## Prepare Sample Data To Practice SQL Skill.

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#### Sample Table – Worker

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **WORKER\_ID** | **FIRST\_NAME** | **LAST\_NAME** | **SALARY** | **JOINING\_DATE** | **DEPARTMENT** |
| 001 | Monika | Arora | 100000 | 2014-02-20 09:00:00 | HR |
| 002 | Niharika | Verma | 80000 | 2014-06-11 09:00:00 | Admin |
| 003 | Vishal | Singhal | 300000 | 2014-02-20 09:00:00 | HR |
| 004 | Amitabh | Singh | 500000 | 2014-02-20 09:00:00 | Admin |
| 005 | Vivek | Bhati | 500000 | 2014-06-11 09:00:00 | Admin |
| 006 | Vipul | Diwan | 200000 | 2014-06-11 09:00:00 | Account |
| 007 | Satish | Kumar | 75000 | 2014-01-20 09:00:00 | Account |
| 008 | Geetika | Chauhan | 90000 | 2014-04-11 09:00:00 | Admin |

**SQL Script to Seed Sample Data.**

CREATE DATABASE ORG; SHOW DATABASES;

USE ORG;

CREATE TABLE Worker (

WORKER\_ID INT NOT NULL PRIMARY KEY AUTO\_INCREMENT, FIRST\_NAME CHAR(25),

LAST\_NAME CHAR(25), SALARY INT(15), JOINING\_DATE DATETIME, DEPARTMENT CHAR(25)

);

INSERT INTO Worker

(WORKER\_ID, FIRST\_NAME, LAST\_NAME, SALARY,

JOINING\_DATE, DEPARTMENT) VALUES

(001, 'Monika', 'Arora', 100000, '14-02-20

09.00.00', 'HR'),

(002, 'Niharika', 'Verma', 80000, '14-06-11

09.00.00', 'Admin'),

(003, 'Vishal', 'Singhal', 300000, '14-02-20

09.00.00', 'HR'),

(004, 'Amitabh', 'Singh', 500000, '14-02-20

09.00.00', 'Admin'),

(005, 'Vivek', 'Bhati', 500000, '14-06-11

09.00.00', 'Admin'),

(006, 'Vipul', 'Diwan', 200000, '14-06-11

09.00.00', 'Account'),

(007, 'Satish', 'Kumar', 75000, '14-01-20

09.00.00', 'Account'),

(008, 'Geetika', 'Chauhan', 90000, '14-04-11

09.00.00', 'Admin');

#### Q-1. Write an SQL query to fetch “FIRST\_NAME” from Worker table using the alias name as <WORKER\_NAME>.

###### Ans.

The required query is:

Select FIRST\_NAME AS WORKER\_NAME from Worker;

#### Q-2. Write an SQL query to fetch “FIRST\_NAME” from Worker table in upper case.

###### Ans.

The required query is:

Select upper(FIRST\_NAME) from Worker;

#### Q-3. Write an SQL query to fetch unique values of DEPARTMENT from Worker table.

###### Ans.

The required query is:

Select distinct DEPARTMENT from Worker;

#### Q-4. Write an SQL query to print the first three characters of FIRST\_NAME from Worker table.

###### Ans.

The required query is:

Select substring(FIRST\_NAME,1,3) from Worker;

#### Q-5. Write an SQL query to find the position of the alphabet (‘a’) in the first name column ‘Amitabh’ from Worker table.

###### Ans.

The required query is:

Select INSTR(FIRST\_NAME, BINARY'a') from Worker where FIRST\_NAME = 'Amitabh';

###### Notes.

* The INSTR method is in case-sensitive by default.
* Using Binary operator will make INSTR work as the case-sensitive function.

#### Q-6. Write an SQL query to print the FIRST\_NAME from Worker table after removing white spaces from the right side.

###### Ans.

The required query is:

Select RTRIM(FIRST\_NAME) from Worker;

#### Q-7. Write an SQL query to print the DEPARTMENT from Worker table after removing white spaces from the left side.

###### Ans.

The required query is:

Select LTRIM(DEPARTMENT) from Worker;

#### Q-8. Write an SQL query that fetches the unique values of DEPARTMENT from Worker table and prints its length.

###### Ans.

The required query is:

Select distinct length(DEPARTMENT) from Worker;

#### Q-9. Write an SQL query to print the FIRST\_NAME from Worker table after replacing ‘a’ with ‘A’.

###### Ans.

The required query is:

Select REPLACE(FIRST\_NAME,'a','A') from Worker;

#### Q-10. Write an SQL query to print the FIRST\_NAME and LAST\_NAME from Worker table into a single column COMPLETE\_NAME. A space char should separate them.

###### Ans.

The required query is:

Select CONCAT(FIRST\_NAME, ' ', LAST\_NAME) AS 'COMPLETE\_NAME'

from Worker;

#### Q-11. Write an SQL query to print all Worker details from the Worker table order by FIRST\_NAME Ascending.

###### Ans.

The required query is:

Select \* from Worker order by FIRST\_NAME asc;

#### Q-12. Write an SQL query to print all Worker details from the Worker table order by FIRST\_NAME Ascending and DEPARTMENT Descending.

