

CSE 4125: Distributed Database Systems Chapter – 5

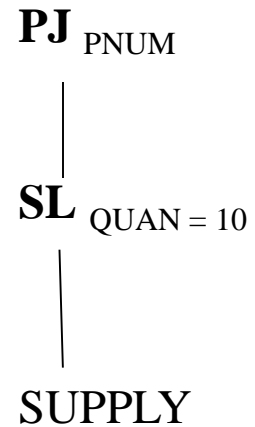
Translation of Global Queries to
Fragment Queries.
(Part – B)

Operator Tree

- Query to Operator Tree (previous lecture)
- Operator Tree to Query

SUPPLY (SNUM, PNUM, DEPTNUM, QUAN)
DEPT (DEPTNUM, NAME, AREA, MGRNUM)

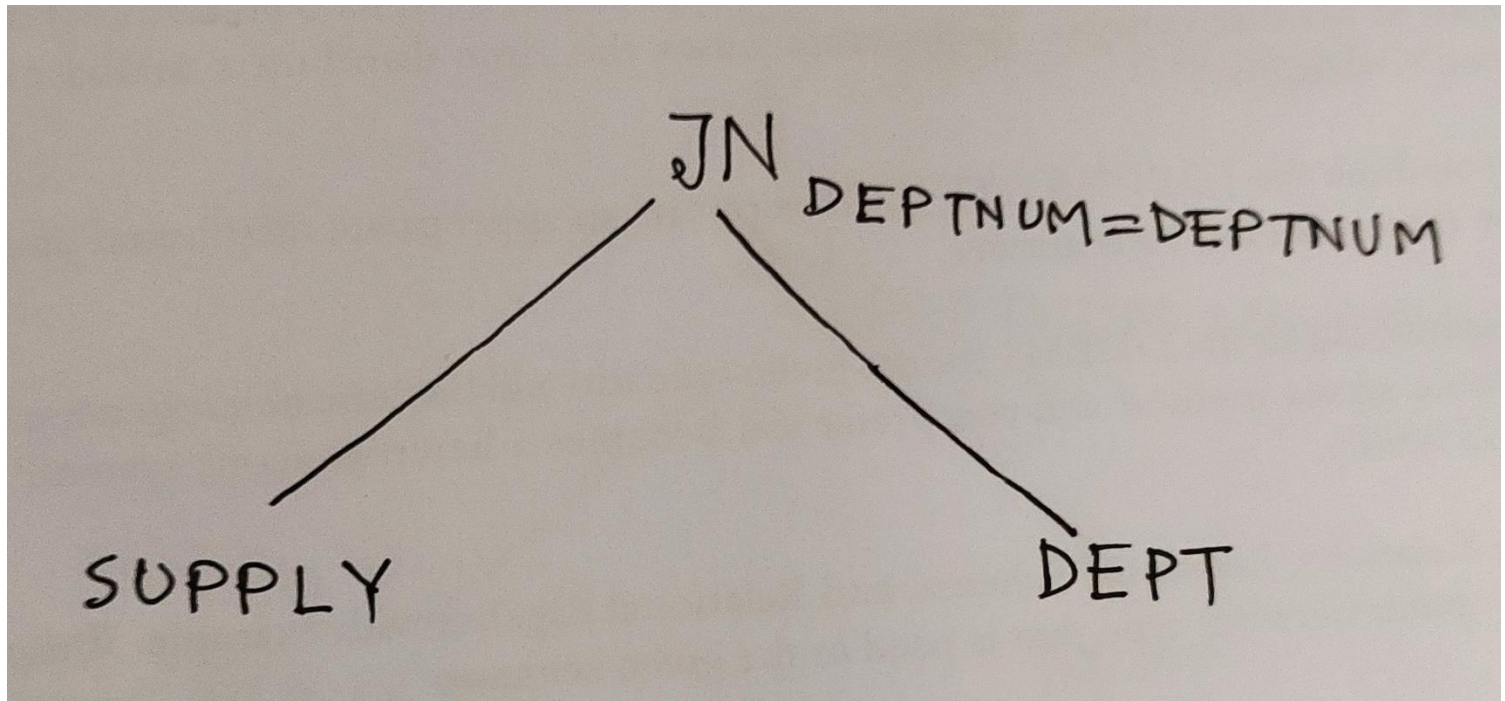
Tree1:



Query: **PJ**_{PNUM} **SL**_{QUAN = 10} *SUPPLY*

SUPPLY (SNUM, PNUM, DEPTNUM, QUAN)
DEPT (DEPTNUM, NAME, AREA, MGRNUM)

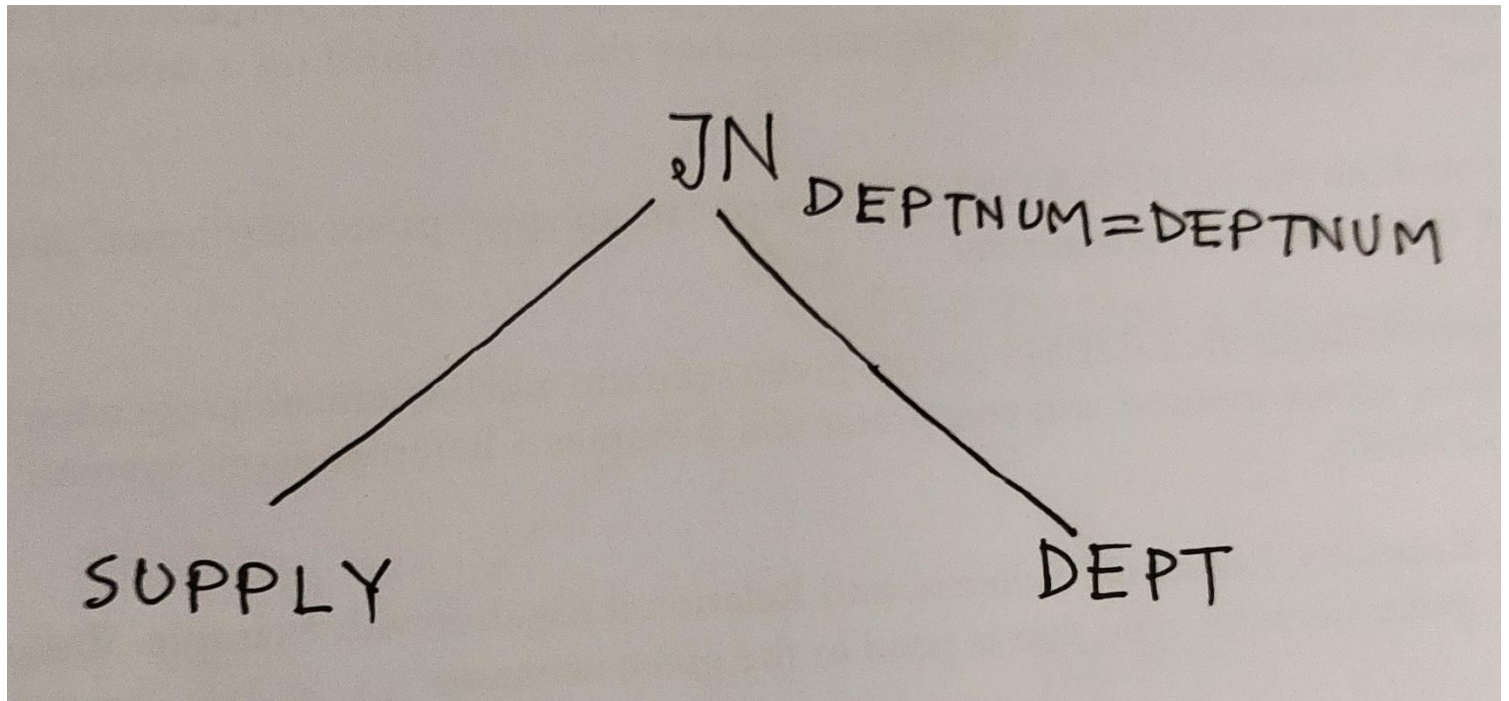
Tree2:



Query: ***SUPPLY***

SUPPLY (SNUM, PNUM, DEPTNUM, QUAN)
DEPT (DEPTNUM, NAME, AREA, MGRNUM)

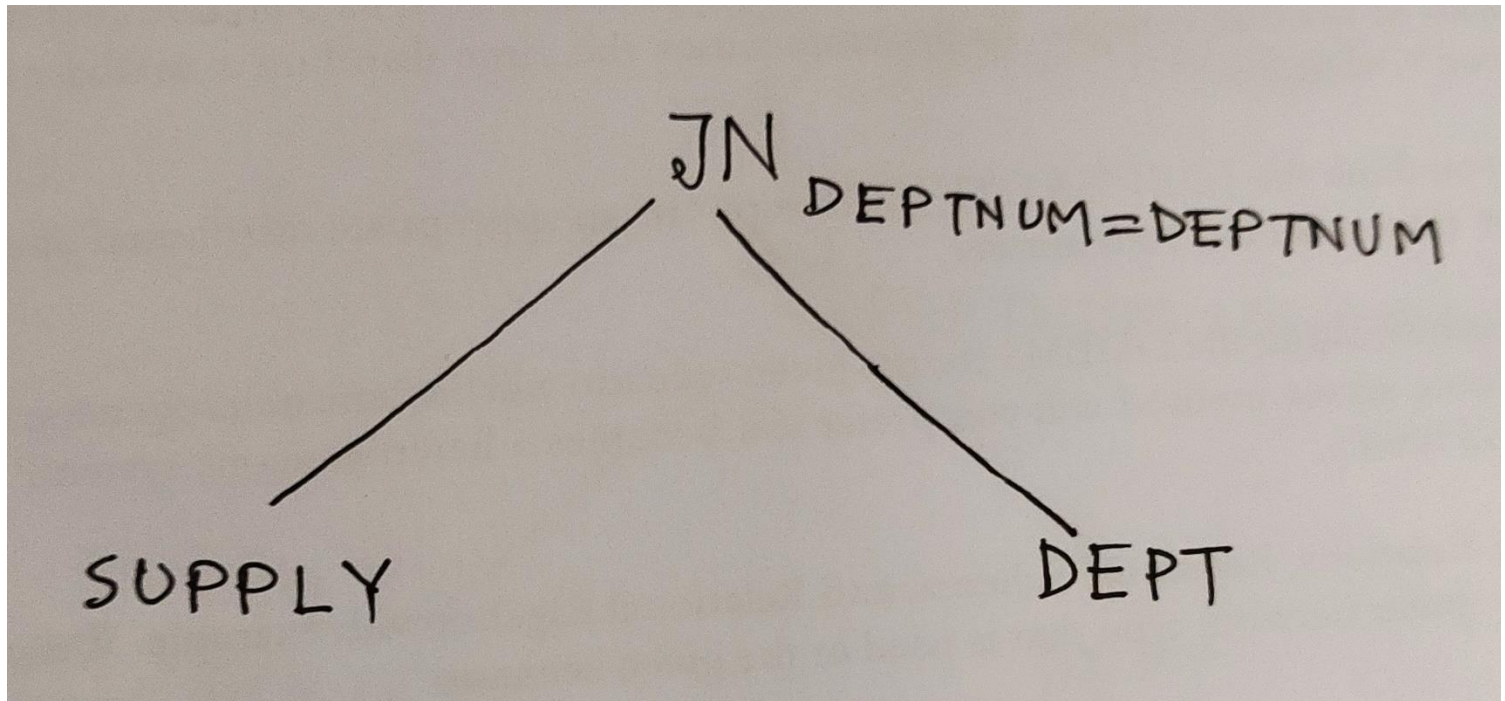
Tree2:



