CS310 - DBMS

Name : BOKKA SRIKAR

REG NO: 19BCS0224

(1.) using emp name as a clustered index.

Self: is possible only when every employee will have a unique name. If this is ensured, the tuples will be organised according emp name 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 & empid as a clustered indexes may not be possible but it is possible two have one clustered index and one non-clustered index

(2.) The data defition language (DDL) is important in representing information in DBMS because it is used to describe external and logical schema

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

(3.) True.

Sol:

Transaction: A transaction can be defined as a group of tasks. A single task is the minimum processing unit which cannot be divided further.

So, A DBMS is a typically shared among many users. And, the transactions from these users can be interleaved to improve the execution time of users' queries. By interleaving queries, the users do not have to wait for other user's transaction begins. without interleaving, if user A begins a transaction that take 10 sec to complete and user B wants to begin a transcation, user B would have wait an additional 10 sec for user A's transcation to complete before the database would begin processing user's B request.

So, Due to above reason, I will go with true.

(4.)

By going through the above question, the XYZ Banking system banking can be solved:

(a.) A user must guarantee that his or her transaction And his (or) her transaction could not corrupt data (or) insert rubbish in the database, a user must guarantee that a cash withdraw transaction accurately models the amount a person removes from his or her account. Such, A database application would be worthless if a person removed 20 dollars from an ATM but the transaction set their balance to zero!

(b.) A data base management system must and should gurantee that the transactions are executed fully and independ-tly of other transactions. An essential property of a DBMS is that a transaction should execute atomically, or as if it is the only transaction running. Also, transactions will either complete fully, or will be aborted and database returned to it's initial state. So, the database remains consistent.

(7.) RA

Soft

P(R1, Catalog)

P(R2, Catalog)

$\pi_{R1.pid}\ \sigma_{R1.pid = R2.pid \wedge R1.Sid != R2.sid}\ (R1 \times R2)$

SID	PID	cost
1	1	$10.00
2	1	$9.00
2	3	$34.00
3	1	$11.00

R1 X R2 gives:

SID	PID	cost (₹)
1	1	10.00
1	1	9.00
1	1	34.00
1	1	11.00
1	1	10.00
2	1	9.00
2	1	9.00
2	1	9.00
2	1	9.00
2	1	9.00
2	3	34.00
2	3	34.00
2	3	34.00
2	3	34.00
2	1	11.00
2	3	11.00
3	1	10.00
3	1	9.00
3	1	34.00
3	1	11.00
3	1	11.00
3	1	11.00

SID	PID	cost (₹)
1	1	10.00
1	1	9.00
1	3	34.00
1	1	11.00
1	1	10.00
2	1	9.00
2	1	9.00
2	3	34.00
2	1	11.00
2	1	10.00
2	1	9.00
2	3	34.00
2	1	11.00
3	1	10.00
3	1	9.00
3	3	34.00
3	1	11.00

$\sigma_{R1.Pid = R2.Pid}$ gives:

SID	PID	Cost	SID	PID	Cost
1	1	10.00	1	1	10.00
1	1	10.00	2	1	9.00
1	1	10.00	3	1	11.00
1	1	9.00	1	1	10.00
2	1	9.00	2	1	9.00
2	1	9.00	3	1	11.00
2	1	34.00	2	3	34.00
3	1	11.00	1	1	10.00
3	1	11.00	2	1	9.00
3	1	11.00	3	1	11.00

$\sigma_{R1.Pid = R2.Pid \wedge R1.Sid != R2.Sid}$ gives:

SID	PID	Cost	SID	PID	Cost
1	1	10.00	2	1	9.00
1	1	10.00	3	1	11.00
1	1	9.00	1	1	10.00
2	1	9.00	3	1	11.00
2	1	11.00	1	1	10.00
3	1	11.00	2	1	9.00
3	1				

(projecting on PID gives us a single part number-1)

(eleminating the duplicates)

(8.)

soln $\pi_{sname}(\pi_{sid}((\sigma_{color='red'}(Parts)) * (\sigma_{cost<100}(catalog)) * suppliers))$

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 some will not return anything.

(9.) the query on EMP schema, and that could be automatically updated by updating EMP is

```
CREATE VIEW   SeniorEmp(eid, ename, age, salary)
AS SELECT   E.eid, E.ename, E.age, E.salary
from   Emp E
WHERE   E.age > 50
```

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

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