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| **Part A** |
| **Aim:**SQL commands:   1. SUBQUERIES(Multiple Subqueries, Nested subqueries) |
| **Prerequisite:**Oracle. |
| **Outcome:** Understanding different ways of writing subqueirs |
| **Theory:**  In SQL a Subquery can be simply defined as a query within another query. In other words we can say that a Subquery is a query that is embedded in WHERE clause of another SQL query. Important rules for Subqueries:   * You can place the Subquery in a number of SQL clauses: WHERE clause, HAVING clause, FROM clause. * Subqueries can be used with SELECT, UPDATE, INSERT, DELETE statements along with expression operator. It could be equality operator or comparison operator such as =, >, =, <= and Like operator. * A subquery is a query within another query. The outer query is called as **main query** and inner query is called as**subquery**. * The subquery generally executes first, and its output is used to complete the query condition for the main or outer query. * Subquery must be enclosed in parentheses. * Subqueries are on the right side of the comparison operator. * ORDER BY command **cannot** be used in a Subquery. GROUPBY command can be used to perform same function as ORDER BY command. * Use single-row operators with singlerow Subqueries. Use multiple-row operators with multiple-row Subqueries |
| **Procedure:**   1. Formulate the query for given problem. 2. Write the SQL query with proper input. 3. Execute the query. |
| **Practice Exercise:**   1. Write a query to display all the information of the employees whose salary is within the range 1000 and 3000. 2. Write a query to display all the information of the employees whose salary is within the range of smallest salary and 2500. 3. Display all the information of an employee whose id is any of the number 134, 159 and 183. 4. Write a query to display the name ( first name and last name ) for those employees who gets more salary than the employee whose ID is 163 5. Write a query to display the name ( first name and last name ), salary, department id, job id for those employees who works in the same designation as the employee works whose id is 169. 6. Write a query to display the employee id, employee name (first name and last name ) for all employees who earn more than the average salary. 7. Write a query to display the name ( first name and last name ), salary, department id for those employees who earn such amount of salary which is the smallest salary of any of the departments. 8. Write a query to display the employee name ( first name and last name ), employee id and salary of all employees who report to Payam. 9. Write a query to display the department number, name ( first name and last name ), job and department name for all employees in the Finance department. 10. Write a query to display all the information of an employee whose salary and reporting person id is 3000 and 121 respectively. |
| **Instructions:**   1. Write and execute the query in Oracle SQL server. 2. Paste the snapshot of the output in input & output section. |
| **Part B** |
| **Code and Output:**  **CREATING TABLE** |
| **INSERTING DATA INTO TABLE** |
| **1.** |
| **2** |
| **3** |
| **4** |
| **5** |
| **6** |
| **7** |
| **8** |
| **9** |
| **10** |
| **Observation & Learning:**  From this experiment, we observed and learned how the following **SQL COMMANDS**  are used to implement SUB QUERIES, NESTED SUBQUERIES AND MULTIPLE SUBQUERIES IN THE ORACLE DATABASE. |
| **Conclusion:**  In this experiment, we executed the following **SQL COMMANDS**  to implement SUB QUERIES, NESTED SUBQUERIES AND MULTIPLE SUBQUERIES IN THE ORACLE DATABASE and outputs are obtained as per the queries |
| **Questions:**   1. Expain use of ALL, SOME, IN, and NOT IN.   A. 1) **IN, NOT IN** operators in **SQL** are used with **SELECT, UPDATE** and **DELETE** statements/queries to select, update and delete only particular records in a table those meet the condition given in **WHERE** clause and conditions given in **IN, NOT IN** operators. i.e. it filters records from a table as per the *given condition.*   * 1. Syntax for SQL IN operator :   **SELECT column\_name1, column\_name2, etc**  **FROM table\_name**  **WHERE column\_name1 IN (value1, value2, etc);**   * 1. Syntax for SQL NOT IN operator :   **SELECT column\_name1, column\_name2, etc**  **FROM table\_name**  **WHERE column\_name1 NOT IN (value1, value2, etc);**  **2)** The **SOME** operator compares a value to each value in a list or results from a query and evaluate to true if the result of an inner query contains at least one row. The **SOME operator** must match at least one row in the subquery and must be preceded by comparison operators. Suppose using greater than ( >) with **SOME** means greater than at least one value.  Syntax of SOME Operator :  **SELECT [column\_name... | expression1 ]**  **FROM [table\_name]**  **WHERE expression2 comparison\_operator {ALL | ANY | SOME} ( subquery )**   1. The **ALL** operator is used with a **WHERE** or **HAVING** clause. The **ALL** operator returns true if all of the subquery values meet the condition. |