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End Term Examination

CS310 - DBMS

3) A DBMS is typically shared among many users. Transactions from these users can be interleaved to improve the execution time of user's queries. By interleaving queries, users do not have to wait for others' user's 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's B's request.

* True

- 9) The following view on emp can be updated automatically by updating emp:

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

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

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

- 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. A database applications would be worthless if a person removed 20 dollars from an ATM but the transaction set their balance to zero.

- b) A DBMS must guarantee that transactions are executed fully and

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Independently of other transactions. An essential property of a DBMS is that a transaction should execute atomically, or as if it is only transaction running also. transactions will either complete fully or will be aborted and the database returned to its initial state. This ensure that the database remains consistent.

2) • DDL is important in representing information in DBMS because it is used to describe external and logical Schemas. DML is used to update and a users data. it is not important for representing data.

1) using Empname as a distored index is possible only when every employee will have a unique name. If this is ensured the employees will be organized according to Empname alphabetically.

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using Empid as a clustered index is definitely possible considering Employee already has a unique id assigned to them the table will be organized according to empid

using both Empname and Empid as clustered indexes may not be possible but it is possible to name one clustered index and one non clustered index.

7) Let the two Suppliers be P_1, P_2
 $PC(R_1, \text{coating})$
 $PC(R_2, \text{catalog})$

$P_1 \text{ pid } \in R_1 \text{ pid} = P_2 \text{ pid} \cap R_2 \text{ pid}$
 $\Rightarrow P_2 \text{ sid } (R_1 \times R_2)$

using the following

SID	PID	cost
1	1	1000
2	1	2000
2	3	3000
3	1	4000

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R_1 $\times R_2$ given us:

SID	PID	Cost	SID	PID	Cost
1	1	1000	1	1	1000
1	1	1000	2	1	2000
1	1	1000	2	3	3000
1	1	1000	3	1	4000
2	1	2000	1	1	1000
2	1	2000	2	1	2000
2	1	2000	2	3	3000
2	3	2000	3	1	4000
2	3	3000	1	1	1000
2	3	3000	2	1	2000
2	3	3000	2	3	3000
2	3	3000	3	1	4000
3	1	4000	1	1	1000
3	1	4000	2	1	2000
3	1	4000	2	3	3000
3	1	4000	3	1	4000

TR PID FR_2 PID given us

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SID	PID	Cost	SID	PID	Cost
1	1	1000	1	1	1000
1	1	1000	2	1	2000
1	1	1000	3	1	4000
2	1	2000	3	1	1000
2	1	2000	2	1	2000
2	1	2000	3	1	4000
2	3	3000	2	3	3000
3	1	4000	1	1	1000
3	1	4000	2	1	2000
3	1	4000	3	1	4000

GR, $Pid = R_2 pid$ A $R_{sid} = R_{sid}$

SID	PID	Cost	SID	PID	Cost
1	1	1000	2	1	2000
1	1	1000	3	1	4000
2	1	2000	1	1	1000
2	1	2000	3	1	4000
3	1	4000	1	1	1000
3	1	4000	2	1	2000

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SQL

```
SELECT Csid  
FROM Catalog C  
WHERE EXISTS (SELECT Csid)  
FROM Catalog C1  
WHERE C1.pid = C.pid AND C1.cid  
= C.cid)
```

5) 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

6)

a) Create Clustered index IX_Empname
index on

STUDENT table (Student Name DESC)
Select Email from STUDENT table.

This query display all the emails in the descending order of the Student Name First the table gets sorted based

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on Student Name in Desc order
then then Select query displays
the emails in that order

Student ID	Student Name	Email	Age
1005	Krishna	Kirihm@gmail.com	22
1030	John	nu11	23
1020	John	Jh@xyz.com	22

8) 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.