	5 453	5 728	5 630	6 765	5 651	5 463	5 724	5 761	5 858
Glovo orders	101 423	99 495	98 058	98 020	101 383	101 915	102 473	99 249	98 524	98 886	98 705	98 796
Non-KFC orders	89 258	88 408	87 503	88 248	88 130	88 397	88 414	88 354	88 053	87 883	87 645	87 543
KFC orders	12 165	11 088	10 555	9 773	13 253	13 518	14 058	10 895	10 472	11 004	11 060	11 252
KFC SW2 orders	2 433	2 550	1 900	1 466	3 313	4 731	4 920	2 087	1 972	2 090	2 092	2 217

Additional information for the case

1. KFC's objective is to increase sales by promoting their Streetwise 2 menu (SW2). 100% of the SW2 orders sold during the campaign period have a discount.
2. Glovo user LTV is €15.
3. KFC's AOV is of €15, and has a margin on its products of 13%. Assume the AOV is the same for all KFC products (including the SW2).
4. The discount is 7% of KFC's AOV. 30% of the discount is paid by Glovo, while KFC assumes the remaining 70%.
5. Additionally, Glovo supports the campaign with 10 billboards / week, with a weekly cost of €500/board. This is fully paid by Glovo. There is no OOH investment outside of promo weeks.
8. Glovo has an average investment of €2.5K / week in Performance Marketing for non-promo weeks. For promo weeks that increases to €3.0K, €3.25K, €3.5K, and €3.75K respectively.
7. Glovo's goal is to drive NC, while KFC's goal is to drive more KFC orders within Glovo.