Query: *SUPPLY* **JN** **DEPTNUM=DEPTNUM**

SUPPLY (SNUM, PNUM, DEPTNUM, QUAN)
DEPT (DEPTNUM, NAME, AREA, MGRNUM)

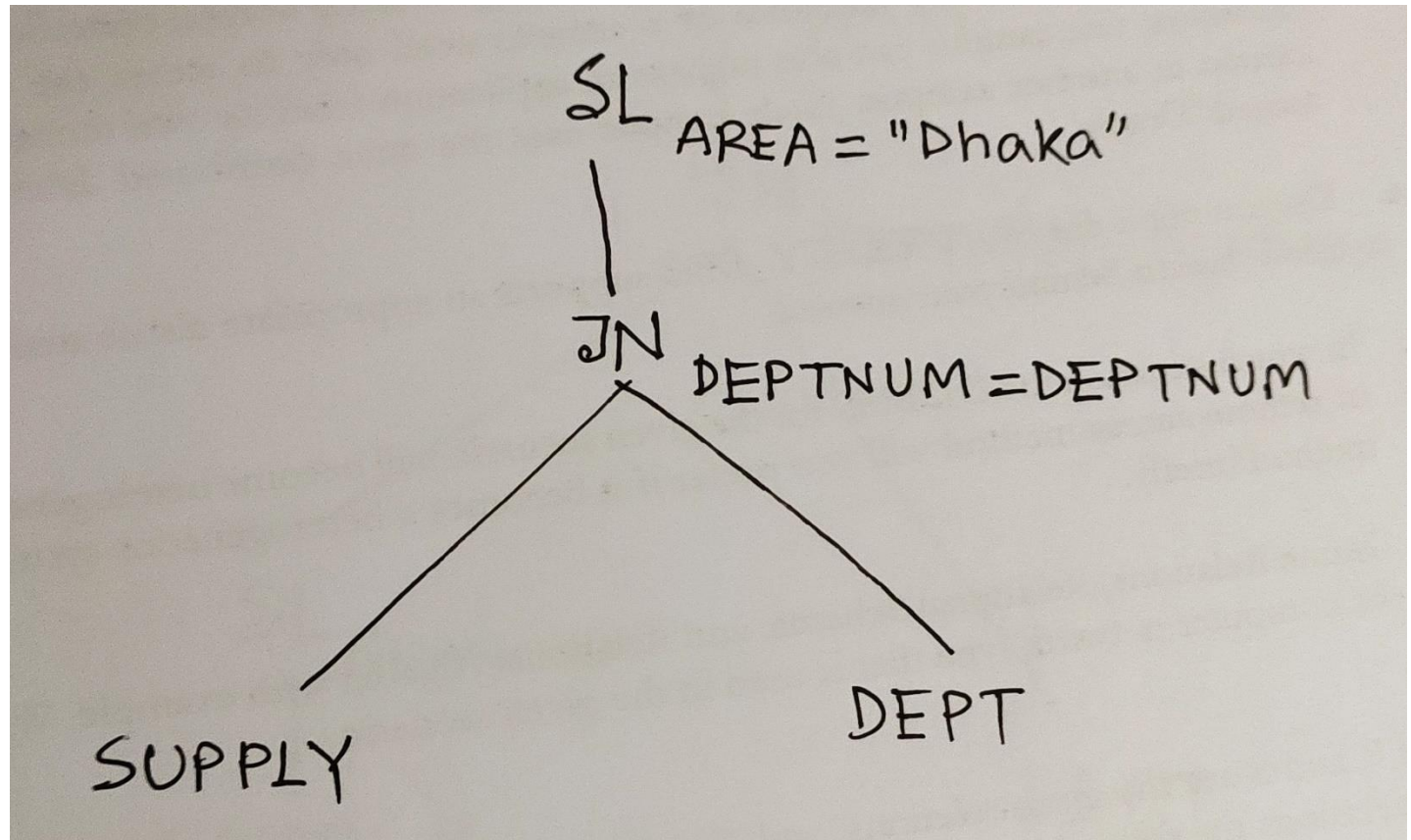
Tree2:



Query: *SUPPLY* **JN** *DEPTNUM=DEPTNUM* *DEPT*

SUPPLY (SNUM, PNUM, DEPTNUM, QUAN)
DEPT (DEPTNUM, NAME, AREA, MGRNUM)

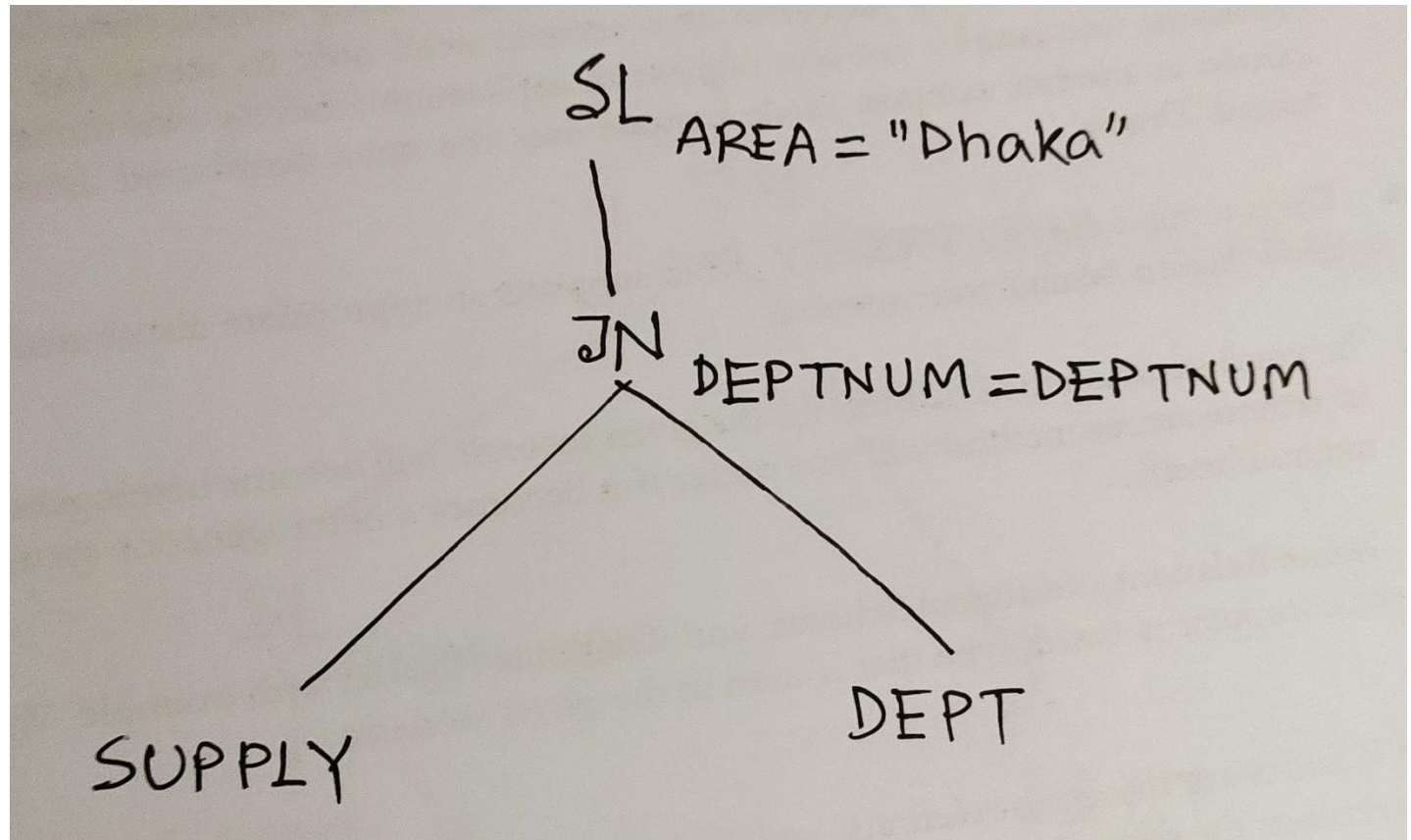
Tree 3:



Query: ***SUPPLY***

SUPPLY (SNUM, PNUM, DEPTNUM, QUAN)
DEPT (DEPTNUM, NAME, AREA, MGRNUM)

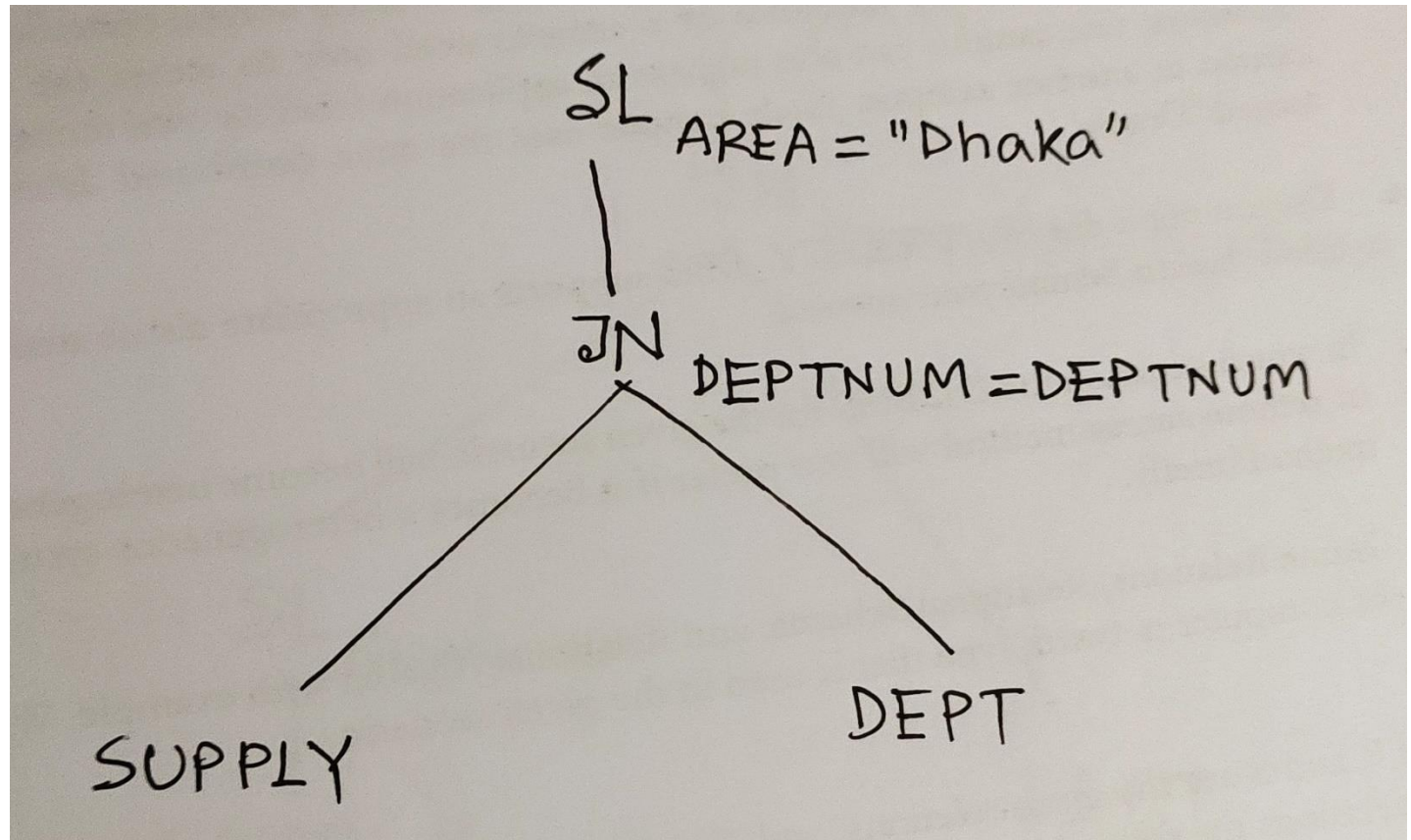
Tree 3:



Query: *SUPPLY* **JN** *DEPTNUM=DEPTNUM*

SUPPLY (*SNUM*, *PNUM*, *DEPTNUM*, *QUAN*)
DEPT (*DEPTNUM*, *NAME*, *AREA*, *MGRNUM*)

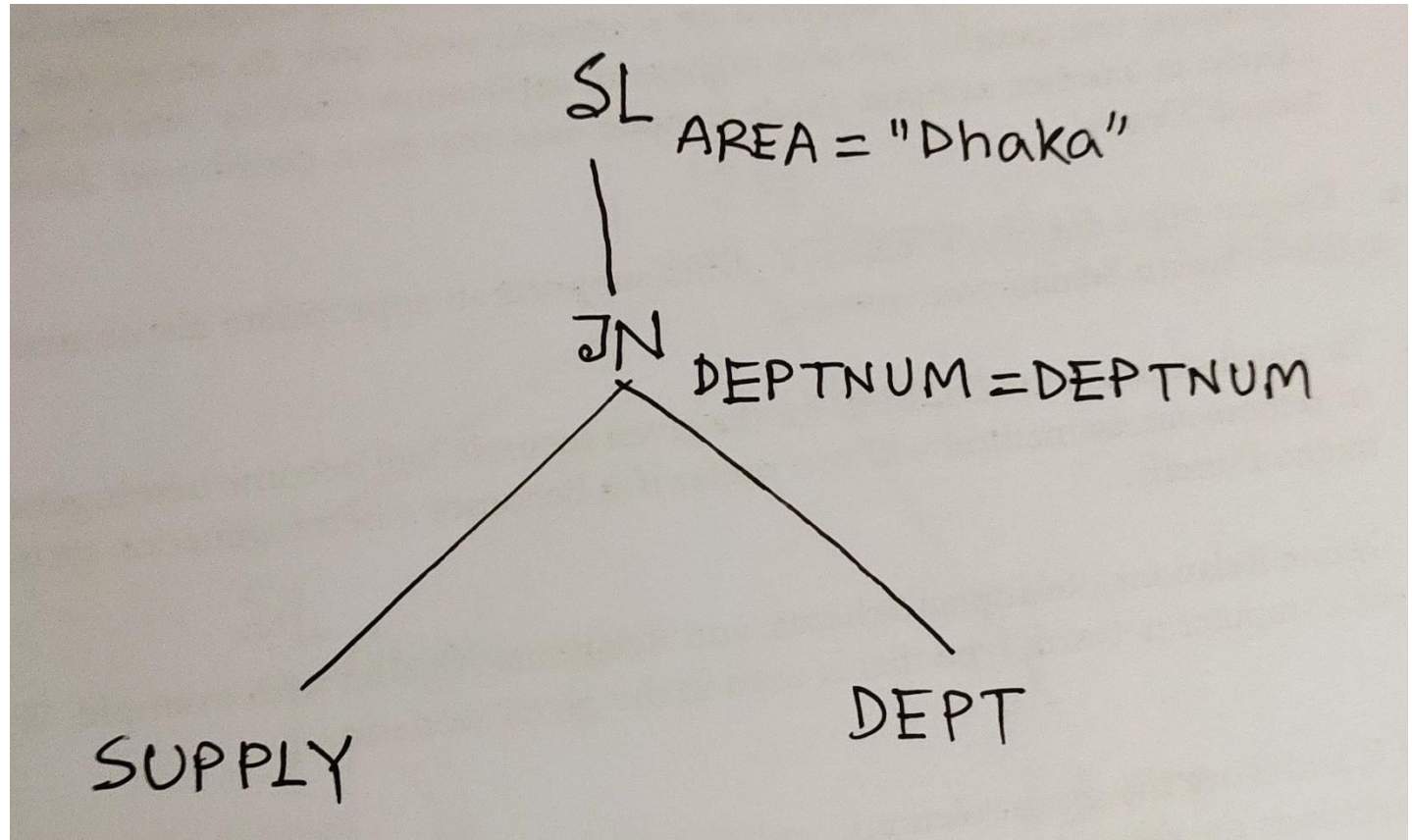
Tree 3:



Query: *SUPPLY* **JN** *DEPTNUM=DEPTNUM* *DEPT*

SUPPLY (*SNUM*, *PNUM*, *DEPTNUM*, *QUAN*)
DEPT (*DEPTNUM*, *NAME*, *AREA*, *MGRNUM*)

Tree 3:

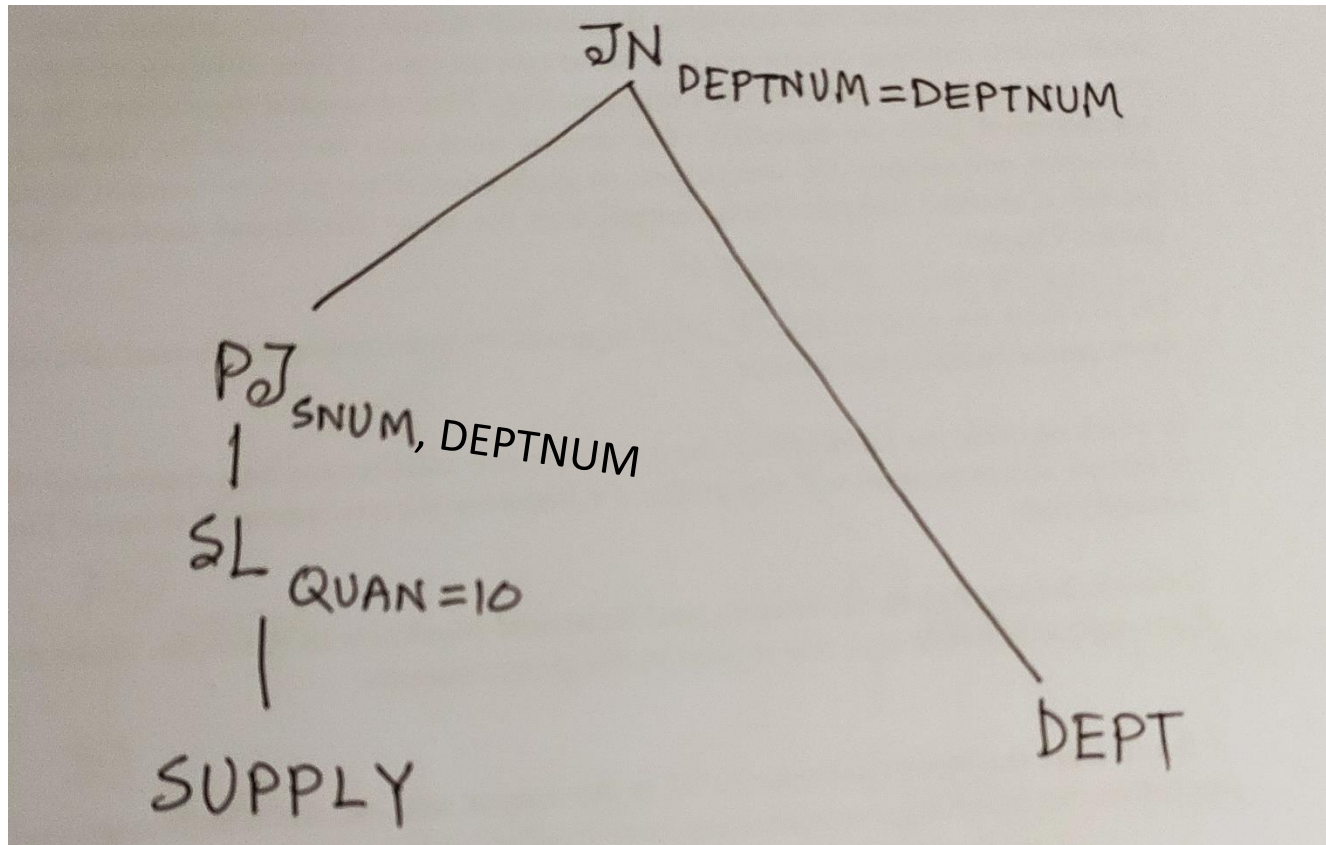


Query: **SL** *AREA="Dhaka"* (*SUPPLY* **JN** *DEPTNUM=DEPTNUM* *DEPT*)

SUPPLY (SNUM, PNUM, DEPTNUM, QUAN)

DEPT (DEPTNUM, NAME, AREA, MGRNUM)

Tree 4:

