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| **AIM:** | To perform Sub-Queries in MySQL |
| **Program 1** | |
| **PROBLEM STATEMENT :** | . Perform various subqueries on the Hotel database |
| **Theory :** | What is subquery in SQL?  A subquery is a SQL query nested inside a larger query.  A subquery may occur in :  - A SELECT clause  - A FROM clause  - A WHERE clause  The subquery can be nested inside a SELECT, INSERT, UPDATE, or DELETE statement or inside another subquery.  A subquery is usually added within the WHERE Clause of another SQL SELECT statement.  You can use the comparison operators, such as >, <, or =. The comparison operator can also be a multiple-row operator, such as IN, ANY, or ALL.  A subquery is also called an inner query or inner select, while the statement containing a subquery is also called an outer query or outer select.  The inner query executes first before its parent query so that the results of an inner query can be passed to the outer query.  You can use a subquery in a SELECT, INSERT, DELETE, or UPDATE statement to perform the following tasks:  Compare an expression to the result of the query.  Determine if an expression is included in the results of the query.  Check whether the query selects any rows.  Syntax:    The subquery (inner query) executes once before the main query (outer query) executes.  The main query (outer query) use the subquery result. |
| **Queries** | **Subquery 1:**  **Statement:**  Selects customer with minimum age  **Code:**  use hotel;  select \* from customer  where c\_age=(  select min(c\_age)  from customer  );  **Original table:**    **Output:**    **Subquery 2:SQL Subquery and Join**  **Code:**  use hotel;  select distinct customer.C\_Id,customer.C\_Name  from customer  inner join reservation  on customer.Reservation\_no=reservation.Reservation\_no  order by customer.C\_Id desc  **Original table:**    **Output:**    **Subquery 3**  **Statement:**  Selects customer name and customer id with customer name starting with Ram  **Code:**  use hotel;  select c\_name as Customer\_Name,c\_id as Customer\_Id,c\_contact  from customer  where c\_id in(  select c\_id from customer  where c\_name like 'Ram%');  **Original table:**    **Output:**    **Subquery 4**  **Statement:**  Selects customers with age greater than average age  **Code:**  use hotel;  select c\_name as Customer\_Name,c\_id as Customer\_Id,c\_age as Customer\_age  from customer  where c\_age>(  select avg(c\_age)  from customer  );  **Original table:**    **Output:**    **Subquery 5**  Statement:  Select employees with salary greater than average salary  **Code:**  use hotel;  select E\_Type,E\_Name as Name\_of\_Employee,E\_Salary as Salary  from employee  where E\_Salary>(  select avg(E\_Salary)  from employee  );  **Original table:**    **Output:**    **Update Statement**  use hotel;  update employee set city='Mumbai' where e\_id in (3,4);  **Subquery 6**  Statement:  Selects employees who live in Mumbai  **Code:**  use hotel;  select E\_Type,E\_Name as Name\_of\_Employee,city  from employee  where city in(  select city  from employee  where city like 'Mum%'  );  **Original table:**    **Output:**    **Subquery 7**  Statement:  Select hotels with with employees greater than average number of employees  **Code:**  use hotel;  select h\_name as Hotel\_Name,h\_num\_emp as Number\_of\_employees,h\_id,H\_Address  from hotel\_info  where h\_num\_emp >(  select avg(h\_num\_emp)  from hotel\_info  );  **Original table:**    **Output:**    **Subquery 8**  **Statement:**  Select hotel name with name starting with ‘ T ’  **Code:**  use hotel;  select h\_name as Hotel\_Name,h\_id,H\_Address  from hotel\_info  where H\_Name in(  select H\_Name  from hotel\_info  where H\_Name like 'T%'  );  **Original table:**    **Output:**    **Subquery 9**  **Statement:**  Select price of room with price greater than minimum amount  **Code:**  use hotel;  select r\_no,reservation\_no,Amount as Price\_of\_Room  from reservation  where amount>(  select min(amount)  from reservation  );  **Original table:**    **Output:**    **Subquery 10**  **Statement:**  Select hotels with vacancies lesser than average vacancies  **Code:**  use hotel;  select h\_name as Hotel\_Name,h\_num\_emp as Number\_of\_employees,H\_vacancies as Vacancy  from hotel\_info  where H\_vacancies<(  select avg(H\_vacancies)  from hotel\_info  )  order by vacancy desc;  **Original table:**    **Output:** |
| **Conclusion: We learned and implemented subqueries in MySQL workbench.** **We saw how we can get any desired output by making use of subqueries. We especially saw how useful complex nested subqueries were in retrieving the results. We got our output by making use of subqueries and nesting them.** | |