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sql interview questions

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SQL knowledge is usually basic knowledge required for almost all database related technical jobs. Therefore it is good to know some **SQL Interview questions and answers**. This post will mainly contain "generic" SQL questions and will focus on questions that allow testing the candidate's knowledge about sql itself but also logical thinking. It will start from basic questions and finish on questions and answers for experienced candidates. If you are after broader set of questions I recommend visiting links at the bottom that will point you to more interview questions and answers related to SQL Server.

I will start with one general **sql interview question** and then go into basic sql questions and increase the difficulty. I will explain questions using standard sql knowledge but at the end I will add comments related to sql server. Who is it for?

- People doing SQL related Interviews (face to face)
- Recruiters trying to check the candidate's proficiency with SQL
- Candidates who can prepare better for the interview (You won't get explicit answers here)

These questions are mainly small tasks where the candidate can present not only their SQL knowledge but analytical skills and relational database understanding.

Remember if you know exactly what you need (or you know how you work) make sure you include these kinds of questions and make them very clear to the candidate so they have a chance to answer them (without guessing).

[SQL Interview questions](#)

If you would like to focus on basic SQL questions only then we recommend visiting our [Basic SQL Interview Questions and answers](#)

Below is a list of questions in this blog post so you can test your knowledge without seeing answers. If you would like to see questions and answers please scroll down.

Question: What type of joins have you used?

Question: How can you combine two tables/views together? For instance one table contains 100 rows and the other one contains 200 rows, have exactly the same fields and you want to show a query with all data (300 rows). This **sql interview question** can get complicated.

Question: What is the difference between where and having clause?

Question: How would apply date range filter?

Question: What type of wildcards have you used? This is usually one of mandatory sql interview question.

Question: How do you find orphans?

Question: How would you solve the following sql queries using today's date?

First day of previous month

First day of current month

Last day of previous month

Last day of current month

Question: You have a table that records website traffic. The table contains website name (multiple websites), page name, IP address and UTC date time. What would be the query to show all websites visited in the last 30 days with total number of visits, total number of unique page view and total number of unique visitors (using IP Address)?

Question: How to display top 5 employees with the highest number of sales (total) and display position as a field. Note that if both of employees have the same total sales values they should receive the same position, in other words Top 5 employees might return more than 5 employees.

Question: How to get accurate age of an employee using SQL?

Question: This is SQL Server interview question. You have three fields ID, Date and Total. Your table contains multiple rows for the same day which is valid data however for reporting purpose you need to show only one row per day. The row with the highest ID per day should be returned the rest should be hidden from users (not returned).

Question: How to return truly random data from a table? Let say top 100 random rows?

Question: How to create recursive query in SQL Server?

General SQL Interview questions and answers

Question: How long have you used SQL for? Did you have any breaks?

Answer: SQL skills vary a lot depending on the type of job and experience of the candidate

so I wouldn't pay too much attention to this sql interview question but it is always worth having this information before asking SQL tasks so you know if you deal with someone who is truly interested in SQL (might just have 1 year experience but be really good at it and at answering the questions) or someone who doesn't pay too much attention to gain proper knowledge and has been like that for many years (which doesn't always mean you don't want them).

Basic SQL Interview questions and answers

Question: What type of joins have you used?

Answer: Joins knowledge is MUST HAVE. This interview question is quite nice because most people used inner join and (left/right) outer join which is rather mandatory knowledge but those more experienced will also mention cross join and self-join. In SQL Server you can also get full outer join.

Question: How can you combine two tables/views together? For instance one table contains 100 rows and the other one contains 200 rows, have exactly the same fields and you want to show a query with all data (300 rows). This sql interview question can get complicated.

Answer: You use UNION operator. You can drill down this question and ask what is the different between UNION and UNION ALL (the first one removes duplicates (not always desirable)... in other words shows only DISTINCT rows....Union ALL just combines so it is also faster). More tricky question are how to sort the view (you use order by at the last query), how to name fields so they appear in query results/view schema (first query field names are used). How to filter groups when you use union using SQL (you would create separate query or use common table expression (CTE) or use unions in from with ()).

Question: What is the difference between where and having clause?

Answer: in SQL Where filters data on lowest row level. Having filters data after group by has been performed so it filters on "groups"

Question: How would apply date range filter?

Answer: This is tricky question. You can use simple condition \geq and \leq or similar or use between/and but the trick is to know your exact data type. Sometimes date fields contain time and that is where the query can go wrong so it is recommended to use some date related functions to remove the time issue. In SQL Server common function to do that is datediff

function. You also have to be aware of different time zones and server time zone.

Question: What type of wildcards have you used? This is usually one of mandatory sql interview question.

Answer: First question is what is a wildcard? Wildcards are special characters that allow matching string without having exact match. In simple word they work like contains or begins with. Wildcard characters are software specific and in SQL Server we have % which represent any groups of characters, _ that represent one character (any) and you also get [] where we can [ab] which means characters with letter a or b in a specific place.

