DataInterview.com

40

SQL Interview Questions

*Seen in **Data Analyst**, **Data Scientist** and **Data Engineer** Interviews at FAANGs and startups*

SQL Fundamentals

1. **[Facebook]** Explain the difference between INNER JOIN and LEFT JOIN. In what scenarios might each be appropriate?
2. **[Amazon]** What is the difference between a primary key and a unique constraint? Why might you choose one over the other?
3. **[Google]** Describe the concept of data integrity in the context of relational databases.
4. **[Netflix]** Explain what a composite key is and provide a scenario where it would be beneficial.
5. **[Apple]** Discuss the differences between a clustered and a non-clustered index. What are the advantages and disadvantages of each?
6. **[General]** What are transactional operations in SQL, and why are they important?
7. **[General]** Describe the three types of anomalies that can occur if a database isn't normalized.
8. **[General]** Explain the concept of normalization and its advantages. Can you outline the stages (or normal forms) typically discussed in this process?
9. **[General]** Explain the difference between a VIEW and a MATERIALIZED VIEW. In what situations would you use each?
10. **[General]** Describe the concept of ACID properties in database transactions.

SQL Fundamentals

1. **[General]** How does a database enforce referential integrity? What is the role of foreign keys in this context?
2. **[General]** What is data denormalization, and in what scenarios might it be beneficial?
3. **[General]** Describe the concept of a database trigger. Why and when might you use one?
4. **[General]** Explain the differences between a relational database and a NoSQL database.
5. **[General]** Discuss the advantages and drawbacks of using stored procedures in a database.
6. **[General]** What is the difference between HAVING and WHERE clauses in SQL? Can you explain their use cases?
7. **[General]** What does it mean when we say a database is in 3NF (Third Normal Form)?
8. **[General]** Explain the purpose and usage of SQL Cursors.
9. **[General]** Describe the concept of a database transaction and its typical states in the transaction lifecycle.
10. **[General]** What is an execution plan in SQL, and why is it important

amazon

```
# Orders Table
+----------+---------+------------+--------+
| order_id | user_id | order_date | amount |
+----------+---------+------------+--------+
|        1 |     101 | 2023-05-01 |  100.0 |
|        2 |     102 | 2023-05-03 |   50.0 |
|        3 |     101 | 2023-05-07 |  150.0 |
|        4 |     103 | 2023-05-10 |  200.0 |
|        5 |     102 | 2023-05-12 |   80.0 |
+----------+---------+------------+--------+

# Users Table
+---------+------------+----------+
| user_id | join_date  | location |
+---------+------------+----------+
|     101 | 2023-01-01 | Seattle  |
|     102 | 2023-02-15 | Portland |
|     103 | 2023-04-05 | San Jose |
+---------+------------+----------+
```

1. Find the total amount spent by each user on their orders.
2. Identify users who have placed more than one order. Provide their user_id, location, and total number of orders placed.
3. For each location, find the average order amount and the latest order date.
4. Find the user_id of individuals who have made an order amounting to more than 100 but haven't made any orders after May 7, 2023.

Meta

```
# Posts
+--------+---------+------------+---------+
| post_id| user_id | post_date  | content |
+--------+---------+------------+---------+
|      1 |     201 | 2023-03-15 | Photo   |
|      2 |     202 | 2023-03-16 | Text    |
|      3 |     201 | 2023-03-17 | Video   |
|      4 |     203 | 2023-03-18 | Photo   |
|      5 |     202 | 2023-03-19 | Link    |
+--------+---------+------------+---------+

# Reactions
+----------+--------+---------+----------+
| react_id | post_id| user_id | reaction |
+----------+--------+---------+----------+
|        1 |      1 |     202 | Like     |
|        2 |      2 |     203 | Love     |
|        3 |      3 |     201 | Wow      |
|        4 |      4 |     201 | Haha     |
|        5 |      1 |     203 | Angry    |
+----------+--------+---------+----------+
```

1. Find the posts that have received reactions from their own authors. List the post_id and reaction.
2. For each type of reaction (Like, Love, etc.), calculate the total number of occurrences.
3. Find users who have posted content but have never reacted to any post, including their own.
4. For each user, identify the total number of reactions they've received on their posts. If they haven't received any reactions, they should still appear in the result with a count of 0.

Google

Google PlayStore

app_id	app_name	category	price
1	GChat	Social	0.00
2	PhotoFilter	Photo	1.99
3	Spotify	Music	0.00
4	GDataAnalyzer	Utility	5.99
5	iBooks	Books	0.00

Downloads

download_id	app_id	user_id	download_date
1	1	301	2023-03-20
2	2	302	2023-03-21
3	1	303	2023-03-22
4	3	301	2023-03-23
5	2	301	2023-03-24

1. Which app has been downloaded the most? Provide the app_name and the number of downloads.
2. Calculate the total revenue generated from paid apps.
3. Identify users who have downloaded both free and paid apps. Provide their user_id.
4. For each category, find the most recently downloaded app. Provide the category, app_name, and download_date.

AppStore

app_id	app_title	genre	price
1	iChat	Social	0.00
2	iPhotoMagic	Photo	2.99
3	iTuneUp	Music	0.00
4	iFixTools	Utility	4.99
5	iRead	Books	0.00

Purchases

purchase_id	app_id	user_id	purchase_date
1	1	401	2023-04-10
2	2	402	2023-04-11
3	1	403	2023-04-12
4	3	401	2023-04-13
5	2	401	2023-04-14

1. Identify the most expensive app in the App Store.
   Provide the app_title, genre, and price.
2. Calculate the total earnings from the Utility genre.
3. Which users have spent the most money on apps?
   Provide the user_id and the total amount spent.
4. Determine the genre popularity based on purchases.
   Provide the genre and its corresponding number of purchases, sorted in descending order of popularity.

NETFLIX

Shows

show_id	title	genre	seasons
1	Streamer's Life	Comedy	3
2	The Lost Byte	Thriller	1
3	Data Love	Romance	2
4	Query's End	Sci-Fi	4
5	Join Junction	Drama	2

Views

view_id	show_id	user_id	view_date	season
1	1	501	2023-05-01	1
2	2	502	2023-05-02	1
3	1	503	2023-05-03	2
4	3	501	2023-05-04	1
5	2	501	2023-05-05	1

1. Which show has the highest number of unique viewers? Provide the title and the count of viewers.
2. Calculate the total views per genre.
3. Identify users who have watched all the seasons of a particular show.
4. Find out which day had the highest streaming activity. Provide the view_date and the number of views for that day.