

DBMS End Sem Examination:

Ch. Bhavankumar

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1) Here In given Question,

Using empname as a clustered index is possible only when every employee will have a unique name. If this is ensured, the tuples 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 their 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.

2) (i) DDL is important in representing information in DBMS, because it is used to describe external and logical schema.

(ii) DML is used to access and update data, it is not important for representing the data.

3. True, A DBMS typically shared among many users. 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 others' users' transactions to complete fully before their own transaction begins. Without interleaving if user A begins a transaction that will take 10 seconds 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 doesn't corrupt data (or) insert non-sense in the database. For example, in a banking database, a user must guarantee that a cash withdraw transaction that will accurately models the amount a person from his/her account. If database application is worthless if draws certain amount from an ATM but his transaction set their balance to zero.

b) A DBMS must guarantee that transactions are executed fully and independently of other transactions. An essential property of a DBMS is that a transaction should execute automatically, (or) as if it is the only transaction running. Also, transactions will either complete fully or will be aborted and the database returned to its initial state. This ensures that the database remains constant.

5. Yes, we can determine the key of relation with the help of instance.

Ex: In a one to many relations we can consider the column/attribute with unique values as a primary key.

7) Relational Algebra:

$P(R_1, \text{catalog})$

$P(R_2, \text{catalog})$

$$\pi_{R_1.pid} \circ \pi_{R_1.sid} = R_2.pid \wedge R_1.sid \neq R_2.sid (R_1 \times R_2)$$

SQL:

SELECT C.sid

FROM catalog C

WHERE EXISTS (SELECT C1.sid

FROM catalog C1

WHERE C1.pid \neq C.pid AND

C1.sid \neq C.sid)

8) Invalid query.

This relational algebra statement doesn't return anything because of the sequence of projection operators. Once the sid is projected, it is the only field in the set. Therefore, project on some will not return anything.