SQL ASSIGNMENTS

Consider the below two tables for reference while trying to solve the **SQL queries for practice**.

Table – EmployeeDetails

EmpId	FullName	ManagerId	DateOfJoining	City
121	John Snow	321	01/31/2019	Toronto
321	Walter White	986	01/30/2020	California
421	Kuldeep Rana	876	27/11/2021	New Delhi

Table – EmployeeSalary

EmpId	Project	Salary	Variable
121	P1	8000	500
321	P2	10000	1000
421	P1	12000	0

Basics and Intermediate ASSINGMENT

ASSINGMENT nos - 1

Q1)SQL Query to fetch records that are present in one table but not in another table.

SELECT * FROM EmployeeDetails LEFT JOIN EmployeeSalary ON EmployeeDetails.EmpId = EmployeeSalary.EmpId WHERE EmployeeSalary.EmpId IS NULL;

Q2)SQL query to fetch all the employees who are not working on any project.

SELECT EmpId FROM EmployeeSalary WHERE Project IS NULL;

Q3)SQL query to fetch all the Employees from EmployeeDetails who joined in the Year 2020.

SELECT * FROM EmployeeDetails WHERE YEAR(DateOfJoining) = '2020';

Q4)Fetch all employees from EmployeeDetails who have a salary record in EmployeeSalary.

SELECT * FROM EmployeeDetails WHERE EXISTS (SELECT * FROM EmployeeSalary WHERE EmployeeDetails.EmpId = EmployeeSalary.EmpId);

Q5)Write an SQL query to fetch a project-wise count of employees.

SELECT Project, COUNT(EmpId) AS ProjectCount FROM EmployeeSalary GROUP BY Project;

Q6)Fetch employee names and salaries even if the salary value is not present for the employee.

SELECT EmployeeDetails.FullName, EmployeeSalary.Salary FROM EmployeeDetails LEFT JOIN EmployeeSalary ON EmployeeDetails.EmpId = EmployeeSalary.EmpId;

Q7)Write an SQL query to fetch all the Employees who are also managers.

SELECT E.FullName FROM EmployeeDetails E INNER JOIN EmployeeDetails M ON E.EmpId = M.ManagerId;

Q8)Write an SQL query to fetch duplicate records from EmployeeDetails.

SELECT FullName, ManagerId, DateOfJoining, City, COUNT(*) FROM EmployeeDetails GROUP BY FullName, ManagerId, DateOfJoining, City HAVING COUNT(*) > 1

Q9)Write an SQL query to fetch only odd rows from the table.

SELECT E.EmpId, E.Project, E.Salary FROM (SELECT *, Row_Number() OVER(ORDER BY EmpId) AS RowNumber FROM EmployeeSalary) E WHERE E.RowNumber % 2 = 1

Q10)Write a query to find the 3rd highest salary from a table without top or limit keyword.

SELECT Salary FROM EmployeeSalary Emp1 WHERE 2 = (SELECT COUNT(DISTINCT (Emp2.Salary)) FROM EmployeeSalary Emp2 WHERE Emp2.Salary > Emp1.Salary)

ASSINGMENT nos - 2

Ques.1. Write an SQL query to fetch the EmpId and FullName of all the employees working under the Manager with id – '986'.

SELECT EmpId, FullName FROM EmployeeDetails WHERE ManagerId = 986;

Ques.2. Write an SQL query to fetch the different projects available from the EmployeeSalary table.

SELECT DISTINCT Project FROM EmployeeSalary;

Ques.3. Write an SQL query to fetch the count of employees working in project 'P1'.

SELECT COUNT(EmpId) AS EmpProjectCount FROM EmployeeSalary WHERE Project = 'P1';

Ques.4. Write an SQL query to find the maximum, minimum, and average salary of the employees.

SELECT MAX(Salary) AS MAX, MIN(SALARY) AS MIN, AVG(SALARY) AS AVG FROM EmployeeSalary;

Ques.5. Write an SQL query to find the employee id whose salary lies in the range of 9000 and 15000.

SELECT EmpId, Salary FROM EmployeeSalary WHERE Salary BETWEEN 9000 AND 15000;

Ques.6. Write an SQL query to fetch those employees who live in Toronto and work under the manager with ManagerId – 321.

