CSE 414 section 4

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April 25th- Relational algebra

Cheat sheet for relational algebra

Name	Symbol
Selection	σ
Projection	π
Join	\bowtie
Group By	γ
Set Difference	—
Duplicate Elimination	δ

Q1

Consider the following database schema: Neighbors(name1,name2,duration) Colleagues(name1,name2,duration)

Write a **Relational Algebra Plan** for the SQL query below.

```
SELECT DISTINCT C1.name1, C2.name2
FROM Colleagues C1, Neighbors N, Colleagues C2
WHERE C1.name2 = N.name1
AND N.name2 = C2.name1
AND C1.duration < 10
AND C2.duration < 10
AND N.duration > 100
```

Q1

Consider the following database schema: Neighbors(name1,name2,duration) Colleagues(name1,name2,duration)

Q2

Consider the following relational schema:

R(A,B) S(C,D,E) T(F, H, G)

Write a Relational Algebra Plan for the SQL query below.

SELECT R.B, S.E, sum(T.G) FROM R, S, T WHERE R.A = S.C AND S.D = T.F AND T.H > 55 GROUP BY R.B, S.E

Q3 (1)

Consider the following relational schema:

Users(uid, name) Comment(uid, pid, score, txt) Picture(pid, author, img)

(1) Write a Relational Algebra expression that is equivalent to the SQL query below:

SELECT distinct u.uid
FROM Users u, Picture x, Comment y
WHERE u.uid = x.author and x.pid = y.pid and y.score > 8
GROUP BY u.uid, x.pid
HAVING count(*) > 10

Q3 (2)

Consider the following relational schema:

Users(uid, name) Comment(uid, pid, score, txt) Picture(pid, author, img)

(2) Write a Relational Algebra expression that is equivalent to the SQL query below:

SELECT x.pid FROM picture x WHERE NOT EXISTS (SELECT * FROM comment y WHERE x.pid = y.pid and y.score <5)

Q3 (3)

Consider the Relational Algebra expression below:

