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DBMS

END SEM EXAM

(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 alter data; it is not as important for representing data.

(1) -> * using Empname as a clustered index is possible only when every Employee will have a unique name. If this is entered, the tuples will be organized according 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 name one clustered index and one non-clustered index.

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3) → : TRUE, because
A DBMS is typically shared among many users transactions from these users can be interleaved to improve the execution time of users queries, by interleaving queries, users do not have to wait for other users transactions to complete fully before their own transactions begins, without interlacing, 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) → : $P(R_1.catalog)$
$P(R_2.catalog)$

$\pi_{R_1.Pid}\, \sigma_{R1.Pid = R2.Pid \wedge R1.Sid_1 = R2.Sid}(R1 \times R2)$

using the following

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

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$R_1 \times R_2$ given as:-

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	2	3	$34.00
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	2	3	$34.00
2	1	$9.00	3	1	$11.00
2	3	$34.00	1	1	$10.00
2	3	$34.00	2	1	$9.00
2	3	$34.00	2	3	$34.00
3	1	$11.00	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

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$\sigma_{R_1.Pid = R_2.Pid}$ 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	$19.00

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

Projecting on PID gives us a single part number. (eliminating the duplicate)

④ → :- True,

A user must guarantee that his & her transaction does not corrupt data & insert nonsence in the database. for example, in a banking database, a user must guarantee that a cash withdraw transaction accurately models the amount a person be ~~wor~~ removes from his & her account. A database application would be worthless if a person removed 20 dollars from an ATM but the transaction set their balance to zero. A DBMS must guarantee that transactions are essential property of a DBMS & that a transaction should execute atomically, & as if it is the only transaction running. Also, transaction will either complete fully, & will be aborted and the database returned to its ~~final~~ initial state. this ensures that the database remains consistent.

(7) → :- The following view on Emp can be updated automatically by updating Emp:

CREATE VIEW SeniorEmp (eid, name, age, salary)
AS SELECT E.eid, E.ename, E.age, E.salary
FROM EMP E
WHERE E.age > 50.

(8) → :- Invalid query:

explanation:- this relational algebra statement does not return anything because of the sequence of projection operators, ~~since~~ once the sid is projected, it is the only field in the next. Therefore, projecting on Name will not return anything.