###### Ans.

The required query is:

Select \* from Worker order by FIRST\_NAME asc,DEPARTMENT desc;

#### Q-13. Write an SQL query to print details for Workers with the first name as “Vipul” and “Satish” from Worker table.

###### Ans.

The required query is:

Select \* from Worker where FIRST\_NAME in ('Vipul','Satish');

#### Q-14. Write an SQL query to print details of workers excluding first names, “Vipul” and “Satish” from Worker table.

###### Ans.

The required query is:

Select \* from Worker where FIRST\_NAME not in ('Vipul','Satish');

#### Q-15. Write an SQL query to print details of Workers with DEPARTMENT name as “Admin”.

###### Ans.

The required query is:

Select \* from Worker where DEPARTMENT like 'Admin%';

#### Q-16. Write an SQL query to print details of the Workers whose FIRST\_NAME contains ‘a’.

###### Ans.

The required query is:

Select \* from Worker where FIRST\_NAME like '%a%';

#### Q-17. Write an SQL query to print details of the Workers whose FIRST\_NAME ends with ‘a’.

###### Ans.

The required query is:

Select \* from Worker where FIRST\_NAME like '%a';

#### Q-18. Write an SQL query to print details of the Workers whose FIRST\_NAME ends with ‘h’ and contains six alphabets.

###### Ans.

The required query is:

Select \* from Worker where FIRST\_NAME like ' h';

#### Q-19. Write an SQL query to print details of the Workers whose SALARY lies between 100000 and 500000.

###### Ans.

The required query is:

Select \* from Worker where SALARY between 100000 and 500000;

#### Q-20. Write an SQL query to print details of the Workers who have joined in Feb’2014.

###### Ans.

The required query is:

Select \* from Worker where year(JOINING\_DATE) = 2014 and month(JOINING\_DATE) = 2;

#### Q-21. Write an SQL query to fetch the count of employees working in the department ‘Admin’.

###### Ans.

The required query is:

SELECT COUNT(\*) FROM worker WHERE DEPARTMENT = 'Admin';

#### Q-22. Write an SQL query to fetch worker names with salaries >= 50000 and <= 100000.

###### Ans.

The required query is:

SELECT CONCAT(FIRST\_NAME, ' ', LAST\_NAME) As Worker\_Name,

Salary

FROM worker

WHERE WORKER\_ID IN

(SELECT WORKER\_ID FROM worker

WHERE Salary BETWEEN 50000 AND 100000);

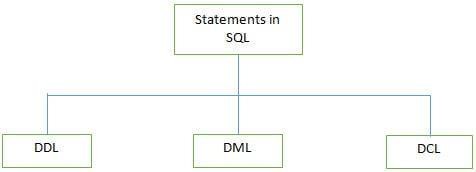
###### Q #1) What is SQL?

**Answer:** Structured Query Language SQL is a database tool that is used to create and access the database to support software applications.

###### Q #2) What are tables in SQL?

**Answer:** The table is a collection of record and its information at a single view.

###### Q #3) What are the different types of statements supported by SQL? Answer:



**There are 3 types of SQL statements:**

* 1. **DDL (Data Definition Language):** It is used to define the database structure such as tables. It includes three statements such as CREATE, ALTER, and DROP.

***Also read =>>*** [***MySQL Create Table Tutorial***](https://www.softwaretestinghelp.com/mysql-create-table-tutorial/)

###### Some of the DDL Commands are listed below:

**CREATE**: It is used for creating the table.

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

**ALTER:** The ALTER table is used for modifying the existing table object in the database.

ALTER TABLE table\_name ADD column\_name datatype OR

ALTER TABLE table\_name DROP COLUMN column\_name

* 1. **DML (Data Manipulation Language):** These statements are used to manipulate the data in records. Commonly used DML statements are INSERT, UPDATE, and DELETE. The SELECT statement is used as a partial DML statement, used to select all or relevant records in the table.
  2. **DCL (Data Control Language):** These statements are used to set privileges such as GRANT and REVOKE database access permission to the specific user**.**

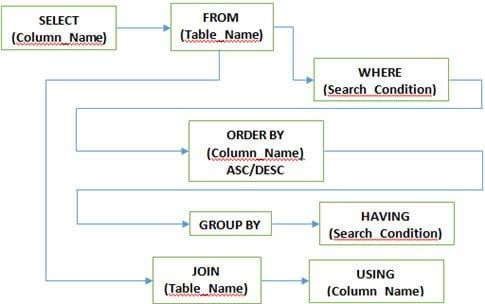
###### Q #4) How do we use the DISTINCT statement? What is its use?

**Answer:** The DISTINCT statement is used with the SELECT statement. If the record contains duplicate values then the DISTINCT statement is used to select different values among duplicate records.

