19bcs082 End Term Exam 06/05/2022

PARAMESHWAR

CS310 - DBMS

3) – ?

->. A DBMS is typically shared among many users. Transaction from these users can be interleaved to improve the execution time of users do not have to wait for other user's transactions to complete fully before their own transaction begains. without interleaving if user A begains a transaction ~~to~~ ~~complete~~ That will take 10 seconds to complete, and user B wants to begain 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.

19bcs082

7) — ?

-> finding the pids of parts supplied by two diff suppliers.

ρ (R_1 catalog)
ρ (R_2 catalog)

$\Pi_{R_1.Pid}\ \sigma_{R_1.Pid = R_2.Pid \wedge R_1.sid != R_2.sid}\ (R_1 \times R_2)$

using the following.

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

$R_1 \times R_2$ gives us

SID	PID	cost
1	1	$10.00
1	1	$10.00
1	1	$ 10.00
1	1	$ 10.00
2	1	$ 9.00
2	1	$ 9.00
2	1	$ 9.00
2	1	$ 9.00

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

sid	pid	cost	SiD	PiD	cost
2	3	$ 34.00	1	1	$ 10.00
2	3	$ 34.00	2	1	$9.00
2	3	$ 34.00	2	3	$ 34.00
2	3	$ 34.00	3	1	$ 11.00
3	1	$ 11.00	1	1	$ 10.00
3	1	$ 11.00	2	1	$9.00
3	1	$ 11.00	2	3	$ 34.00
3	1	$ 11.00	3	1	$ 11.00

$\sigma_{R_1.pid = R_2.pid}$ - gives us

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
2	1	$ 9.00	1	1	$ 10.00
2	1	$ 9.00	2	1	$ 9.00
2	1	$ 9.00	3	1	$ 11.00
2	3	$ 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

$\sigma_{R_1.Pid = R_2.Pid \wedge R_1.Sid = R_2.Sid}$ gives us

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

4) —?

a) A user must guarantee that his or her transaction does not corrupt data or insert nonsense in database. for example. in a banking database a user must guarantee that a cash withdraw transaction actually models the amount person removes from his or her account A database application would be worthless if a person removed 20 dollars from ATM but the transaction set their balance to zero!

b) A DBMS must ~~for~~ guarantee that transactions are executed fully and independently of ~~th~~ 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 transactio -n will either complete fully or will be aborted and the database returned to its initial state. This ensures that. The database remains consistent.

9) —?

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

```
CREATE VIEW SeniorEMP (cid, name,
                       age, salary)
AS SELECT E.cid, E.ename, E.age,
   E.salary
   FROM EMP E
   WHERE E.age > 50.
```

2) —?

* The data definition language is important in representing information because it is used to describe external and logical schemas.

* The data manipulation language is used to access and update data it is not important for representing the data (of course. The data manipulation language must be aware of how data is represented, and reflects this in the constructs that it supports).

1) —?

using emp name 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 emp name alphabatically.

using empid as a clusted index is definetly possible considering

- eg everyone already has a unique id assigned to them the tuples will be organized according to empid.

- using both empname & empid as a clustered clustered indexes may not be possible but it is possible. Two name one clustered index and one non-clustered clustered index.

(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 value as a primary key.