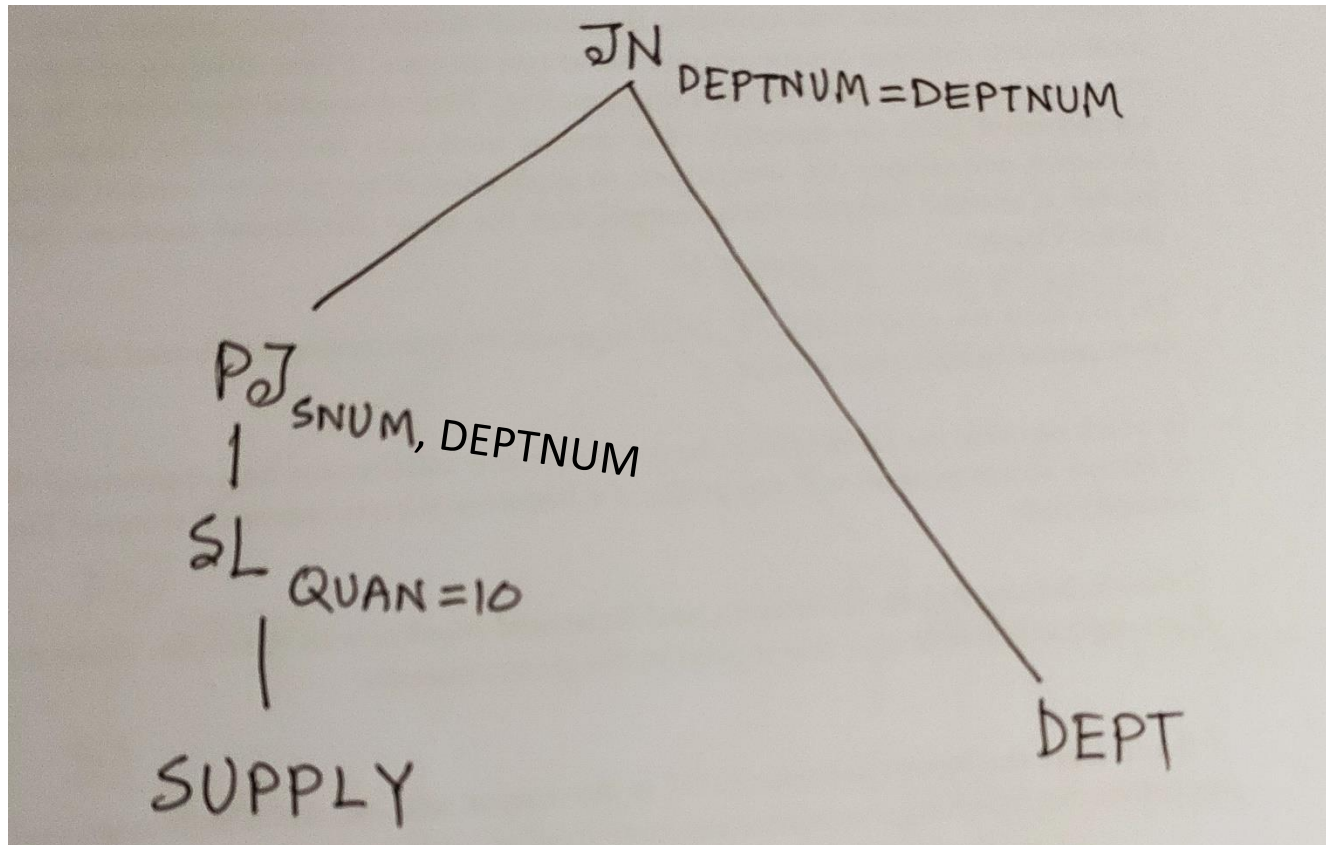


Query:

SUPPLY (SNUM, PNUM, DEPTNUM, QUAN)

DEPT (DEPTNUM, NAME, AREA, MGRNUM)

Tree 4:

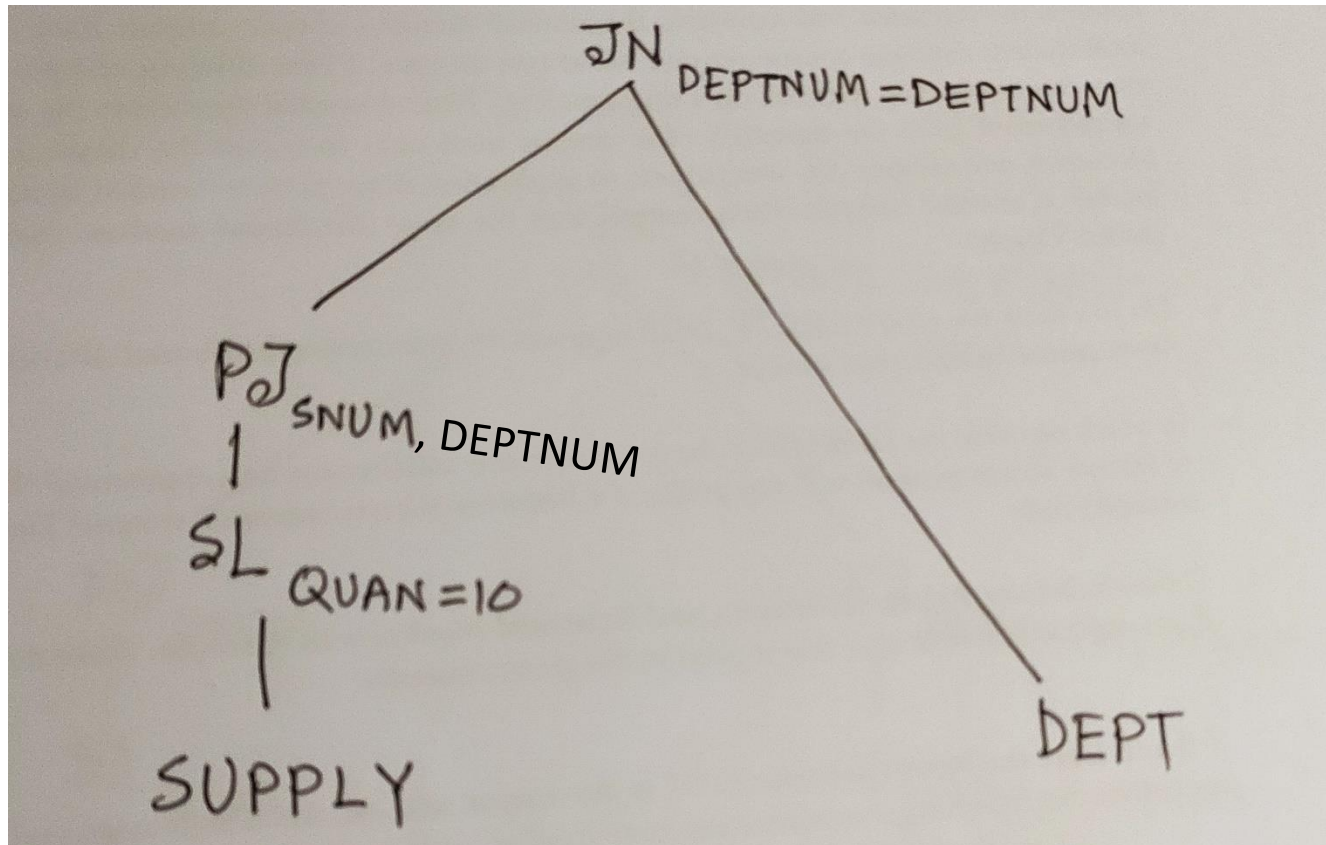


Query: **PJ** SNUM, DEPTNUM

SUPPLY (SNUM, PNUM, DEPTNUM, QUAN)

DEPT (DEPTNUM, NAME, AREA, MGRNUM)

Tree 4:

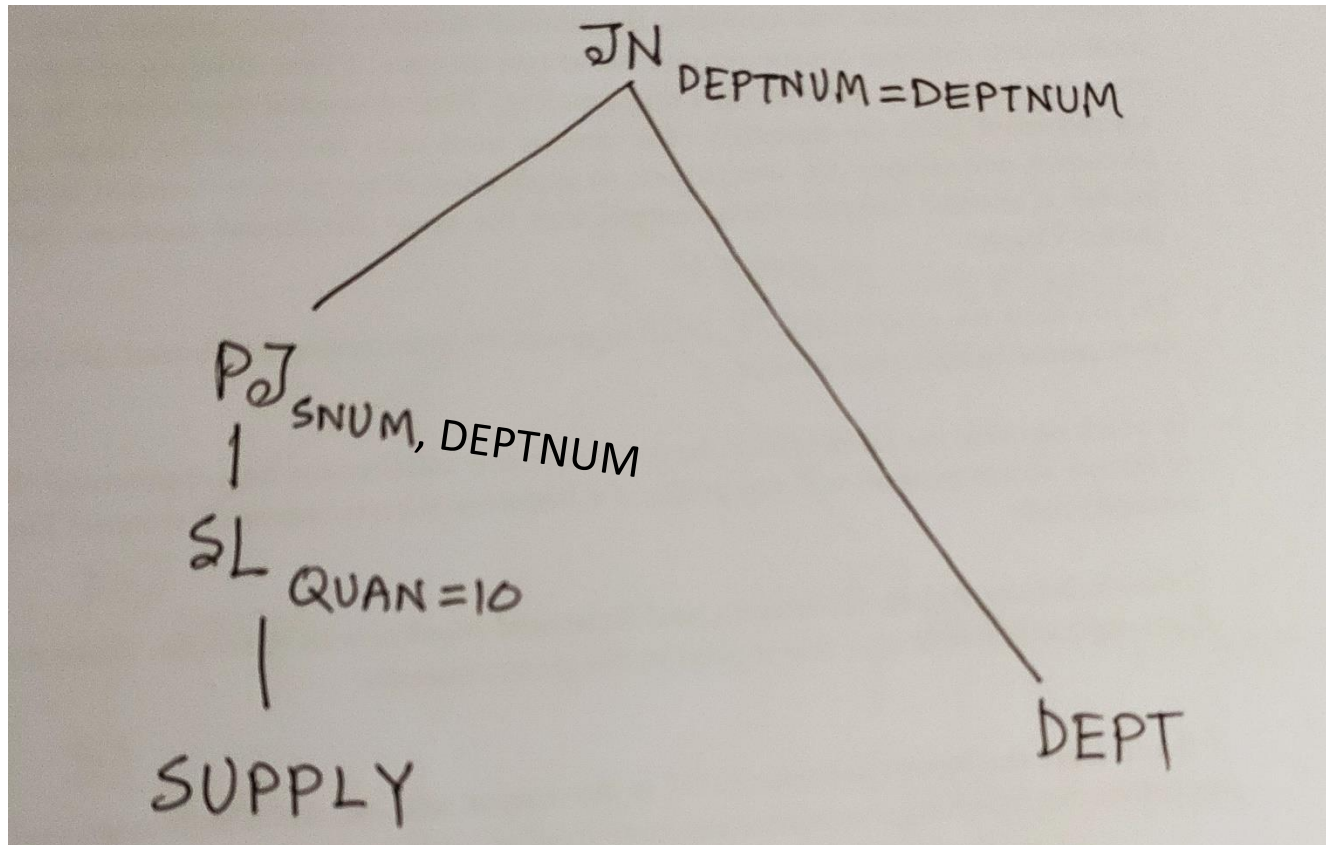


Query: **PJ** **SNUM, DEPTNUM** **SL** **QUAN=10**

SUPPLY (SNUM, PNUM, DEPTNUM, QUAN)

