

DBMS-End Sem

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- 1) Yes it is possible to do all the above operations in DBMS. Using empname as a clustered index is possible only where every employee will have a unique name. If this is ensured, the tuple will be organized according to empname alphabetically.

Using empid as a clustered index is definitely possible considering everyone already has a unique id assigned to them. The tuples will be organized according to empid.

Using both empname and empid as a clustered indexes may not be possible but it is possible to have one clustered index and one non-clustered index.

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- (i) DDL is important in Representing information in DBMS because it is used to describe external and logical schemes.
- (ii) DML is used to access and update data, it is not important for representing the data.

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3. TRUE, DBMS interleave the actions of different transactions instead of executing transactions one after the other. Transactions from these users can be interleaved to improve the execution time of users' queries. By interleaving queries, users don't have to wait for other user's transactions to complete, and user B wants to begin a transaction, user B would have to wait an additional 10 seconds for user A's transaction to complete before the database would begin processing user B's request.

4.

a) A user must guarantee that his or her transaction does not corrupt data or insert nonsense in the database.

For example, in a banking database a user must guarantee that a cash withdraw transaction accurately models the amount a person removes from his or her account. The application is worthless if anybody withdraws some of his amount from ATM but the transaction sets his account balance to 0.

b) A DBMS must guarantee that transactions are executed fully and independently of other transactions.

As essential property of a DBMS is that a transaction should execute atomically, or as if it is the only transaction running. This ensures that the database remains consistent.

5.

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Yes, we can determine the key of relation with the help of instance. Example :- In a one to many relation we can consider the column with unique values as a primary key.

7th)

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19BCS056Relational Algebra $\pi(R_1, \text{Catalog})$ $\pi(R_2, \text{Catalog})$

$$\pi(R_1, \text{pid}) \sigma_{R_1.\text{pid} = R_2.\text{pid} \wedge R_1.\text{sid} \neq R_2.\text{sid}} (R_1 \times R_2)$$

SQL Query

SELECT C.sid

FROM Catalog C

WHERE EXISTS (SELECT C1.sid

FROM Catalog C1

WHERE C1.pid = C.pid AND C1.sid \neq C.sid)

8th)

Invalid query

Explanation = This relational algebra statement does not return anything because of the sequence of projection operators. Once the sid is projected, it is the only field in the set. Therefore, projecting on same will not return anything.

94)

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The following view on Emp can be updated automatically by updating EMP :-

```
CREATE VIEW SeniorEmp (eid, ename, age, salary)
```

```
AS SELECT E.eid, E.ename, E.age, E.salary,
```

```
FROM Emp E
```

```
WHERE E.age > 50
```