**Interview Questions for SQL**

**Q1) What is SQL?**

**Answer:**

SQL is a standard language for accessing and manipulating databases. SQL stands for Structured Query Language. SQL lets you access and manipulate databases. SQL is an ANSI (American National Standards Institute) standard.

**Q2) What can SQL do?**

**Answer:**

SQL can execute queries against a database

SQL can retrieve data from a database

SQL can insert records in a database

SQL can update records in a database

SQL can delete records from a database

SQL can create new databases

SQL can create new tables in a database

SQL can create stored procedures in a database

SQL can create views in a database

SQL can set permissions on tables, procedures, and views

**Q3) What is DDL and DML?**

**Answer:**

SQL can be divided into two parts: The Data Manipulation Language (DML) and the Data Definition Language (DDL). The query and update commands form the DML part of SQL:

SELECT - extracts data from a database

UPDATE - updates data in a database

DELETE - deletes data from a database

INSERT INTO - inserts new data into a database

The DDL part of SQL permits database tables to be created or deleted. It also defines indexes (keys), specifies links between tables, and imposes constraints between tables. The most important DDL statements in SQL are:

CREATE DATABASE - creates a new database

ALTER DATABASE - modifies a database

CREATE TABLE - creates a new table

ALTER TABLE - modifies a table

DROP TABLE - deletes a table

CREATE INDEX - creates an index (search key)

DROP INDEX - deletes an index

**Q4) What statement is used to extract data from a database?**

**Answer:** The SELECT statement is used to select data from a database.

**Q5) What is the syntax for it?**

**Answer:**

SELECT column\_name(s) FROM table\_name

and also

SELECT \* FROM table\_name

**Q6) How can you select only different values from a table where it may contain duplicate values?**

**Answer:**

The DISTINCT keyword can be used to return only distinct (different) values. and the Syntax would be

SELECT DISTINCT column\_name(s) FROM table\_name

**Q7) What is the WHERE clause used for and what is the syntax for it?**

**Answer:**

The WHERE clause is used to extract only those records that fulfill a specified criterion.

SQL WHERE Syntax

SELECT column\_name(s) FROM table\_name WHERE column\_name operator value

or

SELECT \* FROM Persons WHERE City='Sandnes'

**Q8) Does SQL use Quotes Around Text Fields?**

**Answer:**

SQL uses single quotes around text values (most database systems will also accept double quotes).

However, numeric values should not be enclosed in quotes.

For text values:

This is correct:

SELECT \* FROM Persons WHERE FirstName?='Tove'

This is wrong:

SELECT \* FROM Persons WHERE FirstName?=Tove

For numeric values:

This is correct:

SELECT \* FROM Persons WHERE Year=1965

This is wrong:

SELECT \* FROM Persons WHERE Year='1965'

**Q9) Describe The AND & OR Operators?**

**Answer:**

The AND operator displays a record if both the first condition and the second condition is true.

The OR operator displays a record if either the first condition or the second condition is true.

**Q10) What is ORDER BY Keyword used for?**

**Answer:**

The ORDER BY keyword is used to sort the result-set by a specified column.

The ORDER BY keyword sort the records in ascending order by default.

If you want to sort the records in a descending order, you can use the DESC keyword.

SQL ORDER BY Syntax

SELECT column\_name(s) FROM table\_name ORDER BY column\_name(s) ASC|DESC

**Q11) How do insert a new row in a table? and what is the syntax for it?**

**Answer:**

The INSERT INTO statement is used to insert new records in a table.

It is possible to write the INSERT INTO statement in two forms.

The first form doesn't specify the column names where the data will be inserted, only their values:

Exam: INSERT INTO table\_name VALUES (value1, value2, value3,...)

The second form specifies both the column names and the values to be inserted:

INSERT INTO table\_name (column1, column2, column3,...) VALUES (value1, value2, value3,...)

**Q12) What is the syntax for updating existing records in a table?**

**Answer:**

The UPDATE statement is used to update existing records in a table.

SQL UPDATE Syntax

UPDATE table\_name SET column1=value, column2=value2,... WHERE some\_column=some\_value

or

UPDATE Persons SET Address='Nissestien 67', City='Sandnes' WHERE LastName?='Tjessem' AND FirstName?='Jakob'

**Q13) What is the The DELETE Statement used for?**

**Answer:**

The DELETE statement is used to delete rows in a table.

