COMP3005 Assignment 2

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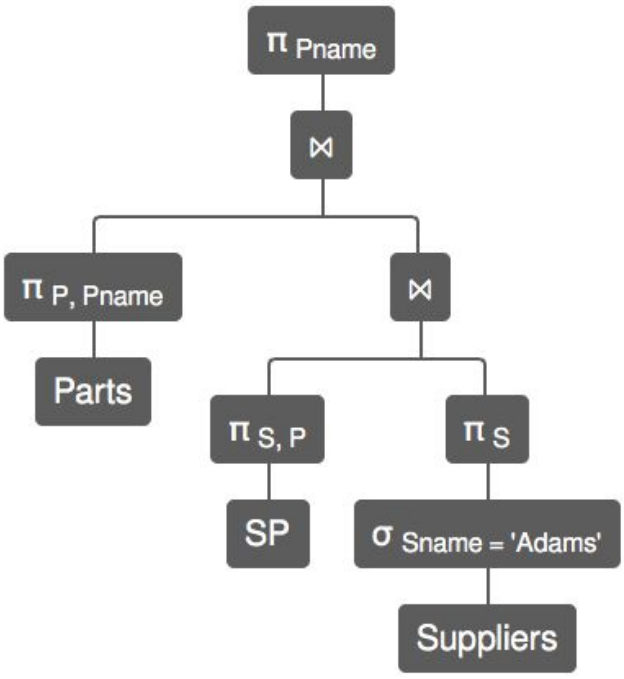
* Note to TA, all of the Relational Algebra statements below have been tested with a tool (http://dbis-uibk.github.io/relax/) and have been visualized and verified as being correct*

Thank you very much

#1

(π Pname ((π P, Pname (Parts))⋈((π S, P (SP))⋈(π S (σ Sname = 'Adams' (Suppliers))))))



$$\pi_{Pname}((\pi_{P,Pname}(Parts)) \bowtie ((\pi_{S,P}(SP)) \bowtie (\pi_{S}(\sigma_{Sname = 'Adams'}(Suppliers)))))$$

Parts.Pname

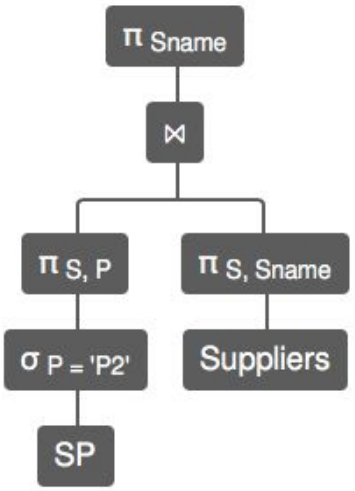
** Note that this query for part names produced by adams returns an empty table. I tested it with other names and it successfully produced the correct results.

-- #2

π Sname ((π S, P (σ P = 'P2' (SP)))⋈(π S, Sname (Suppliers)))

OR:

π Sname σ p= "p2" (Suppliers⋈SP)

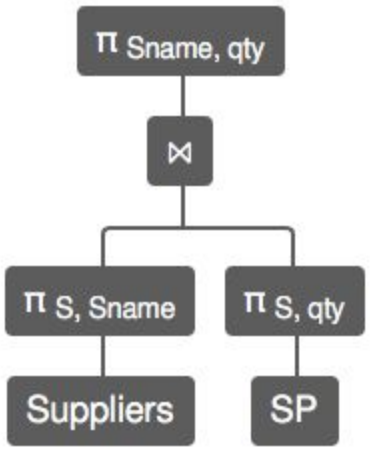


$\pi_{Sname}((\pi_{S,P}(\sigma_{P='P2'}(SP))) \bowtie (\pi_{S,Sname}(Suppliers)))$

Suppliers.Sname
Smith
Jones
Blake
Clark

-- #3

aggregate Sname, sum(qty) (π Sname, qty ((π S, Sname (Suppliers))⋈(π S, qty (SP))));



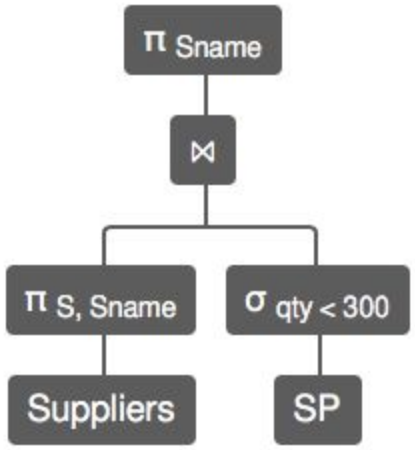
π Sname, qty ((π S, Sname (Suppliers)) ⋈ (π S, qty (SP)))

Suppliers.Sname	SP.qty
Smith	300
Smith	200
Smith	400
Smith	100
Jones	300
Jones	400
Blake	200
Clark	200
Clark	300
Clark	400
Clark	500
Clark	600

Note to TA, the above table represents the table produced prior to **Aggregate Sname sum(qty) being applied. Because such an operation is not supported by the tool I used (http://dbis-uibk.github.io/relax/) for visualizing the result of my relational algebra operations, the final step of showing the sum for each person is not depicted visually.

