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♦ 9 SQL scenarios based interview questions answered

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Q1 How will you go about identifying duplicate records in a table?

A1 The following SQL query will do the trick.

```
1
2
3 SELECT code, user_name, COUNT(user_name) AS NumOc
4 FROM tbl_user
5 GROUP BY code, user_name
6 HAVING ( COUNT(user_name) > 1 )
7
8
```

Note: Interviewer is testing if you understand that the aggregate queries need to have a “group by” clause on

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columns that are not aggregated. E.g. code, user_name.

Finding duplicate records is a real life scenario.

Q2 How would you go about deleting the duplicate records?

A2 You could do it in a number of steps as shown below.

- Create a temporary table.
- Insert the unique records into the temporary table.
- Delete the records from the original table.
- Insert the saved single records from the temporary table back to the original table.

Q3 How will you go about searching for table and column names that you don't know where they really are? For example, search for a column name to find out in which tables they do exist.

A3 You need to query the database system tables. For example, in Sybase, you can query it as shown below.

```
1 select a.name, b.name
2 from sysobjects a, syscolumns b
3 where a.id = b.id
4 and b.name like '%split_income%'
5
```

Q4 How will you go about writing an **SQL** query for the following scenario?

TABLE: Account

AccountId	AccountCd	InActiveFlag
123	A12345	N

TABLE: PORTFOLIO

PortfolioId	PortfolioCd
991	P456
992	P789

TABLE: Calculation

PortfolioId	AccountId	Balance	InActiveFlag	CalculationDate	CalcTypeCd
991	123	500.75	N	25/02/2015	5
991	123	345.55	N	25/02/2015	6
991	123	258.2	N	25/02/2015	7
992	123	600.5	N	1/6/2015	3
992	123	350	N	1/6/2015	2

min(CalcTypeCd)

database table structure

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Calculation table with the following columns **PortfolioId**, **AccountId**, **Balance**, **InActiveFlag**, **CalculationDate**, and **CalcTypeCd**. The **Portfolio** table has columns **PortfolioId**, and **PortfolioCd**. The **Account** table has columns **AccountId** and **AccountCd**.

Write an SQL query to extract out the **AccountCd** and the corresponding **Balance** for a given **PortfolioCd** and **CalculationDate**. Please note that there will be multiple balance records for each account, and your query must only extract out a single balance record per account based on the rule 'extract the record with minimum value for **CalcTypeCd**'.

A4 As you can see in the sample answer below, **inner joins** are used to join with the relevant tables. A **sub query** is used to calculate the **min(CalcTypeCd)** to extract the record with minimum value for **CalcTypeCd**.

```

1
2
3  select  acc.AccountCd, calc.Balance
4  from Calculation calc
5         inner join Portfolio pf on pf.PortfolioId = calc.PortfolioId
6         inner join Account acc on acc.AccountId = calc.AccountId
7  where pf.PortfolioCd = 'P456'
8  and   calc.CalculationDate = '25 Feb 2015'
9  and   calc.InActiveFlag = 'N'
10  and   acc.InActiveFlag = 'N'
11  and   calc.CalcTypeCd = (select min(calc2.CalcTypeCd
12                             where calc2.CalculationDate = calc.CalculationDate
13                             and calc2.InActiveFlag = 'N'
14                             and calc2.AccountId = calc.AccountId
15                             group by AccountId)
16  order by acc.AccountCd
17
18

```

Q5 If you need to map actual values retrieved from the database to some other value and then sort by these translated values as well, how will you go about accomplishing this in your SQL code?

For example, **StatusCd** is the column in the Portfolio table, and it can have the values of New, and Processed. But the SQL query should return a status of 'Excluded' if the **ExcludedFlag** column is set yes, and 'Sent' if the

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SentDateTime is not null. If none of the above conditions are met, then return the **StatusCd** as in the database. The sorting needs to be carried out in the order of 'New', 'Processed', 'Sent', and then 'Excluded'.

A5 This can be achieved with a switch or **case** statement.

The syntax of switch/case statement can vary among databases. Here is a sample SQL based on Sybase database server.

case-when/else-end statements

```
1
2
3 SELECT PortfolioCd, SentDateTime, ExcludedFlag,
4     case
5         when p.ExcludedFlag = 'Y' then 'Exclude
6     else
7         case
8             when p.SentDateTime is null then
9             else 'Sent'
10        end
11    end as EvaluatedStatusCd
12
13 FROM Portfolio p WHERE calculationdate > '09 Ja
14 ORDER BY case
15     when p.ExcludedFlag = 'Y' then '4'
16 else
17     case
18         when p.SentDateTime is not n
19     else
20         case
21             when p.StatusCd = 'New
22             when p.StatusCd = 'Pro
23         end
24     end
25 end, PortfolioCd
26
27
```

Q6 How would you retrieve a date time column converted to string and formatted as dd/mm/yy hh:mm:ss

A6 You can use specific **functions** provided by your database server. These functions are specific to the database server you are using, hence your code cannot be ported to other database servers. Here is an example in Sybase.

```
1
2
3 SELECT PortfolioCd, convert(char(11), p.SentDateT
```

```
4 FROM Portfolio p
5 WHERE calculationdate > '09 Jan 2013'
6 AND InActiveFlag = 'N'
7
8
```

In the above example, the convert function is used to convert the date time field to **char**. The **103** in Sybase means **dd/mm/yy** format and **108** to convert to the time format **hh:mm:ss**.

Q7 How will you go about tuning your SQL and stored procedures?

A7 You can use tools like DB Artisan, TOAD, etc to analyse the query plan. The code (in Sybase) below gives you the elapsed time.

Q8 How will you go about tuning your SQL and stored procedures?

A8 You can use tools like DB Artisan, TOAD, etc to analyse the query plan. The code below gives you the elapsed time.

```
1
2
3 DECLARE @start datetime, @stop datetime
4 SET @start = GETDATE()
5
6 exec MY_PROC 'AC345', '02 Jan 2013', null, 'N'
7
8 SET @stop = GETDATE()
9 select datediff(ms, @start, @stop)
10
11
```

Proper indexing is key to get good performance out of your SQL queries.

Q9 What are all the different types of indexes?

A9 There are three types of indexes

Unique Index: does not allow the field to have duplicate values if the column is unique indexed. Unique index can be applied automatically when primary key is defined.

Clustered Index: reorders the physical order of the table and search based on the key values. Each table can have only one clustered index.

NonClustered Index: does not alter the physical order of the table and maintains logical order of data. Each table can have 999 non-clustered indexes.

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