Database Management System

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1) It is possible to do all these operations in DBMS. we con use the caucept called indexing. we Con create a clustered indesc on the empname field with below SQL commond,

```
CREATE CLUSTEREDINDEX  Ix indexname ON
     tablename (empname)
```

It is possible to create a clustered index on empid also with following commond,

```
CREATE    CLUSTERED INDEX  Ix_indexname
ON
tablename (empid).
```

we Can also make empid as primary key then an index on it will be created by default.

To create index with two fields (empname, empid) following command is used,

```
CREATE CLUSTERED INDEX   Ix indexname ON
     tablename (expname DESC  empid ASC)
```

Finally,

They can stored as a file sorted on attribute empid using ORDER BY clause, query will be,

```
Select *
from Table_name
ORDER BY empid.
```

②

DDL is important in representing information in DBMS because it is used to describe external and logical schemas

DML is used to access and modify data, it is not important for representing data.

3) The given statement is TRUE.

Because,

DBMS will be shared by many users at the same time, like consider following case, where, there are 3 people (People (Person-1, Person-2, Person-3) has given 3 queries to DBMS, Now if DBMS choose to execute one query after the other person-2 & Person-3's queries will have to wait until Person-1's query get's completed. This can be so time consuming so inorder to increase the time efficiency DBMS interleaves the actions of different transactions.

4) (a) In a banking database a user must ensure that his transaction is genuine and does not corrupt the data in database also at present condition it is a mandatory rule for users to not share their key credentials to avoid any type of duplicate submissions (b) transactions happening. Because of this we can ensure any transaction made by user will be accurately modelled in account.

b) A DBMS must ensure the transaction will happen successfully without any interruptions. Also regardless of number of transactions happening each transaction should be treated individually. If any interruption occurs in execution initial state has to.

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be attained and changes should be reflected accurately in the required places

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7)

query in Relational Algebra)

$\rho(R_1, Catalog)$

$\rho(R_2, Catalog)$

$\pi_{R_1.pid} \sigma_{R_1.pid = R_2.pid \wedge R_1.pid\, != R_2.sid}(R_1 \times R_1)$

SQL query :-

select $R_1.pid$
from Catalog R_1, Catalog R_2
where $R_1.pid = R_2.pid$ AND ~~$R_1.sid > R_2$~~
$R_1.sid <> R_2.sid$

using :-

sid	pid	cost
1	1	10.00/-
2	1	9.00/-
2	3	34.00/-
3	1	11.00/-

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R₁ × R₂ gives,

sid	pid	cost	sid	pid	cost
1	1	10	1	1	10
1	1	10	2	1	9
1	1	10	2	3	34
1	1	9	3	1	11
2	1	9	1	1	10
2	1	9	2	1	9
2	1	9	2	3	34
2	1	34	3	1	11
2	1	34	1	1	10
2	3	34	2	1	9
2	3	34	2	3	34
2	3	=	3	1	11
3	1	=	1	1	10
3	1	=	2	1	9
3	1	=	2	3	34
3	1		3	1	11

R₁.pid = R₂.pid gives,

sid	pid	cost	sid	pid	cost
1	1	10	1	1	10
1	1	10	2	1	9
1	1	10	3	1	11
2	1	9	1	1	10
2	1	9	2	1	9
2	1	9	3	1	11
2	3	34	2	3	34
3	1	=	1	1	10
3	1	=	2	1	9
3	1	=	3	1	11

Projecting on pid gives us a single part number 1.

R₁.pid = σ₂.pid ∧ R₁.sid = R₂.sid gives,

sid	pid	cost	sid	pid	cost
1	1	10	1	1	9
2	1	10	2	1	11
2	1	9	3	1	10
3	1	11	3	1	11
			2	1	10
					9

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8) Given query is not valid.

Because,
given relational & algebra statment
does not return anything because of
the sequence of projection operators.
once sid is projected it is the
only field in the set. Hence, projecting
on the same will not return anything

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

AS select E.eid, E.ename, E.age,
E.salary
FROM Emp E
where E.age>50

This view on Emp can be updated
automatically by updateding Emp