-- #4

π Sname ((π S, Sname (Suppliers))⋈(σ qty < 300 (SP)))

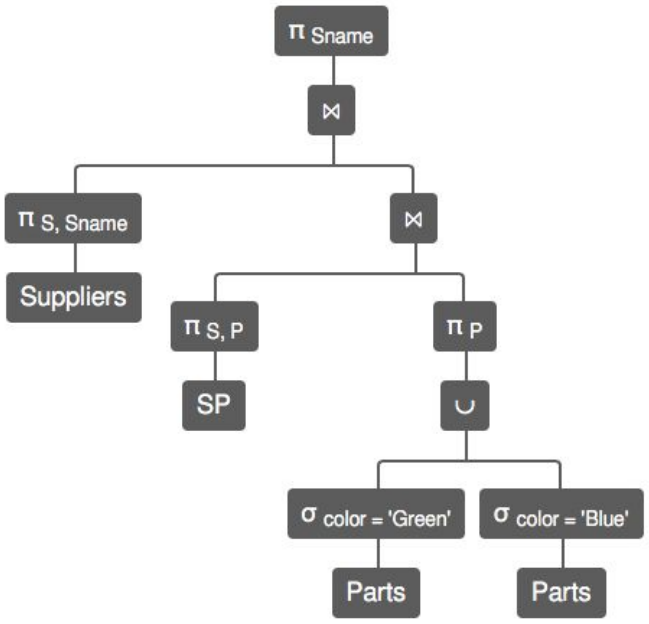


$\pi_{Sname}((\pi_{S,Sname}(Suppliers)) \bowtie (\sigma_{qty<300}(SP)))$

Suppliers.Sname
Smith
Blake
Clark

-- #5

π Sname ((π S, Sname (Suppliers)) ⋈ ((π S, P (SP))⋈ (π P ((σ color = 'Green' (Parts)) ∪ (σ color = 'Blue' (Parts))))))

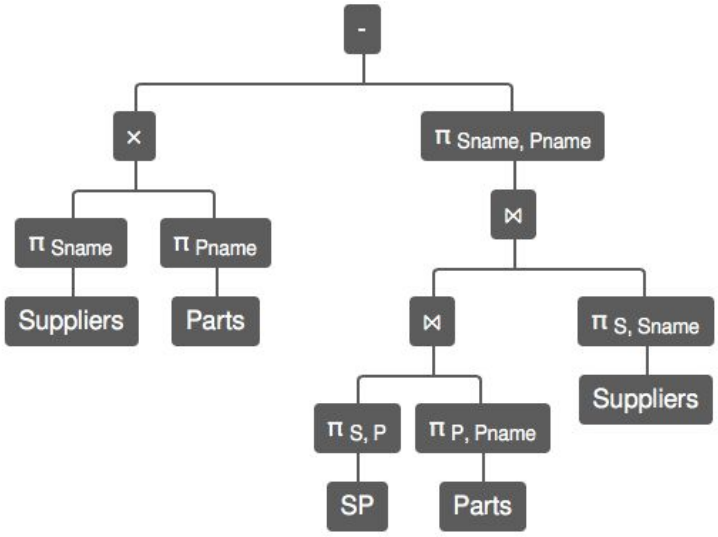


π Sname ((π S, Sname (Suppliers)) ⋈ ((π S, P (SP)) ⋈ (π P ((σ color = 'Green' (Parts)) ∪ (σ color = 'Blue' (Parts))))))

Suppliers.Sname
Smith
Jones
Blake
Clark

-- #6

((π Sname (Suppliers)) □ (π Pname (Parts))) - (π Sname, Pname ((π S, P (SP)) ⋈ (π P, Pname (Parts)) ⋈ (π S, Sname (Suppliers))))

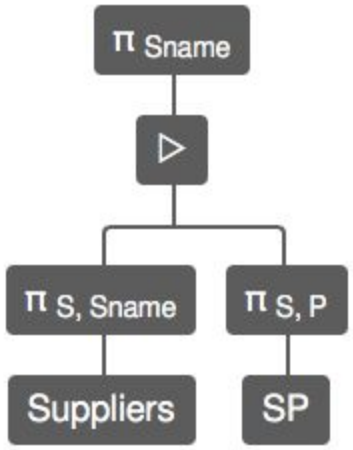


((π Sname (Suppliers)) × (π Pname (Parts))) - (π Sname, Pname ((π S, P (SP)) ⋈ (π P, Pname (Parts)) ⋈ (π S, Sname (Suppliers))))

Suppliers.Sname	Parts.Pname
Jones	Screw
Jones	Cam
Jones	Cog
Blake	Nut
Blake	Screw
Blake	Cam
Blake	Cog
Clark	Nut
Adams	Nut
Adams	Bolt
Adams	Screw
Adams	Cam
Adams	Cog