###### Syntax:

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

###### Q #5) What are the different Clauses used in SQL? Answer:



**WHERE Clause:** This clause is used to define the condition, extract and display only those records which fulfill the given condition.

###### Syntax:

SELECT column\_name(s) FROM table\_name WHERE condition;

**GROUP BY Clause:** It is used with SELECT statement to group the result of the executed query using the value specified in it. It matches the value with the column name in tables and groups the end result accordingly.

###### Syntax:

SELECT column\_name(s) FROM table\_name GROUP BY column\_name;

**HAVING clause:** This clause is used in association with the GROUP BY clause. It is applied to each group of results or the entire result as a single group. It is much similar as WHERE clause but the only difference is you cannot use it without GROUP BY clause

###### Syntax:

SELECT column\_name(s) FROM table\_name GROUP BY column\_name HAVING condition;

**ORDER BY clause:** This clause is used to define the order of the query output either in ascending (ASC) or in descending (DESC). Ascending (ASC) is set as the default one but descending (DESC) is set explicitly.

###### Syntax:

SELECT column\_name(s) FROM table\_name

WHERE condition

ORDER BY column\_name ASC|DESC;

**USING clause:** USING clause comes in use while working with SQL JOIN. It is used to check equality based on columns when tables are joined. It can be used instead of the ON clause in JOIN.

###### Syntax:

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

USING (column\_name);

###### Q #6) Why do we use SQL constraints? Which constraints we can use while creating a database in SQL?

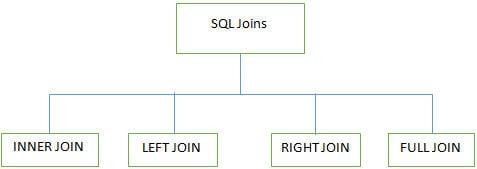
**Answer:** Constraints are used to set the rules for all records in the table. If any constraints get violated then it can abort the action that caused it.

Constraints are defined while creating the database itself with the CREATE TABLE statement or even after the table is created once with the ALTER TABLE statement.

###### There are 5 major constraints are used in SQL, such as

* **NOT NULL:** That indicates that the column must have some value and cannot be left NULL.
* **UNIQUE:** This constraint is used to ensure that each row and column has a unique value and no value is being repeated in any other row or column.
* **PRIMARY KEY:** This constraint is used in association with NOT NULL and UNIQUE constraints such as on one or the combination of more than one column to identify the particular record with a unique identity.
* **FOREIGN KEY:** It is used to ensure the referential integrity of data in the table. It matches the value in one table with another using the PRIMARY KEY.
* **CHECK:** It ensures

###### Q #7) What are different JOINS used in SQL? Answer:



4 major types of Joins are used while working on multiple tables in SQL databases:

###### Q #8) What are transactions and their controls?

**Answer:** A transaction can be defined as the sequence task that is performed on databases in a logical manner to gain certain results. Operations like Creating, updating, deleting records performed in the database come from transactions.

In simple words, we can say that a transaction means a group of SQL queries executed on database records.

###### There are 4 transaction controls such as

* **COMMIT**: It is used to save all changes made through the transaction.
* **ROLLBACK**: It is used to roll back the transaction. All changes made by the transaction are reverted back and the database remains as before.
* **SET TRANSACTION**: Set the name of the transaction.
* **SAVEPOINT:** It is used to set the point where the transaction is to be rolled back.

###### Q #9) How many Aggregate functions are available in SQL?

**Answer:** SQL Aggregate functions determine and calculate values from multiple columns in a table and return a single value.

###### There are 7 aggregate functions in SQL:

* **AVG():** Returns the average value from specified columns.
* **COUNT():** Returns number of table rows.
* **MAX():** Returns the largest value among the records.
* **MIN():** Returns smallest value among the records.
* **SUM():** Returns the sum of specified column values.
* **FIRST():** Returns the first value.
* **LAST():** Returns last value.

###### Q #10) What are Scalar functions in SQL?

**Answer:** Scalar functions are used to return a single value based on the input values.

###### Scalar Functions are as follows:

* **UCASE():** Converts the specified field in the upper case.
* **LCASE():** Converts the specified field in lower case.
* **MID():** Extracts and returns character from the text field.
* **FORMAT():** Specifies the display format.
* **LEN():** Specifies the length of the text field.
* **ROUND():** Rounds up the decimal field value to a number.

###### Q #11) What is the difference between DELETE and TRUNCATE? Answer: The differences are:

* The basic difference in both is DELETE command is DML command and the TRUNCATE command is DDL.
* DELETE command is used to delete a specific row from the table whereas the TRUNCATE command is used to remove all rows from the table.
* We can use the DELETE command with WHERE clause but cannot use the TRUNCATE command with it.

###### Q #12) What is the difference between DROP and TRUNCATE?

**Answer:** TRUNCATE removes all rows from the table which cannot be retrieved back, DROP removes the entire table from the database and it also cannot be retrieved back.