DEPT (DEPTNUM, NAME, AREA, MGRNUM)

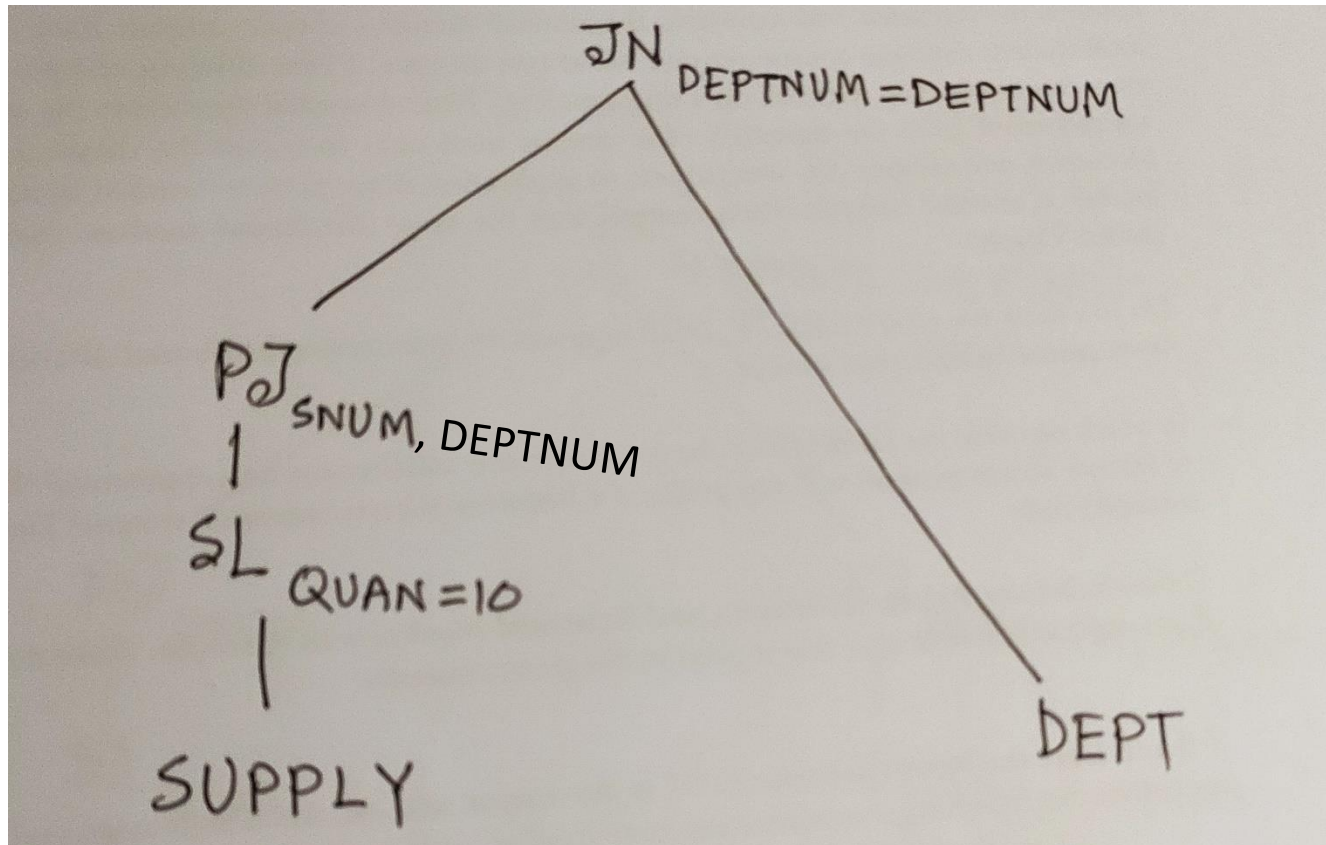
Tree 4:



Query: **PJ** **SNUM, DEPTNUM** **SL** **QUAN=10** **SUPPLY**

SUPPLY (SNUM, PNUM, DEPTNUM, QUAN)
DEPT (DEPTNUM, NAME, AREA, MGRNUM)

Tree 4:



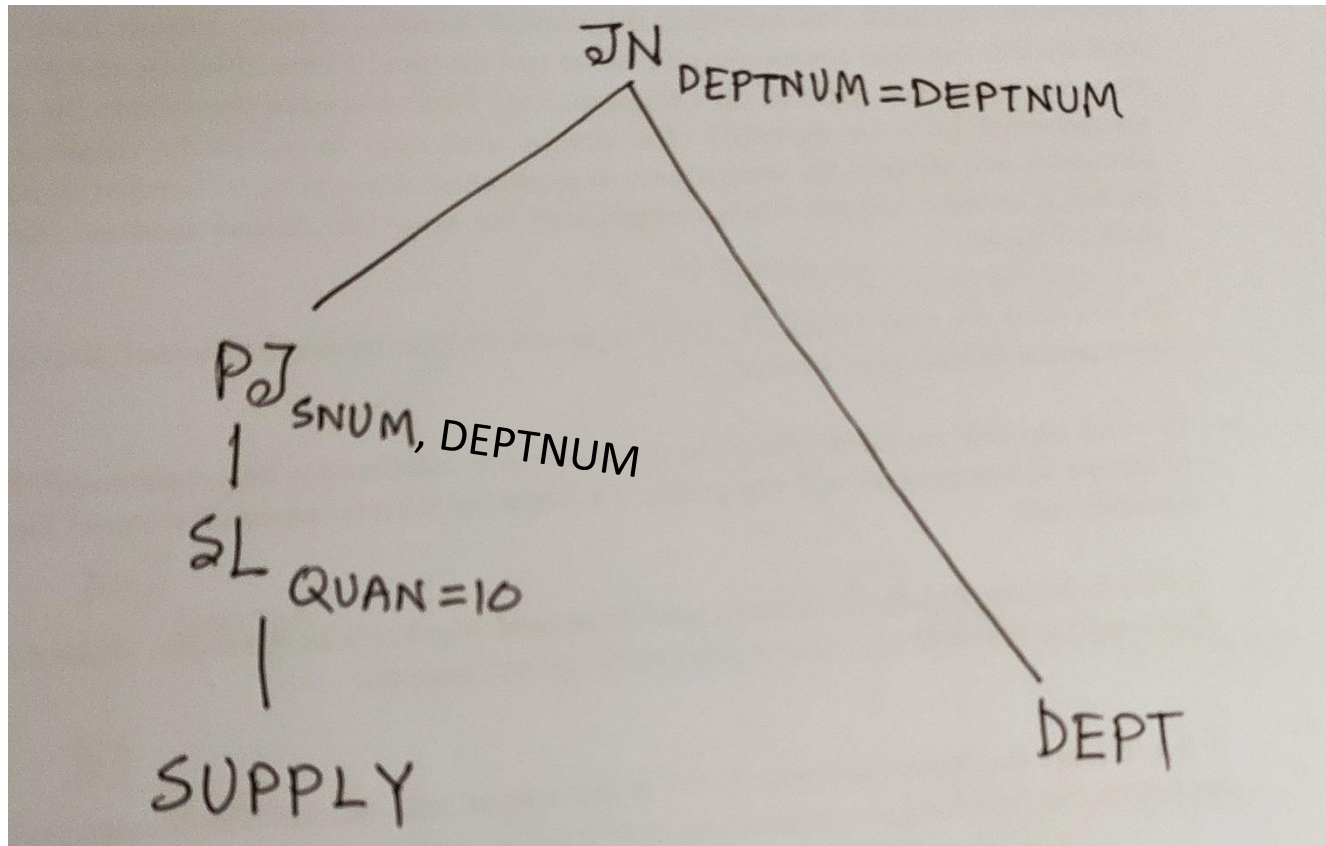
Query:

PJ *SNUM, DEPTNUM* **SL** *QUAN=10* *SUPPLY* **JN** *DEPTNUM=DEPTNUM*

SUPPLY (SNUM, PNUM, DEPTNUM, QUAN)

DEPT (DEPTNUM, NAME, AREA, MGRNUM)

Tree 4:



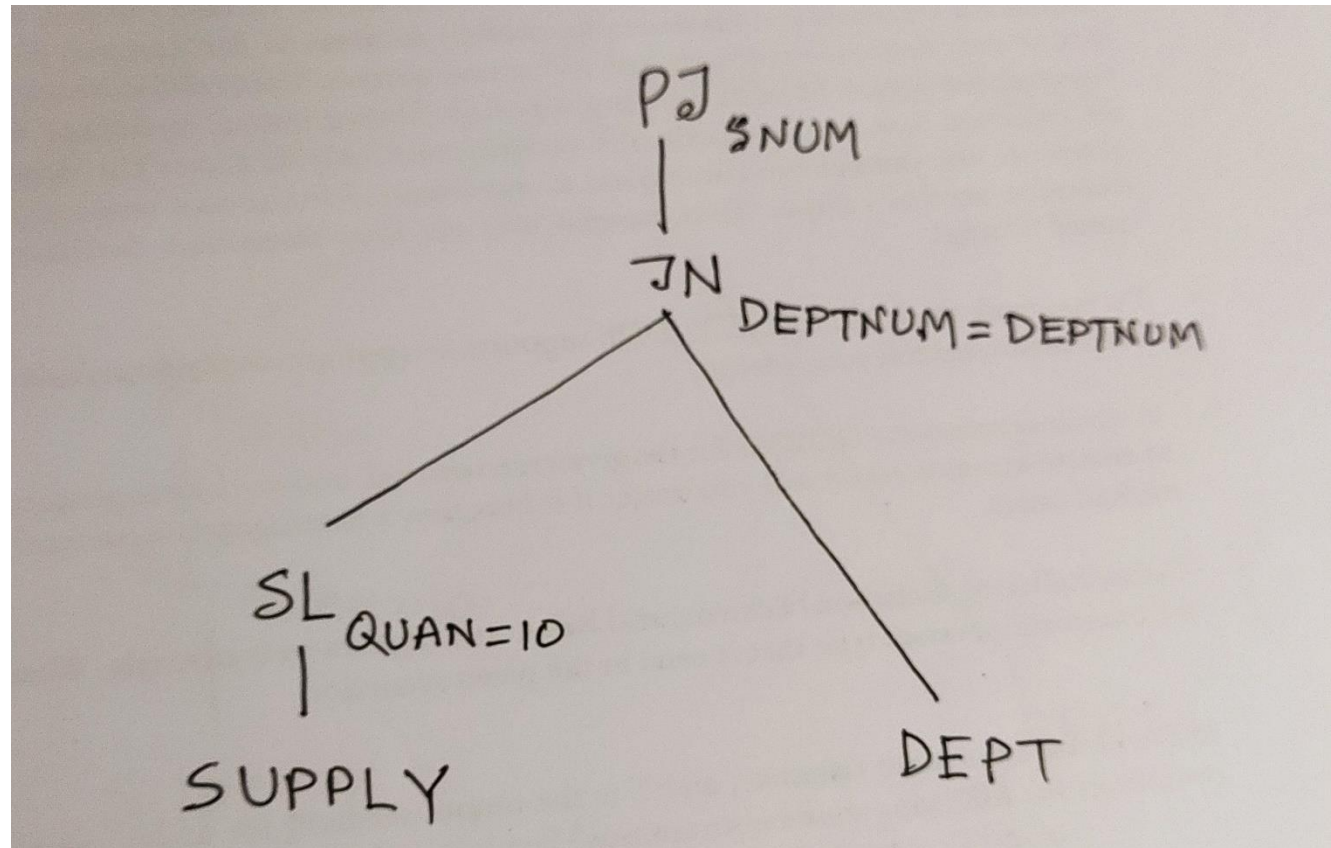
Query:

PJ *SNUM, DEPTNUM* **SL** *QUAN=10* *SUPPLY* **JN** *DEPTNUM=DEPTNUM* *DEPT*

SUPPLY (SNUM, PNUM, DEPTNUM, QUAN)

DEPT (DEPTNUM, NAME, AREA, MGRNUM)

Tree 5:

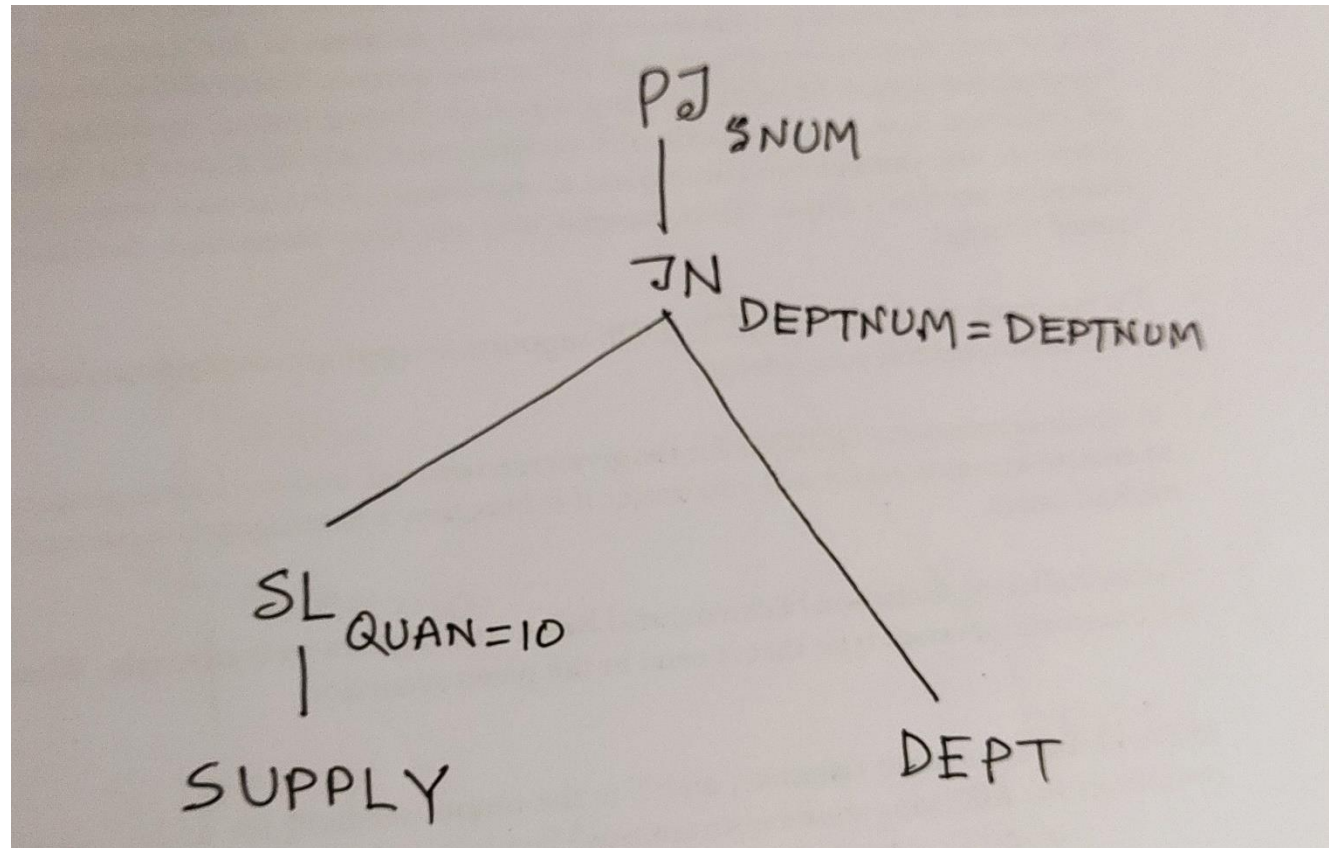


Query: **SL** QUAN=10

SUPPLY (SNUM, PNUM, DEPTNUM, QUAN)

DEPT (DEPTNUM, NAME, AREA, MGRNUM)

Tree 5:

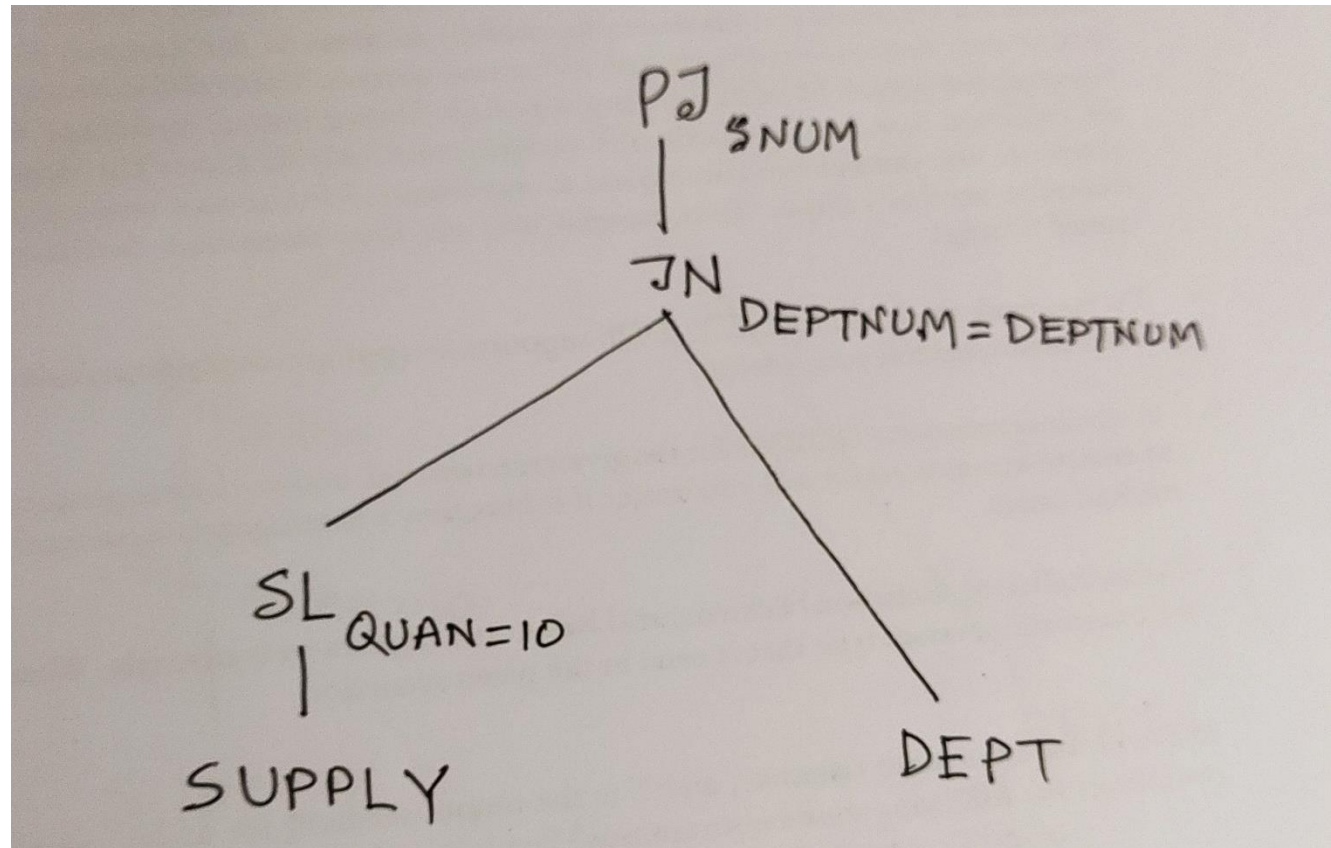


Query: **SL** _{QUAN=10} **SUPPLY**

SUPPLY (SNUM, PNUM, DEPTNUM, QUAN)

DEPT (DEPTNUM, NAME, AREA, MGRNUM)

Tree 5:

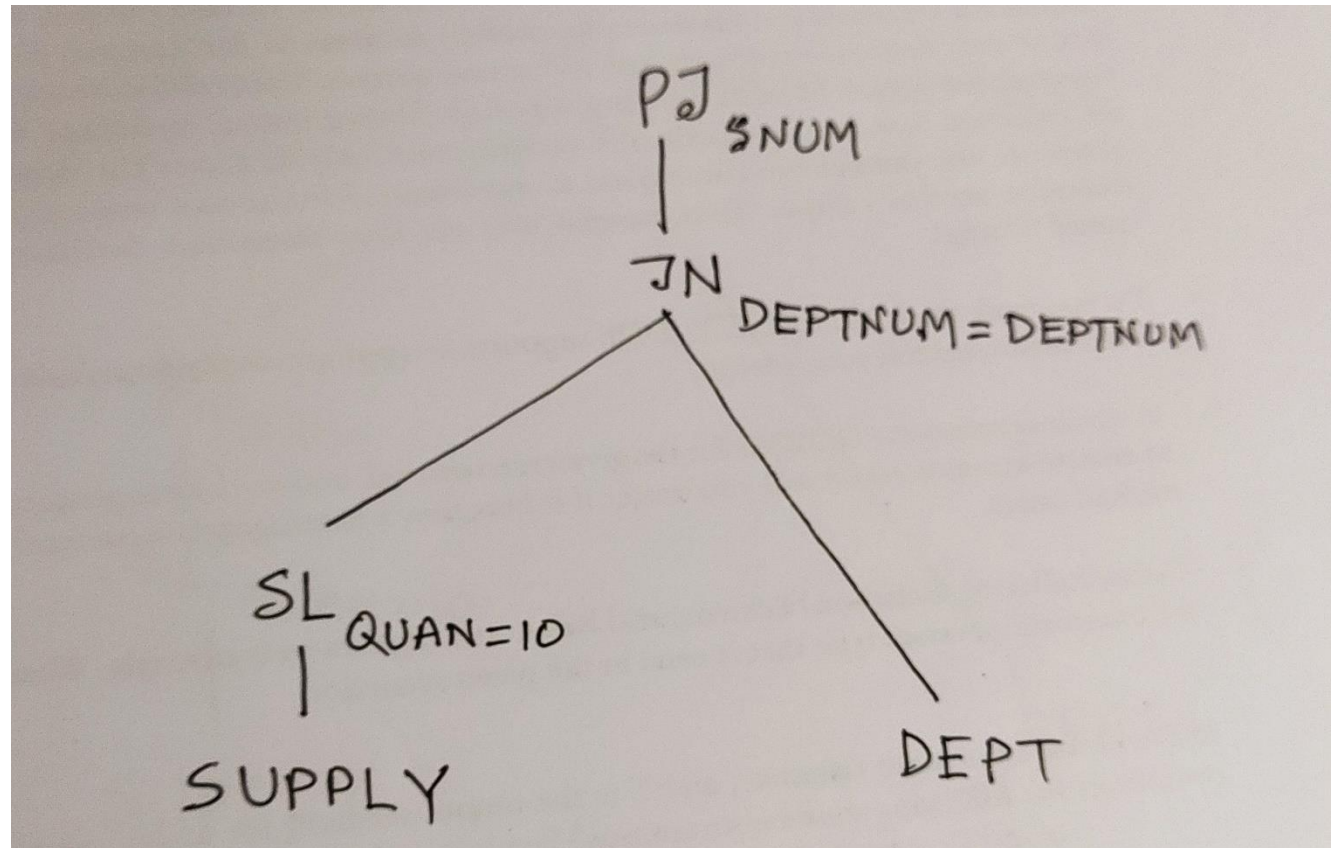


Query: **SL** _{QUAN=10} **SUPPLY** **JN** _{DEPTNUM=DEPTNUM}

SUPPLY (SNUM, PNUM, DEPTNUM, QUAN)

DEPT (DEPTNUM, NAME, AREA, MGRNUM)

Tree 5:

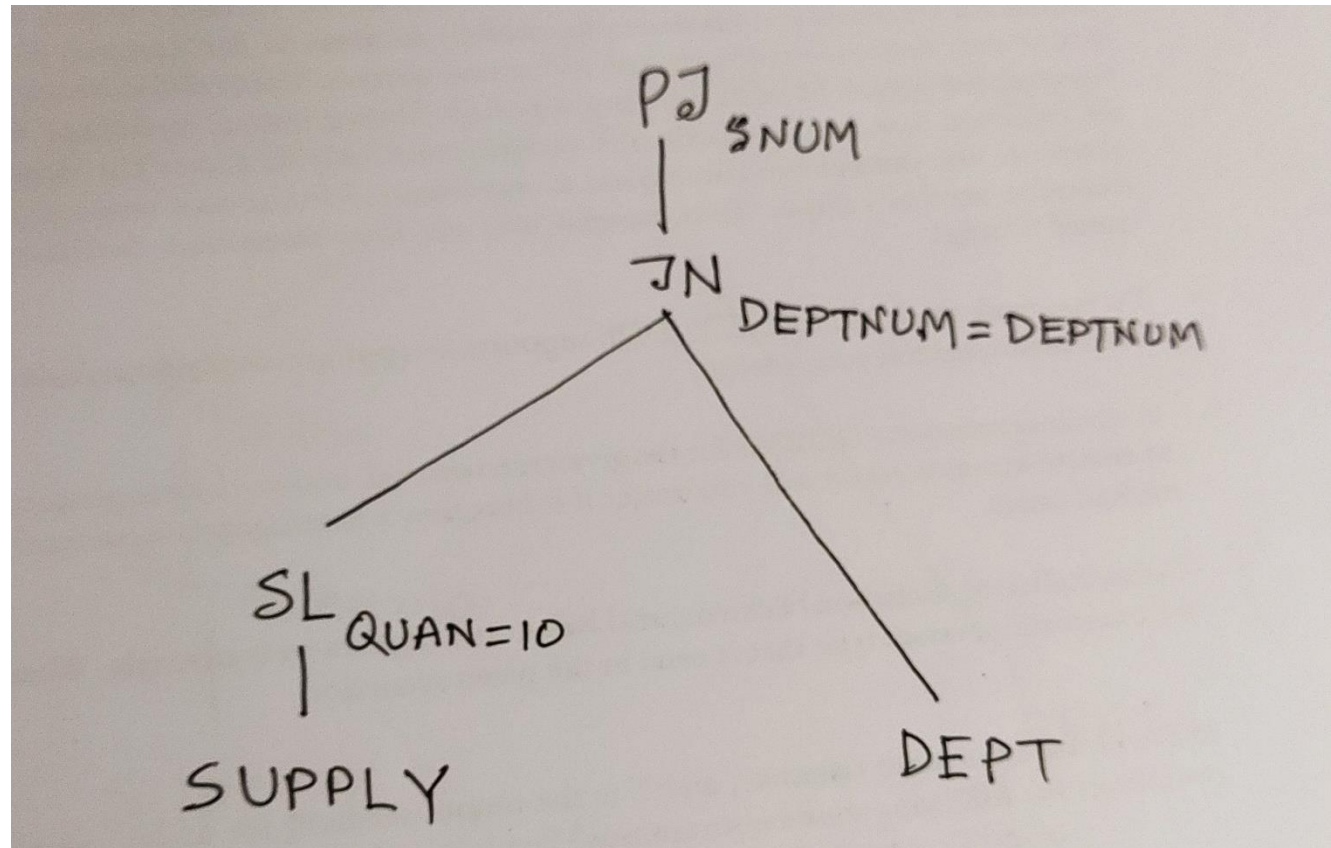


Query: **SL** _{QUAN=10} **SUPPLY** **JN** _{DEPTNUM=DEPTNUM} **DEPT**

SUPPLY (SNUM, PNUM, DEPTNUM, QUAN)

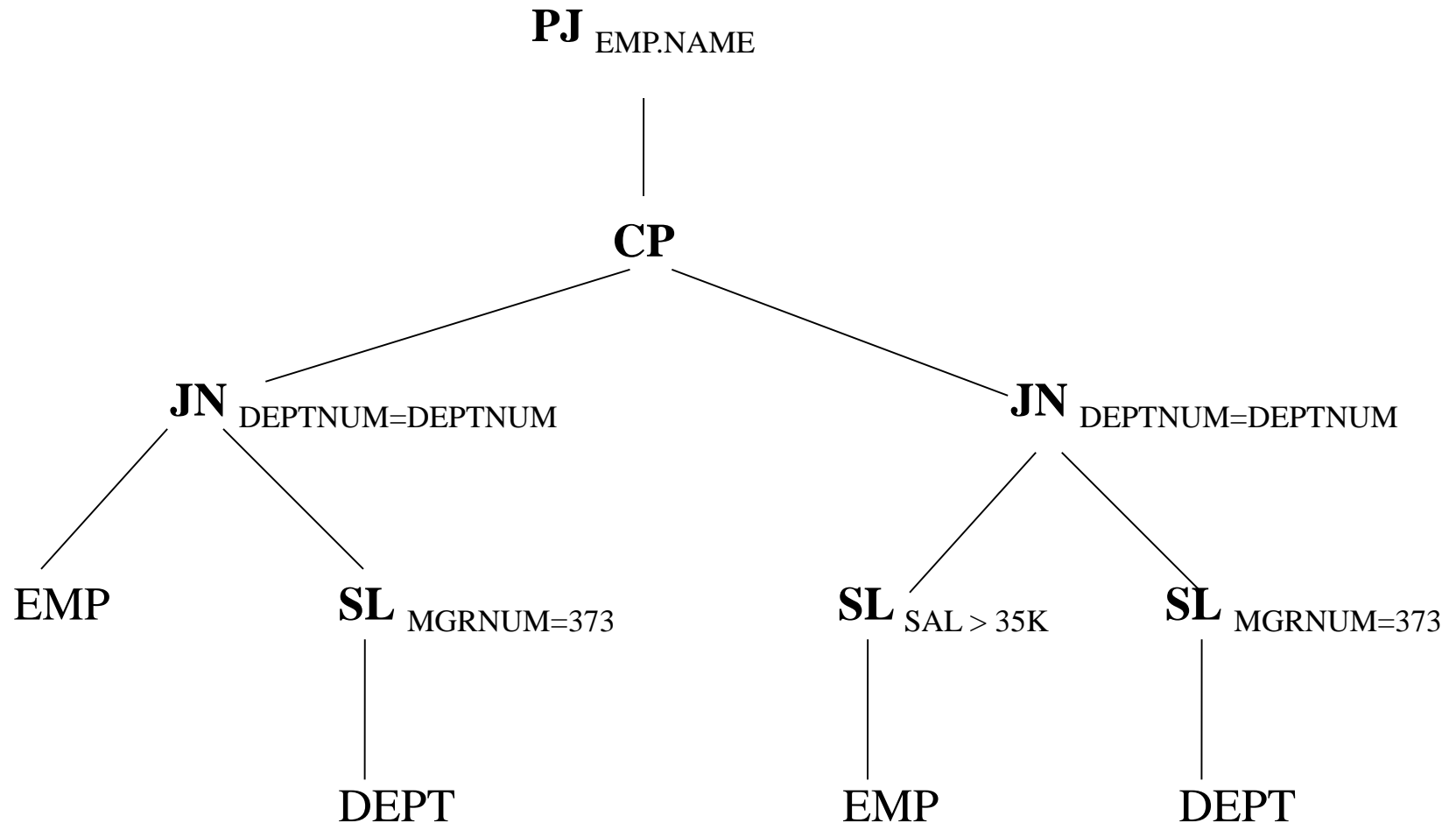
DEPT (DEPTNUM, NAME, AREA, MGRNUM)

Tree 5:

