

## SQL ASSIGNMENT

1. Write a SQL query to retrieve all records from a table named "Customers."

```
SELECT * FROM Customers;
```

2. How would you select the top 5 highest-paid employees from a table named "Employees"?

```
SELECT SALARY FROM Employees  
  
ORDER BY SALARY DESC  
  
LIMIT 5;
```

3. Explain the difference between the WHERE clause and the HAVING clause in SQL.

WHERE and HAVING clause is used to filter the data.

WHERE clause is used to filter single row level of data.

HAVING clause is used to print data which aggregate function.

4. Write a SQL query to calculate the average salary of all employees in a table named "EmployeeDetails."

```
SELECT AVG(SALARY) FROM EmployeeDetails;
```

5. What is the purpose of the GROUP BY clause in SQL? Provide an example query that utilizes it.

GROUP BY clause is used to group rows that having same value in specified column. The GROUP BY functions is often used with aggregate functions.

Ex:

```
SELECT DEPARTMENT(SALARY) AS RESULT  
  
FROM WORKER  
  
GROUP BY DEPARTMENT;
```

6. Write a SQL query to retrieve the names and ages of all employees from a table named "Employees."

```
SELECT NAME,AGE FROM Employees;
```

**7. How would you calculate the total sales amount for each month of the year from a table named "Sales" that has a "Date" column?**

```
SELECT PRODUCT, YEAR(DATE), MONTH(DATE), SUM(SALE) FROM SALES  
GROUP BY PRODUCT, YEAR(DATE), MONTH(DATE)  
ORDER BY PRODUCT, YEAR(DATE), MONTH(DATE);
```

**8. Explain the difference between the INNER JOIN and LEFT JOIN in SQL.**

INNER JOIN → will return the record that having pair on both sides.

LEFT JOIN → is used if we need all record from left table no matter if they have pair in the right table.

**9. Write a SQL query to find the second highest salary from a table named "Employees."**

```
SELECT DISTINCT SALARY FROM Employees  
ORDER BY SALARY DESC  
LIMIT 1 OFFSET 1;
```

**10. How would you add a new column named "City" to a table named "Customers" with the data type VARCHAR(50)?**

```
ALTER TABLE Customers  
ADD City varchar(100);
```

**11. Write a SQL query to retrieve the names of customers who have not made any purchases from a table named "Customers" and a table named "Orders."**

```
SELECT Customers.Customername  
FROM Customers  
LEFT JOIN Orders ON Customers.CustomerID=Orders.CustomerID  
WHERE Orders>OrderID IS NULL;
```

**12. Explain the purpose of the SQL functions COUNT(), SUM(), and AVG().**

COUNT() → This function counts the number of rows in a result set or the number of non-null values in a specified column it can be also use in counting rows in a table.

SUM() → This function calculate the sum of all values in a specified column.

AVG() → This function calculate the average or mean values in a specified.

**13.How would you retrieve the top 3 most frequent values from a column named "Category" in a table named "Products"?**

```
SELECT Category,COUNT(*) AS Frequency  
FROM Products  
GROUP BY Category  
ORDER BY Frequency DESC  
LIMIT 3;
```

**14.Write a SQL query to update the "Quantity" column of a table named "Inventory" by doubling the current values for all items where the "Category" is equal to "Electronics."**

```
UPDATE Inventory  
SET Quantity=Quantity*2  
WHERE Category=Electronics;
```

**15.Explain the difference between the UNION and UNION ALL operators in SQL.**

**UNION**→The Union operator is used to combine the result sets of multiple select queries into a single result set. It remove the duplicate value from the combine result.

**UNION ALL**→The Union all operator is used to combine the result sets of multiple select queries into a single result set . It will not remove duplicate row.

**16.How would you update the "Email" column of a table named "Contacts" to change all email addresses ending with "@old.com" to end with "@new.com"?**

```
UPDATE Contact  
SET Email=REPLACE(Email,'@old.com','@new.com')  
WHERE Email LIKE '@old.com';
```

**17.Write a SQL query to display the names of all customers who have made at least two purchases.**

```
SELECT CUSTOMER_NAME  
FROM CUSTOMERS  
WHERE CUSTOMER_ID IN(  
SELECT CUSTOMER_ID  
FROM ORDERS
```

```
GROUP BY CUSTOMER_ID
```

```
HAVING COUNT(ORDER_ID)>=2);
```

**18.Explain the difference between a primary key and a foreign key in a database.**

Primary key → is a unique identification key for each record in a table.

Foreign key → it establishes a relationship between tables by referencing the primary key by another table.

**19.How would you delete all records from a table named "Products" where the "Category" column value is equal to "Books"?**

```
DELETE FROM PRODUCTS
```

```
WHERE CATEGORY='Books';
```

**20.Write a SQL query to retrieve the total count of orders for each customer from a table named "Orders".**

```
SELECT COUNT(ORDER_ID) AS TOTAL_ORDERS
```

```
FROM Orders
```

```
GROUP BY CUSTOMER_ID;
```