

COMS 4111 Intro to DB HW2

Name (UNI)

September 22, 2022

1 Relational Algebra

Use the math mode to write relational algebra: check mathematical symbols here and math mode here. E.g., to use inline math mode, place mathematical symbols inside \$... \$.

All relational algebra symbols: Projection: π , Selection: σ , Renaming: ρ , Join: \bowtie , Cross Product: \times , Union: \cup , Difference: $-$, Intersection: \cap , and: \wedge , or: \vee .

Example relational algebra: Find all the companies whose stocks are held by person with ssn=1.

$\pi_{Holding.companyid}((\sigma_{ssn=1}(Person)) \bowtie_{Person.ssn=Holding.ssn} Holding)$

1.1 Q1.1

Your answer here.

1.2 Q1.2

Your Answer here.

1.3 Q1.3

Your Answer here.

2 More Relational Algebra

Use the tabular package to create table. Check the tutorial of tubular here. Example table T1:

| A | B | C |
|---|---|---|
| 1 | x | a |
| 2 | y | c |
| 2 | y | b |
| 2 | z | c |

2.1 Q2.1

Your answer here.

2.2 Q2.2

Your Answer here.

2.3 Q2.3

Your Answer here.

2.4 Q2.4

Your Answer here.

2.5 Q2.5

Your Answer here.

2.6 Q2.6

Your Answer here.

3 SQL

Write your SQL in the verbatim environment: place your SQL query in
`\begin{verbatim} ...SQL ... \end{verbatim}`

Example SQL query: Find the total number of employees for each city:

```
SELECT city, COUNT(*)  
FROM Store  
GROUP BY city
```

3.1 Q3.1

Your Answer here.

3.2 Q3.2

Your Answer here.

3.3 Q3.3

Your Answer here.