Question: How do you find orphans?

Answer: This is more comprehensive SQL and database interview question. First of all we test if the candidate knows what an orphan is. An Orphan is a foreign key value in "child table" which doesn't exist in primary key column in parent table. To get it you can use left outer join (important: child table on left side) with join condition on primary/foreign key columns and with where clause where primary key is null. Adding distinct or count to select is common practise. In SQL Server you can also use except which will show all unique values from first query that don't exist in second query.

Question: How would you solve the following sql queries using today's date?

[First day of previous month](#)

[First day of current month](#)

[Last day of previous month](#)

[Last day of current month](#)

Answer: These tasks require good grasp of SQL functions but also logical thinking which is one of the primary skills involved in solving sql questions. In this case I provided links to actual answers with code samples. Experienced people should give correct answer almost immediately. People with less experience might need more time or would require some help (Google).

[**Intermediate SQL Interview questions and answers**](#)

Question: You have a table that records website traffic. The table contains website name (multiple websites), page name, IP address and UTC date time. What would be the query to show all websites visited in the last 30 days with total number of visits, total

number of unique page view and total number of unique visitors (using IP Address)?

Answer: This test is mainly about good understanding of aggregate functions and date time. In this we need to group by Website, Filter data using datediff but the trick in here is to use correct time zone. If I want to do that using UTC time than I could use GetUTCDate() in sql server and the final answer related to calculated fields using aggregate functions that I will list on separate lines below:

TotalNumberOfClicks = Count(*) 'nothing special here

TotalUniqueVisitors = Count(distinct Ipaddress) ' we count ipaddress fields but only unique ip addresses. The next field should be in here but as it is more complicated I put it as third field.

TotalNumberOfUniquePageViews = Count(distinct PageName+IPAddress) 'This one is tricky to get unique pageview we need to count all visits but per page but only for unique IP address. So I combined pagename with ipaddress to counted unique values. Just to explain one page could receive 3 visits from 2 unique visitors and another page could receive one visit from ip that visited previous page so Unique IP is 2, PageView is 3 (1 visitor 2 pages and 1 visitor 1 page) and visits is 4

Question: How to display top 5 employees with the highest number of sales (total) and display position as a field. Note that if both of employees have the same total sales values they should receive the same position, in other words Top 5 employees might return more than 5 employees.

Answer: Microsoft introduced in SQL Server 2005 ranking function and it is ideal to solve this query. RANK() function can be used to do that, DENSE_Rank() can also be used. Actually the question is ambiguous because if your two top employees have the same total sales which position should the third employee get 2 (Dense_Rank() function) or 3 (Rank() Function)? In order to filter the query Common Table Expression (CTE) can be used or query can be put inside FROM using brackets ().

Now that we covered basic and intermediate questions let's continue with more complicated ones. These questions and answers are suitable for experienced candidates:

Advanced SQL Interview Questions and answers

Question: How to get accurate age of an employee using SQL?

Answer: The word accurate is crucial here. The short answer is you have to play with several functions. For more comprehensive answer see the following link [SQL Age Function](#).
[Calculate accurate age using SQL Server](#)

Question: This is SQL Server interview question. You have three fields ID, Date and Total. Your table contains multiple rows for the same day which is valid data however for reporting purpose you need to show only one row per day. The row with the highest ID per day should be returned the rest should be hidden from users (not returned).

To better picture the question below is sample data and sample output:

ID, Date, Total

1, 2011-12-22, 50

2, 2011-12-22, 150

The correct result is:

2, 2012-12-22, 150

The correct output is single row for 2011-12-22 date and this row was chosen because it has the highest ID (2>1)

Answer: Usually Group By and aggregate function are used (MAX/MIN) but in this case that will not work. Removing duplications with this kind of rules is not so easy however SQL Server provides ranking functions and the candidate can use dense_rank function partition by Date and order by id (desc) and then use cte/from query and filter it using rank = 1. There are several other ways to solve that but I found this way to be most efficient and simple.

Question: How to return truly random data from a table? Let say top 100 random rows?

I must admit I didn't answer correctly this sql interview question a few years back.

Answer: Again this is more SQL Server answer and you can do that using new_id() function in order by clause and using top 100 in select. There is also table sample function but it is not truly random as it operates on pages not rows and it might not also return the number of rows you wanted.

Question: How to create recursive query in SQL Server?

Answer: The first question is actually what is a recursive query? The most common example is parent child hierarchy for instance employee hierarchy where employee can have only one manager and manager can have none or many employees reporting to it. Recursive query can be create in sql using stored procedure but you can also use CTE (Common table expression)

for more information visit [SQL Interview question - recursive query \(microsoft\)](#). It might be also worth asking about performance as CTE is not always very fast but in this case I don't know which one is would perform better.

I will try to find time to add more questions soon. Feel free to suggest new questions (add comments).

See also:

[SQL Server Interview questions and answers](#) collection of interview question including Microsoft BI stack.

Hope that helps!

Emil