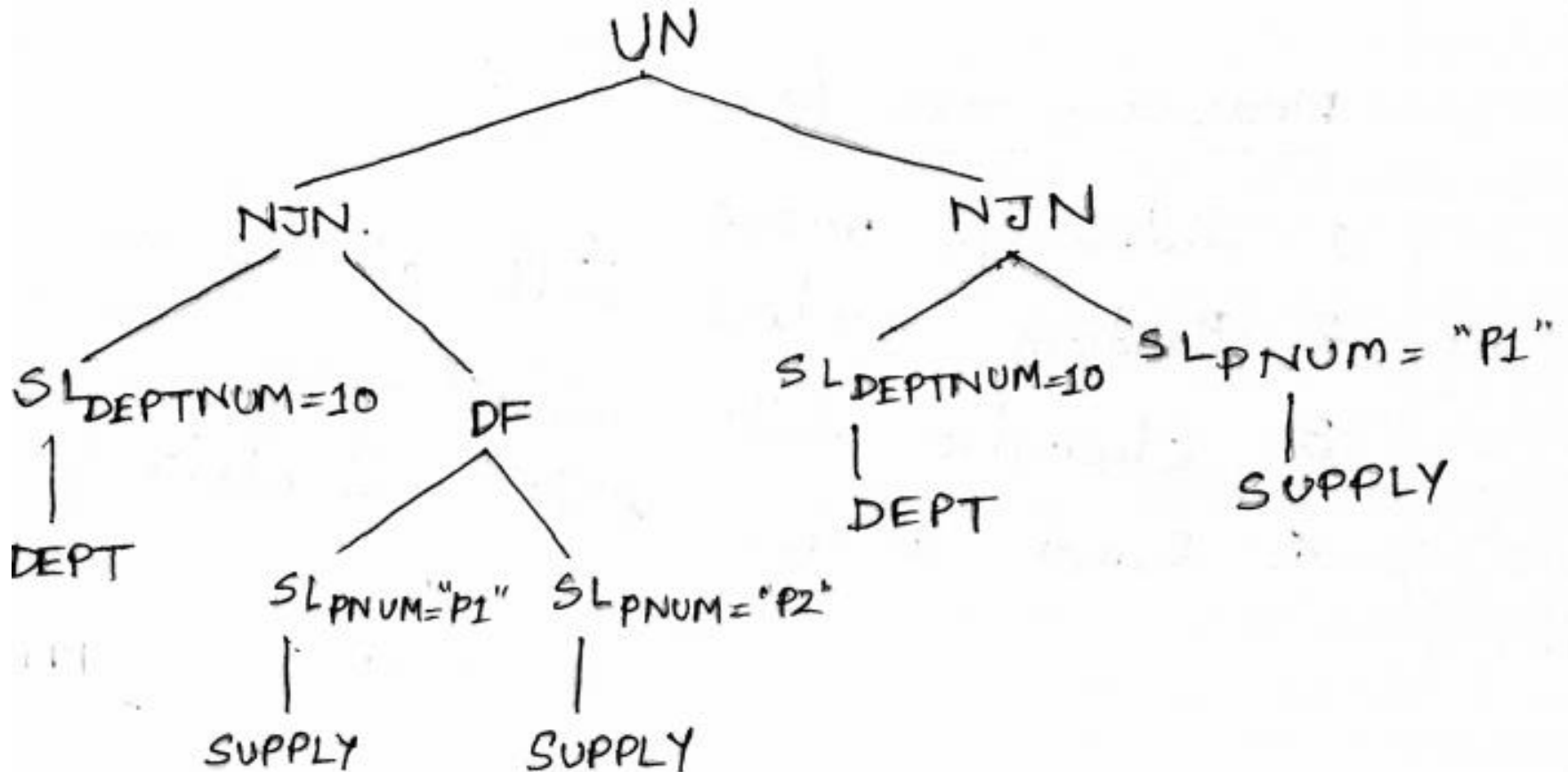


Query: **PJ**_{SNUM} (**SL**_{QUAN=10} *SUPPLY* **JN**_{DEPTNUM=DEPTNUM} *DEPT*)

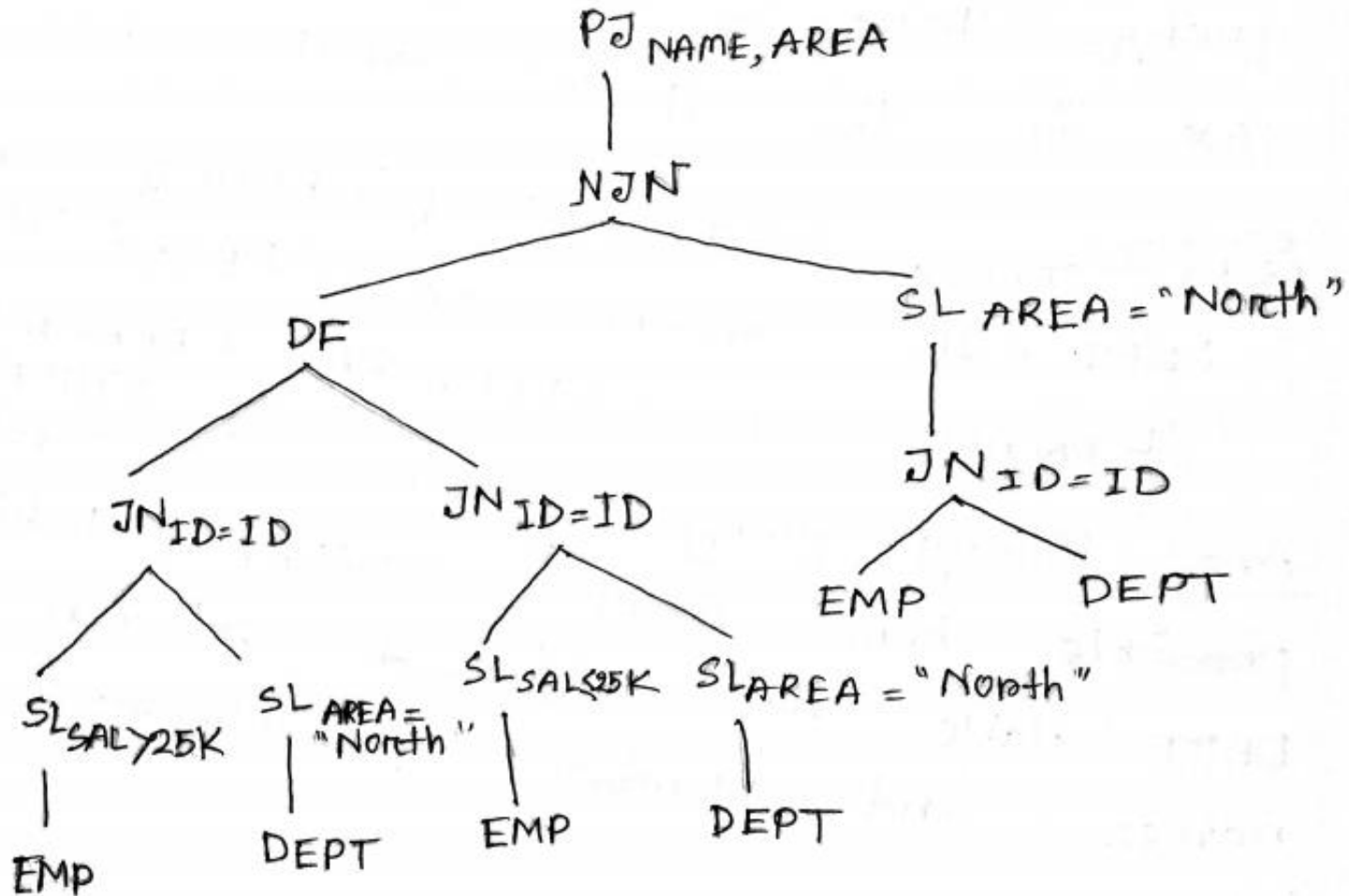
Practice Tree 1:



Practice Tree 2:



Practice Tree 3:



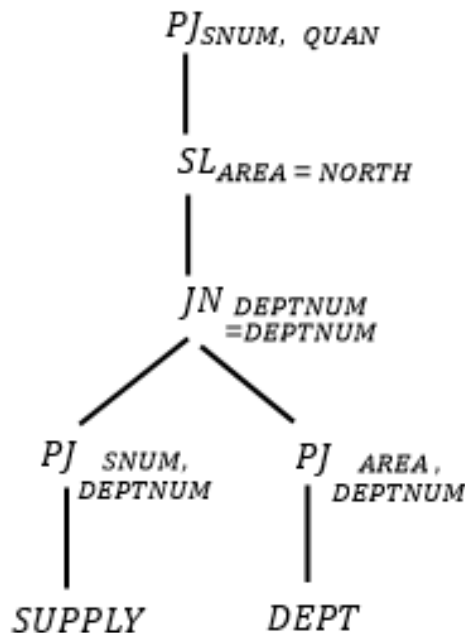
Food for Thought

(c) Consider the following relational schema:

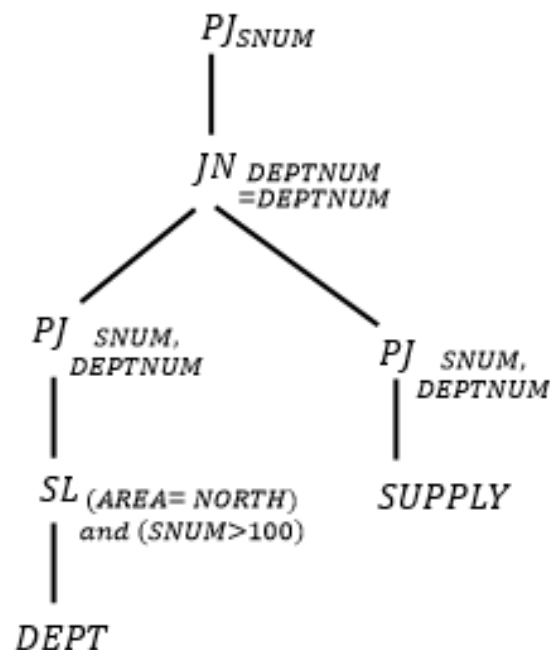
DEPT (*DEPTNUM*, *NAME*, *AREA*, *MGRNUM*)

SUPPLY (*SNUM*, *PNUM*, *DEPTNUM*, *QUAN*)

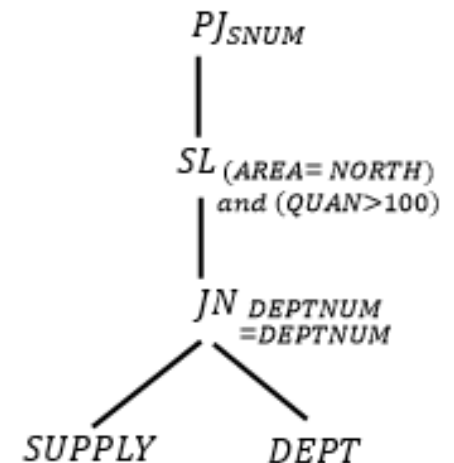
Find the invalid operator trees from the following Q_1 , Q_2 and Q_3 . State the reason behind your answer.



Q_1



Q_2



Q_3