Indian Institute of Information Technology Sri City
Database Management Systems LAB-06
Date: 05/10/2021
TOPIC : Derived tables,views and joins
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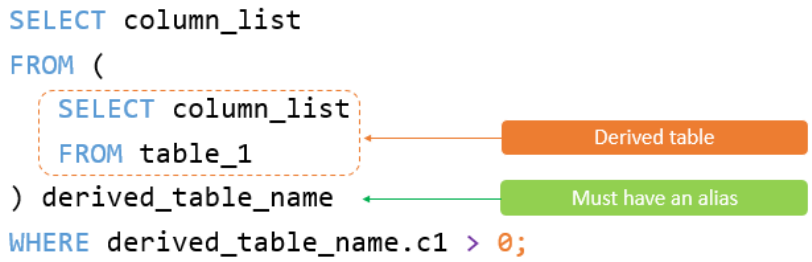

1. Derived tables

Example1:

```
select branch_name,avg_balance
from (
        select branch_name,avg(balance) as avg_balance
        from account
        group by branch_name
      ) as derived_table
Where avg_balance >=700;
```

Example2:

```
select avg(balance1)
from (
        select sum(balance) as balance1
        from account group by branch_name
      ) as t1;
```

2. Views

A view is a virtual table based on the result-set of an SQL statement. A view contains rows and columns, just like a real table. The fields in a view are fields from one or more real tables in the database.

a. Create

- create view v as <query expression>
- create view v as select branch_name, amount from loan;

b. Delete

drop view v;

c. Update

i. Create or replace view v as <query expression>

1. create view v as select * from loan;
2. create or replace view v as select account_number,balance from account;

ii. Insert into v values(__,__,__)

A view is said to be updatable(that is inserts,updates or deletes can be applied on view) if following conditions are all satisfied:

- The from clause has only one database relation
- The select clause contains only attribute names of the relation and does not have any expressions,aggregates or distinct specification
- Any attribute not listed in the select clause can be set null
- The query does not have a **group by** or **having** clause

1. Insert into v values("A-100",50000);
2. update v set balance = balance + 1000;

Practice questions:

1. Find the names of all branches with customers who have an account in the bank and who live in "Pittsfield",using exactly one join

```
+-----------------+
| branch_name |
+-----------------+
| Redwood       |
+-----------------+
```

2. Display name and balance of the customers whose balance is 700 and above.

```
+---------------------+------------+
| customer_name | balance |
+---------------------+------ ----+
| Johnson            |  900.00 |
| Smith              |  700.00 |
| Jones              |  750.00 |
| Lindsay            |  700.00 |
```

```
+---------------------+-----------+
```

3. Find the total loan amount taken by ‘Smith’

```
+-------------+
| total_loan |
+-------------+
|       2900  |
+-------------+
```

4. Find the branch cities that occurred more than once in the branch table

```
+-------------+-------+
| branch_city | count |
+-------------+-----------+
| Brooklyn      |     2 |
| Horseneck   |     3 |
+-------------+-------+
```

5. Find the names of customers(along with branch name and city) who have account at banks, present in the same (branch) city

```
+---------------+-------------+-------------+
| customer_name | branch_name | branch_city |
+---------------+-------------+-------------+
| Johnson       | Brighton    | Brooklyn    |
| Jones         | Brighton    | Brooklyn    |
| Johnson       | Downtown | Brooklyn    |
| Smith         | Mianus      | Horseneck   |
| Hayes         | Perryridge  | Horseneck   |
| Turner        | Round Hill  | Horseneck   |
+---------------+-------------+-------------+
```

6. Display all customer cities and total loan amount taken by all customers from each of those cities
   (loan_amount 1000$ can be considered for both customers of L-17)

```
+---------------+------------+
| customer_city | total_loan |
+---------------+------------+
| Harrison    |       2500 |
| Pittsfield    |       1300 |
| Princeton   |       1000 |
| Rye           |       3400 |
| Brooklyn      |       NULL |
| Woodside    |       NULL |
| Stamford    |       NULL |
| Palo Alto     |       NULL |
+---------------+------------+
```

7. Display total balance amount of each customer in customer table(display null for those who do not have account)

customer_name	total_balance
Adams	NULL
Brooks	NULL
Curry	NULL
Glenn	NULL
Green	NULL
Hayes	400.00
Johnson	1400.00
Jones	750.00
Lindsay	700.00
Smith	700.00
Turner	350.00
Williams	NULL

8. Display total loan amount of each customer in customer table(display null for those who did not take loan)

customer_name	total_loan
Adams	1300
Brooks	NULL
Curry	500
Glenn	NULL
Green	NULL
Hayes	1500
Johnson	NULL
Jones	1000
Lindsay	NULL
Smith	2900
Turner	NULL
Williams	1000

9. Create a view that displays customer_name,account_number and loannumber(null if there is no data for any of the column)

customer_name	account_number	loan_number
Adams	NULL	L-16
Brooks	NULL	NULL
Curry	NULL	L-93
Glenn	NULL	NULL
Green	NULL	NULL
Hayes	A-102	L-15
Johnson	A-101	NULL
Johnson	A-201	NULL
Jones	A-217	L-17
Lindsay	A-222	NULL
Smith	A-215	L-11
Smith	A-215	L-23
Turner	A-305	NULL
Williams	NULL	L-17

10. Try creating and inserting into view for each of the conditions mentioned above for views,under which you can’t insert data into views.