Aula 04 - Exercícios Postgres

Nome: Letícia Trein Medeiros

b. Find the names of all females who eat either mushroom or pepperoni pizza (or both)

1) Algebra

- Selecionar todas as mulheres da tabela Person:

$$F = \sigma_{gender = 'female'} (Person)$$

- Selecionar os nomes das pessoas que comem pizza de mushroom ou pepperoni:

$$E = \pi_{name} (\sigma_{pizza = 'mushroom' \vee pizza = 'pepperoni'} (Eats))$$

- Realizar uma junção natural entre as mulheres e aquelas que comem as pizzas especificadas:

$$\pi_{name} (F \bowtie E)$$

2) SQL

```
SELECT name
FROM Person
WHERE gender = 'female'
  AND name IN (
    SELECT name
    FROM Eats
    WHERE pizza = 'mushroom' OR pizza = 'pepperoni'
  );
```

3) Resultado Obtido

	name [PK] text
1	Amy
2	Fay

d. Find all pizzerias that serve at least one pizza that Amy eats for less than $10.00.

1) Algebra

$$\pi \text{ pizzeria } (\sigma \text{ price} < 10 \wedge \text{pizza} \in (\pi \text{ pizza} (\sigma \text{ name='Amy'} (\text{Eats}))) (\text{Serves}))$$

2) SQL

```
SELECT DISTINCT pizzeria
FROM Serves
WHERE price < 10
  AND pizza IN (
    SELECT pizza
    FROM Eats
    WHERE name = 'Amy'
  )
```

3) Resultado Obtido

	pizzeria character varying (100)
1	Little Caesars
2	New York Pizza
3	Straw Hat

e. Find all pizzerias that are frequented by only females or only males

1) Algebra

- Junção de Frequents e Person:

$$F \bowtie F \ . \ name = P \ . \ nameP$$

- Seleção de pizzarias frequentadas apenas por mulheres:

$$\pi \ pizzeria \ (\ \sigma \ gender = 'female' \ (\ F \bowtie F \ . \ name = P \ . \ nameP \ ))$$

- Seleção de pizzarias frequentadas apenas por homens:

$$\pi \ pizzeria \ (\ \sigma \ gender = 'male' \ (\ F \bowtie F \ . \ name = P \ . \ nameP \ ))$$

2) SQL

```
-- Pizzarias frequentadas apenas por mulheres
SELECT DISTINCT f.pizzeria
FROM Frequents f
JOIN Person p ON f.name = p.name
GROUP BY f.pizzeria
HAVING COUNT(DISTINCT p.gender) = 1 AND MIN(p.gender) = 'female';

-- Pizzarias frequentadas apenas por homens
SELECT DISTINCT f.pizzeria
FROM Frequents f
JOIN Person p ON f.name = p.name
GROUP BY f.pizzeria
HAVING COUNT(DISTINCT p.gender) = 1 AND MIN(p.gender) = 'male';
```

3) Resultado Obtido

	pizzeria character varying (100)
1	Little Caesars

female

	pizzeria character varying (100)
1	Chicago Pizza
2	New York Pizza

male

i. Find the pizzeria serving the cheapest pepperoni pizza.

1) Algebra

- Seleciona as pizzas de pepperoni:

$$R = \sigma \text{ pizza = 'pepperoni'} (Serves)$$

- Encontra o menor preço das pizzas de pepperoni:

$$min\_price = \gamma \text{ MIN (price)} (R)$$

- Seleciona as pizzarias que servem pelo preço mínimo:

$$\pi \text{ pizzeria } (\sigma \text{ price = min\_price } (R))$$

2) SQL

```
SELECT pizzeria
FROM Serves
WHERE pizza = 'pepperoni'
  AND price = (
    SELECT MIN(price)
    FROM Serves
    WHERE pizza = 'pepperoni'
  );
```

3) Resultado Obtido

	pizzeria character varying (100)
1	Straw Hat
2	New York Pizza