SELECT * FROM EmployeeDetails WHERE CITY = 'Toronto' AND ManagerId = 321;

Ques.7. Write an SQL query to fetch all the employees who either live in California or work under a manager with ManagerId – 321.

SELECT * FROM EmployeeDetails WHERE CITY = 'California' OR ManagerId = 321;

Ques.8. Write an SQL query to fetch all those employees who work on Projects other than P1.

```
SELECT EmpId FROM EmployeeSalary WHERE Project <> 'P1';
```

Ques.9. Write an SQL query to display the total salary of each employee adding the Salary with Variable value.

```
SELECT EmpId, Salary+Variable AS TotalSalary FROM EmployeeSalary;
```

Ques.10. Write an SQL query to fetch the employees whose name begins with any two characters, followed by a text “hn” and ends with any sequence of characters.

```
SELECT FullName FROM EmployeeDetails WHERE FullName LIKE '__hn%';
```

ASSINGMENT nos - 3

Ques.1 Write an SQL query to fetch all the EmpIds which are present in either of the tables – 'EmployeeDetails' and 'EmployeeSalary'.

SELECT EmpId FROM EmployeeDetails UNION SELECT EmpId FROM EmployeeSalary;

Ques.2 Write an SQL query to fetch common records between two tables.

SELECT * FROM EmployeeDetails INTERSECT SELECT * FROM EmployeeSalary;

Ques.3. Write an SQL query to fetch records that are present in one table but not in another table.

SELECT * FROM EmployeeDetails LEFT JOIN EmployeeSalary ON EmployeeDetails.EmpId = EmployeeSalary.EmpId WHERE EmployeeSalary.EmpId IS NULL;

Ques.4. Write an SQL query to fetch the EmpIds that are present in both the tables – 'EmployeeDetails' and 'EmployeeSalary.

SELECT EmpId FROM EmployeeDetails where EmpId IN (SELECT EmpId FROM EmployeeSalary);

Ques.5. Write an SQL query to fetch the EmpIds that are present in EmployeeDetails but not in EmployeeSalary.

SELECT EmpId FROM EmployeeDetails where EmpId Not IN (SELECT EmpId FROM EmployeeSalary);

Ques.6. Write an SQL query to fetch the employee's full names and replace the space

SELECT REPLACE(FullName, ' ', '') FROM EmployeeDetails;

Ques.7. Write an SQL query to fetch the position of a given character(s) in a field.

SELECT CHARINDEX('n', 'Snow') AS MatchPosition;

Ques.8. Write an SQL query to display both the EmpId and ManagerId together.

SELECT CONCAT(EmpId, ManagerId) as NewId FROM EmployeeDetails;

Ques.9. Write a query to fetch only the first name(string before space) from the FullName column of the EmployeeDetails table.

SELECT SUBSTRING(FullName, 1, CHARINDEX(' ',FullName)) FROM EmployeeDetails;

Ques.10. Write an SQL query to uppercase the name of the employee and lowercase the city values.

SELECT UPPER(FullName) AS NAME, LOWER(City) AS CITY FROM EmployeeDetails;

ASSINGMENT nos - 4

Ques.1. Write an SQL query to find the count of the total occurrences of a particular character – 'n' in the FullName field.

SELECT FullName, LEN(FullName) - LEN(REPLACE(FullName, 'n', '')) FROM EmployeeDetails;

Ques.2. Write an SQL query to update the employee names by removing leading and trailing spaces.

UPDATE EmployeeDetails SET FullName = LTRIM(RTRIM(FullName));

Ques.3. Fetch all the employees who are not working on any project.

SELECT EmpId FROM EmployeeSalary WHERE Project IS NULL;

Ques.4. Write an SQL query to fetch employee names having a salary greater than or equal to 5000 and less than or equal to 10000.

SELECT FullName FROM EmployeeDetails WHERE EmpId IN (SELECT EmpId FROM EmployeeSalary WHERE Salary BETWEEN 5000 AND 10000);

Ques.5. Write an SQL query to find the current date-time.

SELECT SYSDATETIME();

Ques.6. Write an SQL query to fetch all the Employee details from the EmployeeDetails table who joined in the Year 2020.

