Assignment 1

Consider the following schema:

SUPPLIERS (SID: *integer*, SNAME: *string*, STREET: *string,* CITY: *string,* ZIP: *string*)

PARTS (PID: *integer*, PNAME: *string*, COLOR: *string*) CATALOG (SID: *integer*, PID: *integer*, COST: *real*)

1. πCITY (πPID (σ COLOR = 'red' (PARTS) ) \* σ COST>100 (CATALOG) \* πSID, CITY (SUPPLIERS) )

This query will return relation containing cities of all suppliers who sale red parts having cost greater than 100.

1. Find the names of parts for which there is some supplier

R1 SID(CATLOG)

R2 PID(CATLOG \* R1)

R3 PNAME(PARTS\*R2)

1. Find the names of parts supplied by suppliers who are at 1 Central Ave.

R1 SID STREET=’1 central Ave.’ (SUPPLIERS))

R2 PID(CATLOG \* R1)

R3 PNAME(PARTS\*R2)

1. Find the names of suppliers who supply some red part.

R1 PID COLOR=’Red’ PARTS)

R2 SID(CATLOG \* R1)

R3 SNAME(CATALOG\*R2)

1. Find the SIDs of suppliers who supply some red or green part.

R1 PID COLOR=’Red’ PARTS)

R2 PID COLOR=’Green’ PARTS)

R3 SID(CATALOG\*(R1R2))

1. Find the SID of suppliers who supply some red part or whose address is '221 Packer Street'.

R1 PID COLOR=’Red’ PARTS)

R2 SID(CATLOG \* R1)

R3 SID( SUPPLIERS))(R2)

1. Find the SIDs of suppliers who supply some red part and some green part.

R1 PID COLOR=’Red’ PARTS)

R2 PID( COLOR=’Green’ PARTS)

R3 SID(CATALOG \*R1))SID(CATALOG \*R2))

1. Find the PIDs of parts that are red or are supplied by a supplier who is at the city of Newark.

R1 PID COLOR=’Red’ PARTS)

R2 SID CITY=’Newark’ SUPPLIERS)

R3 PID(CATALOG \* R2)) R2

1. Find the PIDs of parts supplied by a supplier who is at the city of Newark and by a supplier who is at the city of Trenton.

R1 SID CITY=’Newark’ SUPPLIER))SID CITY=’Trenton’ SUPPLIER)) - SID CITY=’Trenton’ SUPPLIER)) SID CITY=’Newark’ SUPPLIER))

R2 PID(CATALOG \* R1)

1. Find the PIDs of parts supplied by each and every supplier.

R1 PID, SID (CATALOG)) SID (SUPPLIER))

1. Find the PIDs of parts supplied by each and every supplier who supplies at least one part.

R1 PID, SID (CATALOG) SID (SUPPLIER)

1. Find the PIDs of parts supplied by each and every supplier who is at the city of Newark or at the city of Trenton (equivalently: find the PIDs of parts supplied by each and every supplier who is at the city of Newark and by each and every supplier who is at the city of Trenton).

R1 SID CITY=’Newark’ SUPPLIER))SID CITY=’Trenton’ SUPPLIER)) - SID CITY=’Trenton’ SUPPLIER)) SID CITY=’Newark’ SUPPLIER))

R2 PID(CATALOG \* R1)

1. Find the PIDs of parts supplied by each and every supplier who is at the city of Newark or by each and every supplier who is at the city of Trenton.

R1 SID CITY=’Newark’ SUPPLIER))SID CITY=’Trenton’ SUPPLIER))

R2 PID(CATALOG \* R1)

1. Which one of the queries 11 and 12 is more restrictive (if any)?

11 is more restrictive because it doesn’t allow suppliers located at both Newark and Trenton.

1. Find pairs of PIDs such that the part with the first PID is sold at a higher price by a supplier than the part with the second PID.

R1 PARTIDPID, PRICECOST (CATALOG)

R2 PID,PARTID( COST>PRICE(CATALOG \* R1))

1. Find the SIDs of suppliers who supply at least two different parts (you are not allowed to use a grouping/aggregation operation for this query).

R1 PIDPARTID, SIDSUPID (CATALOG)

R2 SID PID,PARTID(CATALOG ⋈ SID=SUPID R1))

1. Find the SIDs of suppliers who supply at least two different parts (you have to use a grouping/aggregation operation for this query).

R1 SID COUNT(PID)>1(SIDFCOUNT(PID) (CATALOG)))

1. For every part supplied by a supplier who is at the city of Newark, print the PID and the SID and the name of the suppliers who sell it at the highest price.

R1 SID,SNAME CITY=’Newark’ SUPPLIER)

R2 SID,PID FMAX(COST)(CATALOG)

R3 PID,SID,SNAME(T1 \* T2)

1. For every part, find its PID, its PNAME and the number of suppliers who sell it.

R1 SID,PID,PNAME (PARTS \* CATALOG)

R2 PID,PNAME FCOUNT(SID) (T1)

1. List the PID, PNAME and average cost of all parts.

R1 FAVG(COST) (COST(CATALOG))

R2 PID,PNAME(PARTS) R1

1. Find the average cost of red parts.

R1 PID( COLOR=’Red’ PARTS)

R2  FAVG(COST) (COST(CATALOG \* R1))

1. Find the average cost of parts supplied by suppliers named 'Yosemite Sham'.

R1 SID( SNAME='Yosemite Sham' (SUPPLIER))

R2  FAVG(COST) (COST(CATALOG \* R1))