Ex: DELETE FROM Persons WHERE LastName?='Tjessem' AND FirstName?='Jakob'

**Q14) Is it possible to delete all rows in a table without deleting the table?**

**Answer:**

It is possible to delete all rows in a table without deleting the table. This means that the table structure, attributes, and indexes will be intact:

DELETE FROM table\_name

or

DELETE \* FROM table\_name

**Q15) What is TOP clause used for?**

**Answer:**

The TOP clause is used to specify the number of records to return.

The TOP clause can be very useful on large tables with thousands of records. Returning a large number of records can impact on performance.

Note: Not all database systems support the TOP clause.

SQL Server Syntax

SELECT TOP number|percent column\_name(s) FROM table\_name

**Q16) What LIKE operator is used for?**

**Answer:**

The LIKE operator is used in a WHERE clause to search for a specified pattern in a column.

**Q17) What is WILDCARD used for?**

**Answer:**

SQL wildcards can substitute for one or more characters when searching for data in a database.

SQL wildcards must be used with the SQL LIKE operator.

**Q18)Now I want to select the persons with a first name that starts with any character, followed by "la" from the "Persons" table.How do I do that ?**

**Answer:**

SELECT \* From Persons WHERE first name LIKE '-la'

**Q19) What is IN Operator used for?**

**Answer:**

The IN operator allows you to specify multiple values in a WHERE clause.

Ex: SELECT \* FROM Persons WHERE LastName? IN ('Hansen','Pettersen')

This will Select all the information for person last name with Hansen and Pettersen.

**Q20) What is BETWEEN Operator used for?**

**Answer:**

The BETWEEN operator selects a range of data between two values. The values can be numbers, text, or dates.

**Q21) By using what You can give a table or a column another name ?**

**Answer:**

By using an alias. This can be a good thing to do if you have very long or complex table names or column names.

An alias name could be anything, but usually it is short. The Syntax for alias is

SELECT column\_name AS alias\_name FROM table\_name

**Q22) What is Join used for ?**

**Answer:**

SQL joins are used to query data from two or more tables, based on a relationship between certain columns in these tables.

**Q23) How many types of JOIN can you use and what is the difference between them ?**

**Answer:**

**JOIN:** Return rows when there is at least one match in both tables

**LEFT JOIN:** Return all rows from the left table, even if there are no matches in the right table

**RIGHT JOIN:** Return all rows from the right table, even if there are no matches in the left table

**FULL JOIN:** Return rows when there is a match in one of the tables

**Q24) What INNER JOIN Keyword Returns ?**

**Answer:**

The INNER JOIN keyword return rows when there is at least one match in both tables.

SQL INNER JOIN Syntax

SELECT column\_name(s)

FROM table\_name1

INNER JOIN table\_name2

ON table\_name1.column\_name=table\_name2.column\_name

**Q25) What you know about LEFT JOIN?**

**Answer:**

The LEFT JOIN keyword returns all rows from the left table (table\_name1), even if there are no matches in the right table (table\_name2).

SQL LEFT JOIN Syntax

SELECT column\_name(s)

FROM table\_name1

LEFT JOIN table\_name2

ON table\_name1.column\_name=table\_name2.column\_name

**Q26) What you know about RIGHT JOIN?**

**Answer:**

The RIGHT JOIN keyword returns all the rows from the right table (table\_name2), even if there are no matches in the left table (table\_name1).

SQL RIGHT JOIN Syntax

SELECT column\_name(s)

FROM table\_name1

RIGHT JOIN table\_name2

ON table\_name1.column\_name=table\_name2.column\_name

PS: In some databases RIGHT JOIN is called RIGHT OUTER JOIN.

**Q27) What is FULL JOIN?**

**Answer:**

The FULL JOIN keyword return rows when there is a match in one of the tables.

SQL FULL JOIN Syntax

SELECT column\_name(s)

FROM table\_name1

FULL JOIN table\_name2

ON table\_name1.column\_name=table\_name2.column\_name

**Q28) What is UNION OPERATOR used for?**

**Answer:**

The UNION operator is used to combine the result-set of two or more SELECT statements.

