

CSC 134-02 Database Management Systems (Spring 2022)

In-class Worksheet 4 (100 points)

Relational Algebra

Due at 12:00 pm, Friday April 1, 2022

Consider the following database schema with a possible database state. Write relational algebra for each query.

Person (name, age, gender)

name	age	gender
Amy	16	female
Ben	21	male
Cal	33	male
Dan	13	male
Eli	45	male
Fay	21	female
Gus	24	male
Hil	30	female
Ian	18	male

Frequents (name, pizzeria)

name	pizzeria
Amy	Pizza Hut
Ben	Pizza Hut
Ben	Chicago Pizza
Cal	Straw Hat
Cal	New York Pizza
Dan	Straw Hat
Dan	New York Pizza
Eli	Straw Hat
Eli	Chicago Pizza
Fay	Dominos
Fay	Little Caesars
Gus	Chicago Pizza
Gus	Pizza Hut

Eats (name, pizza)

name	pizza
Amy	pepperoni
Amy	mushroom
Ben	pepperoni
Ben	cheese
Cal	supreme
Dan	pepperoni
Dan	cheese
Dan	sausage
Dan	supreme

Serves (pizzeria, pizza, price)

pizzeria	pizza	price
Pizza Hut	pepperoni	12
Pizza Hut	sausage	12
Pizza Hut	cheese	9
Pizza Hut	supreme	12
Little Caesars	pepperoni	10
Little Caesars	sausage	10
Little Caesars	cheese	7
Little Caesars	mushroom	9
Dominos	cheese	10
Dominos	mushroom	11
Straw Hat	pepperoni	8
Straw Hat	cheese	9
Straw Hat	sausage	10
New York Pi...	pepperoni	8
New York Pi...	cheese	7
New York Pi...	supreme	9
Chicago Pizza	cheese	8
Chicago Pizza	supreme	9

1. Find all pizzerias frequented by at least one person under the age of 18.
2. Find the names of all females who eat either mushroom or pepperoni pizza.
3. Find the names of all females who eat both mushroom and pepperoni pizza.
4. Find all pizzerias that serve at least one pizza that Amy eats for less than \$10.00.
5. Find all pizzerias that are frequented by only females or only males. This one is a bit more challenging.

Deliverables

1. A pdf or image containing all your answers. The instructor will share the Jamboard link with you in class.
 - Create a sticky note with your name.
 - Save **your OWN frame** as image. Make sure the sticky note with your name is there.
 - Submit your image to Canvas

How to use Google Jamboard: <https://www.youtube.com/watch?v=IJc55XOJhJI>

Requirements on deliverables

1. Your deliverable should be ***F*Lastname_W4.pdf** where *F* indicates first letter, in uppercase, of your firstname and *Lastname* indicates your last name where first letter is in uppercase. Please exactly follow the naming rule described above. You will be deducted 5 points for incorrect naming.
2. Clearly state your name, ID, course title, worksheet number, and due date.
3. Submit your pdf file via Canvas.
4. **No late submission will be accepted.**
5. When grades are returned to you on Canvas, you have 7 days to meet with the instructor for grade changes. Issues and/or disagreements concerning your grade must be resolved in such 7 days window. After 7 days, the grades are written in stone and can't be changed after that point, for whatever reason.