-- #7

(π Sname ((π S, Sname (Suppliers))▷ (π S, P (SP))))

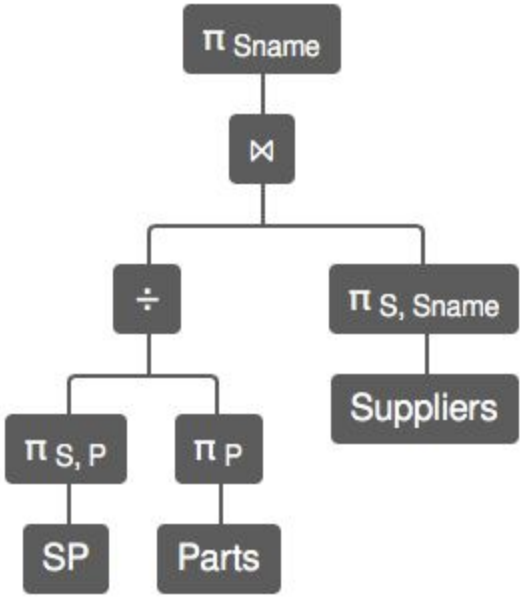


$\pi_{Sname}((\pi_{S,\,Sname}(Suppliers)) \triangleright (\pi_{S,\,P}(SP)))$

Suppliers.Sname
Adams

-- #8

π Sname (((π S, P (SP)) ÷ (π P (Parts)))⋈ (π S, Sname (Suppliers)))

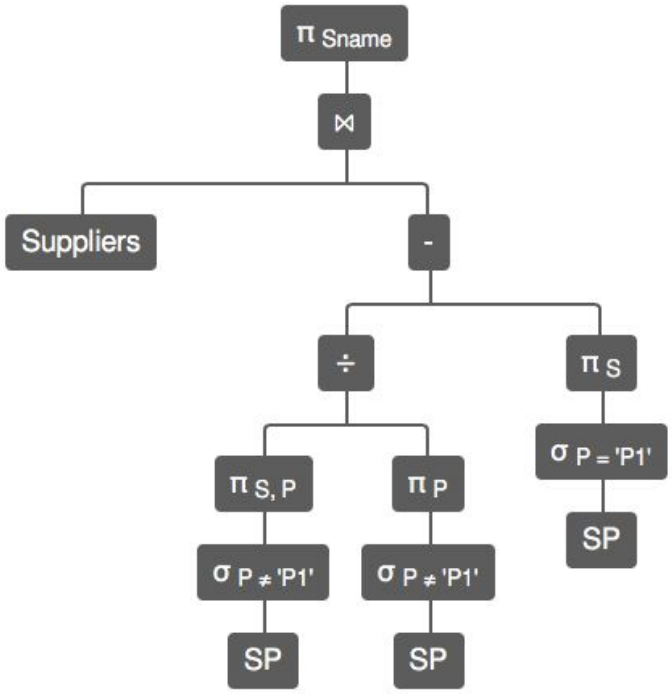


$$\pi_{Sname}(((\pi_{S,P}(SP)) \div (\pi_{P}(Parts))) \bowtie (\pi_{S,Sname}(Suppliers)))$$

Suppliers.Sname
Smith

-- #9

π Sname (Suppliers⋈(((π S, P (σ P !='P1' (SP))) ÷ (π P (σ P != 'P1' (SP)))) - (π S (σ P = 'P1' (SP)))))

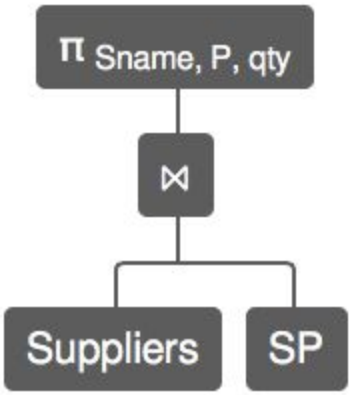


π Sname (Suppliers ⋈ (((π S, P (σ P ≠ 'P1' (SP))) ÷ (π P (σ P ≠ 'P1' (SP)))) - (π S (σ P = 'P1' (SP)))))

Suppliers.Sname
Clark

-- #10

aggregate Sname sum(qty) (π Sname, P, qty (Suppliers⋈SP))



π Sname, P, qty (Suppliers ⋈ SP)

Suppliers.Sname	SP.P	SP.qty
Smith	P1	300
Smith	P2	200
Smith	P3	400
Smith	P4	200
Smith	P5	100
Smith	P6	100
Jones	P1	300
Jones	P2	400
Blake	P2	200
Clark	P2	200
Clark	P3	300
Clark	P4	400
Clark	P5	500
Clark	P6	600

Note to TA, the above table represents the table produced prior to **Aggregate Sname sum(qty) being applied. Because such an operation is not supported by the tool I used (http://dbis-uibk.github.io/relax/) for visualizing the result of my relational algebra operations, the final step of showing the sum for each person is not depicted visually.