SELECT * FROM EmployeeDetails WHERE YEAR(DateOfJoining) = '2020';

Ques.7. Write an SQL query to fetch all employee records from the EmployeeDetails table who have a salary record in the EmployeeSalary table.

SELECT * FROM EmployeeDetails WHERE EXISTS (SELECT * FROM EmployeeSalary WHERE EmployeeDetails.EmpId = EmployeeSalary.EmpId);

Ques.8. Write an SQL query to fetch the project-wise count of employees sorted by project's count in descending order.

SELECT Project, COUNT(EmpId) AS ProjectCount FROM EmployeeSalary GROUP BY Project ORDER BY ProjectCount DESC;

Ques.9. Write a query to fetch employee names and salary records. Display the employee details even if the salary record is not present for the employee.

SELECT EmployeeDetails.FullName, EmployeeSalary.Salary FROM EmployeeDetails LEFT JOIN EmployeeSalary ON EmployeeDetails.EmpId = EmployeeSalary.EmpId;

Ques.10. Write an SQL query to join 3 tables.

SELECT column1, column2 FROM TableA JOIN TableB ON TableA.Column3 = TableB.Column3 JOIN TableC ON TableA.Column4 = TableC.Column4;

Advanced ASSINGMENT

EmployeeInfo Table:

EmpID	EmpFname	EmpLname	Department	Project	Address	DOB	Gender
1	Sanjay	Mehra	HR	P1	Hyderabad (HYD)	01/12/1976	M
2	Ananya	Mishra	Admin	P2	Delhi(DEL)	02/05/1968	F
3	Rohan	Diwan	Account	P3	Mumbai(BOM)	01/01/1980	M
4	Sonia	Kulkarni	HR	P1	Hyderabad (HYD)	02/05/1992	F
5	Ankit	Kapoor	Admin	P2	Delhi(DEL)	03/07/1994	M

EmployeePosition Table:

EmpID	EmpPosition	DateOfJoining	Salary
1	Manager	01/05/2022	500000
2	Executive	02/05/2022	75000
3	Manager	01/05/2022	90000
2	Lead	02/05/2022	85000
1	Executive	01/05/2022	300000

Q1)Write a query to fetch the EmpFname from the EmployeeInfo table in the upper case and use the ALIAS name as EmpName.

SELECT UPPER(EmpFname) AS EmpName FROM EmployeeInfo;

Q2)Write a query to fetch the number of employees working in the department ‘HR’.

SELECT Department, COUNT(EmpId) AS EmpCount FROM EmployeeInfo GROUP BY Department HAVING Department = 'HR';

Q3)Write a query to get the current date.

SELECT SYSDATETIME();

Q4)Write a query to retrieve the first four characters of EmpLname from the EmployeeInfo table.

SELECT SUBSTRING(EmpLname, 1, 4) FROM EmployeeInfo;

Q5)Write a query to fetch only the place name(string before brackets) from the Address column of EmployeeInfo table.

SELECT SUBSTRING(Address, 1, CHARINDEX('(',Address)-1) FROM EmployeeInfo;

Q7)Write q query to find all the employees whose salary is between 50000 to 100000.

SELECT * FROM EmployeePosition WHERE SALARY BETWEEN 50000 AND 100000;

Q8)Write a query to find the names of employees that begin with ‘S’

SELECT EmpFname FROM EmployeeInfo WHERE EmpFname LIKE 'S%';

Q9)Write a query to fetch top N records.

SELECT TOP 3 * FROM EmployeeInfo;

Q10)Write a query to retrieve the EmpFname and EmpLname in a single column as “FullName”. The first name and the last name must be separated with space.

SELECT CONCAT(EmpFname, ' ', EmpLname) as FullName FROM EmployeeInfo;

Q11. Write a query find number of employees whose DOB is between 02/05/1970 to 31/12/1975 and are grouped according to gender

SELECT COUNT(EmpId) AS EmpCount, Gender FROM EmployeeInfo WHERE DOB BETWEEN '1970-05-02' AND '1975-12-31' GROUP BY Gender;

Q12. Write a query to fetch all the records from the EmployeeInfo table ordered by EmpLname in descending order and Department in the ascending order.

SELECT * FROM EmployeeInfo ORDER BY EmpLname DESC, Department ASC;

Q13. Write a query to fetch details of employees whose EmpLname ends with an alphabet 'A' and contains five alphabets.

