

COP4710 Spring 2017 Assignment 1

Due: 11:30pm, February 12, 2017 (Sunday). All problems are equally weighted!

A. Ramakrishnan book (3rd edition): Exercise 4.5, you are only required to write the queries in **relational algebra** for problems **1 to 10**.

B. Consider the following two relations:

Relation <i>r</i>			Relation <i>s</i>		
<u>B</u>	<u>C</u>	<u>D</u>	<u>D</u>	<u>E</u>	<u>F</u>
<i>a</i>	15	<i>b</i>	<i>b</i>	10	6
<i>b</i>	6	<i>a</i>	<i>c</i>	25	3
<i>c</i>	25	<i>b</i>	<i>b</i>	10	15
<i>a</i>	15	<i>c</i>			

show the results of the following relational algebraic operations. Give \emptyset as your answer if you think the operation makes no sense. However, if you believe an operation makes sense but no tuples should be returned, you should still draw the schema of the resulting table.

- a. $\Pi_D(\sigma_{E \leq 15}(s))$
- b. $r \times s$
- c. $r \bowtie s$
- d. $r \bowtie_{r.C = s.F} s$
- e. $r \bowtie_{r.B = s.D \text{ AND } r.C > s.F} s$
- f. $r \div (\Pi_D(s))$
- g. $r \cup \Pi_D(s)$
- h. $r \cap s$
- i. $\Pi_{B,C}(r) - \Pi_{D,F}(s)$