Notice that each SELECT statement within the UNION must have the same number of columns. The columns must also have similar data types. Also, the columns in each SELECT statement must be in the same order.

SQL UNION Syntax

SELECT column\_name(s) FROM table\_name1

UNION

SELECT column\_name(s) FROM table\_name2

Note: The UNION operator selects only distinct values by default. To allow duplicate values, use UNION ALL.

**Q29) What is SELECT INTO statement most often used for?**

**Answer:**

The SELECT INTO statement selects data from one table and inserts it into a different table. It is most often used to create backup copies of tables.

SQL SELECT INTO Syntax

We can select all columns into the new table:

SELECT \* INTO new\_table\_name [IN externaldatabase] FROM old\_tablename

**Q30) Is it possible to select data from more that one table with Select Into statement?**

**Answer:**

Selecting data from more than one table is also possible.

The following example creates a "Persons\_Order\_Backup" table contains data from the two tables "Persons" and "Orders":

SELECT Persons.LastName?,Orders.OrderNo?

INTO Persons\_Order\_Backup

FROM Persons

INNER JOIN Orders

ON Persons.P\_Id=Orders.P\_Id

**Q31) What is the Syntax for creating a new Database in SQL?**

**Answer:**

CREATE DATABASE database\_name

**Q32) What is the Syntax for creating a new Table in SQL?**

**Answer:**

The CREATE TABLE statement is used to create a table in a database.

SQL CREATE TABLE Syntax

CREATE TABLE table\_name ( column\_name1 data\_type, column\_name2 data\_type, column\_name3 data\_type, .... )

**Q32) What is SQL CONSTRAINTS?**

**Answer:**

Constraints are used to limit the type of data that can go into a table.

Constraints can be specified when a table is created (with the CREATE TABLE statement) or after the table is created (with the ALTER TABLE statement).

We will focus on the following constraints:

NOT NULL

UNIQUE

PRIMARY KEY

FOREIGN KEY

CHECK

DEFAULT

**Q33) What is NOT NULL CONSTRAINTS used for?**

**Answer:**

The NOT NULL constraint enforces a column to NOT accept NULL values.

The NOT NULL constraint enforces a field to always contain a value. This means that you cannot insert a new record, or update a record without adding a value to this field.

The following SQL enforces the "P\_Id" column and the "LastName?" column to not accept NULL values:

CREATE TABLE Persons ( P\_Id int NOT NULL, LastName? varchar(255) NOT NULL, FirstName? varchar(255), Address varchar(255), City varchar(255) )

**Q34) What is UNIQUE CONSTRAINTS used for?**

**Answer:**

The UNIQUE constraint uniquely identifies each record in a database table.

The UNIQUE and PRIMARY KEY constraints both provide a guarantee for uniqueness for a column or set of columns.

A PRIMARY KEY constraint automatically has a UNIQUE constraint defined on it.

Note that you can have many UNIQUE constraints per table, but only one PRIMARY KEY constraint per table.

**Q35) What is the difference between PRIMARY KEY and FOREIGN KEY?**

**Answer:**

The **PRIMARY KEY** constraint uniquely identifies each record in a database table.

Primary keys must contain unique values.A primary key column cannot contain NULL values.Each table should have a primary key, and each table can have only ONE

primary key. A **FOREIGN KEY** in one table points to a **PRIMARY KEY** in another table. The **FOREIGN KEY** constraint is used to prevent actions that

would destroy links between tables.The **FOREIGN KEY** constraint also prevents that invalid data form being inserted into the foreign key column, because it has

to be one of the values contained in the table it points to.

**Q36) What is SQL CHECK Constraint used for?**

**Answer:**

The CHECK constraint is used to limit the value range that can be placed in a column.

If you define a CHECK constraint on a single column it allows only certain values for this column.

If you define a CHECK constraint on a table it can limit the values in certain columns based on values in other columns in the row.

**Q37) What is SQL DEFAULT Constraint used for?**

**Answer:**

The DEFAULT constraint is used to insert a default value into a column.

The default value will be added to all new records, if no other value is specified.