SELECT * FROM EmployeeInfo WHERE EmpLname LIKE '____a';

Q14. Write a query to fetch details of all employees excluding the employees with first names, "Sanjay" and "Sonia" from the EmployeeInfo table.

SELECT * FROM EmployeeInfo WHERE EmpFname NOT LIKE 'S%'

Q15. Write a query to fetch details of employees with the address as "DELHI(DEL)".

SELECT * FROM EmployeeInfo WHERE Address = 'Delhi(DEL)';

Q16. Write a query to fetch all employees who also hold the managerial position.

SELECT * FROM EmployeeInfo JOIN EmployeePosition ON EmployeeInfo.EmpId = EmployeePosition.EmpId WHERE EmpPosition = 'Manager';

Q17. Write a query to fetch the department-wise count of employees sorted by department's count in ascending order.

SELECT Department, COUNT(EmpId) AS EmpCount FROM EmployeeInfo GROUP BY Department ORDER BY EmpCount ASC;

Q18. Write a query to calculate the even and odd records from a table.

SELECT * FROM (SELECT *, Row_Number() OVER(ORDER BY EmpId) AS RowNumber FROM EmployeeInfo) E WHERE E.RowNumber % 2 = 0;

SELECT * FROM (SELECT *, Row_Number() OVER(ORDER BY EmpId) AS RowNumber FROM EmployeeInfo) E WHERE E.RowNumber % 2 = 1;

Q19. Write a SQL query to retrieve employee details from EmployeeInfo table who have a date of joining in the EmployeePosition table.

SELECT * FROM EmployeeInfo EI RIGHT JOIN EmployeePosition EP ON EI.EmpId = EP.EmpId;

Q20. Write a query to retrieve two minimum and maximum salaries from the EmployeePosition table.

SELECT MIN(Salary) FROM EmployeePosition;

SELECT MIN(Salary) FROM EmployeePosition WHERE Salary <> (SELECT MIN(Salary) FROM EmployeePosition);

SELECT MAX(Salary) FROM EmployeePosition;

SELECT MAX(Salary) FROM EmployeePosition WHERE Salary <> (SELECT MAX(Salary) FROM EmployeePosition);

Q21. Write a query to find the Nth highest salary from the table without using TOP/limit keyword.

SELECT Salary FROM EmployeePosition Emp1 WHERE N = (SELECT COUNT(DISTINCT (Emp2.Salary)) FROM EmployeePosition Emp2 WHERE Emp2.Salary > Emp1.Salary);

Q22. Write a query to retrieve duplicate records from a table.

SELECT EmpId, EmpFname, DOB, COUNT(*) FROM EmployeeInfo GROUP BY EmpId, EmpFname, DOB HAVING COUNT(*) > 1;

Q23. Write a query to retrieve the list of employees working in the same department.

SELECT * FROM EmployeeInfo WHERE Department IN (SELECT Department FROM EmployeeInfo GROUP BY Department HAVING COUNT(*) > 1);

Q24. Write a query to retrieve the last 3 records from the EmployeeInfo table.

SELECT * FROM EmployeeInfo WHERE EmpId IN (3, 4, 5);

Q25. Write a query to find the third-highest salary from the EmpPosition table.

SELECT Salary FROM EmployeePosition Emp1 WHERE 2 = (SELECT COUNT(DISTINCT (Emp2.Salary)) FROM EmployeePosition Emp2 WHERE Emp2.Salary > Emp1.Salary);

Q26. Write a query to display the first and the last record from the EmployeeInfo table.

SELECT * FROM EmployeeInfo WHERE EmpId IN (1, 5);

Q27. Write a query to add email validation to your database

SELECT * FROM student WHERE s_email LIKE '%@gmail.com';

Q28. Write a query to retrieve Departments who have less than 2 employees working in it.

SELECT Department FROM EmployeeInfo GROUP BY Department HAVING COUNT(*) < 2;

Q29. Write a query to retrieve EmpPostion along with total salaries paid for each of them

SELECT EmpPosition, SUM(Salary) AS TotalSalary FROM EmployeePosition GROUP BY EmpPosition;

Q30. Write a query to fetch 50% records from the EmployeeInfo table.

SELECT TOP 50 PERCENT * FROM EmployeeInfo;