**Q38) What can you use to find data fast without reading the whole Table?**

**Answer:**

Indexes allow the database application to find data fast; without reading the whole table. An index can be created in a table to find data more quickly and

efficiently. The users cannot see the indexes, they are just used to speed up searches/queries.

SQL CREATE INDEX Syntax

Creates an index on a table. Duplicate values are allowed:

CREATE INDEX index\_name ON table\_name (column\_name)

**Q39) How do Delete the index in a Table?**

**Answer:**

The DROP INDEX statement is used to delete an index in a table.

**Q40) What is DROP statement used for?**

**Answer:**

DROP is used to Delete Index,Table,Database.

**Q41) What would you use if you want to delete data inside the table but the table structure?**

**Answer:**

Then, use the TRUNCATE TABLE statement:

TRUNCATE TABLE table\_name

**Q42) What is ALTER TABLE statement used for?**

**Answer:**

The ALTER TABLE statement is used to add, delete, or modify columns in an existing table.

SQL ALTER TABLE Syntax

To add a column in a table, use the following syntax:

ALTER TABLE table\_name ADD column\_name datatype

To delete a column in a table, use the following syntax (notice that some database systems don't allow deleting a column):

ALTER TABLE table\_name DROP COLUMN column\_name

**Q43) Very often we would like to the value of PRIMARY KEY to be created automatically every time a new record is inserted. what should you use?**

**Answer:**

For this i would create a auto increment field for the table. Auto-increment allows a unique number to be generated when a new record is inserted into a table

**Q44) What is VIEW in SQL?**

**Answer:**

A view is a virtual table. In SQL, a view is a virtual table based on the result-set of an SQL statement. A view contains rows and columns, just like a real table.

The fields in a view are fields from one or more real tables in the database.

**Q45) Name some Function for Dates?**

**Answer:**

**Function** **Description** NOW() Returns the current date and time. CURDATE() Returns the current date. CURTIME() Returns the current time. DATE() Extracts the date part of a date or date/time expression. EXTRACT() Returns a single part of a date/time. DATE\_ADD() Adds a specified time interval to a date. DATE\_SUB() Subtracts a specified time interval from a date. DATEDIFF() Returns the number of days between two dates. DATE\_FORMAT() Displays date/time data in different formats.

**Q46) Is "NULL" and 0 similar?**

**Answer:**

It is not possible to compare NULL and 0; they are not equivalent.

**Q47)What is SQL Aggregate Functions?**

**Answer:**

SQL aggregate functions return a single value, calculated from values in a column.

Useful aggregate functions:

AVG() - Returns the average value

COUNT() - Returns the number of rows

FIRST() - Returns the first value

LAST() - Returns the last value

MAX() - Returns the largest value

MIN() - Returns the smallest value

SUM() - Returns the sum

**Q48)What is SQL Scalar Functions?**

**Answer:**

SQL scalar functions return a single value, based on the input value.

Useful scalar functions:

UCASE() - Converts a field to upper case

LCASE() - Converts a field to lower case

MID() - Extract characters from a text field

LEN() - Returns the length of a text field

ROUND() - Rounds a numeric field to the number of decimals specified

NOW() - Returns the current system date and time

**Q49)Explain Group By Statement? And what is the Difference Between Order By and Group By statement?**

**Answer:**

The **GROUP BY** statement is used in conjunction with the aggregate functions to group the result-set by one or more columns. The **ORDER BY** keyword is used to sort the result-set by a specified column.

SQL GROUP BY Syntax

SELECT column\_name, aggregate\_function(column\_name) FROM table\_name WHERE column\_name operator value GROUP BY column\_name

**Q50) Why Having clause was added to SQL?**

**Answer:**

The HAVING clause was added to SQL because the WHERE keyword could not be used with aggregate functions.

**Q51) How Do you handle Duplicate Value in SQL?**

**Answer:**

The query to get Duplicate value in SQL :

select Customer, from Persons group by Customer having count (Customer) > 1;

**Q52) How can you get Odd/Even? number data using SQL?**

**Answer:**

**EVEN**

SELECT ID FROM Persons WHERE (ID%2)=0;

**ODD**

SELECT ID FROM Persons WHERE (ID%2)=1;