Lab 1 — Part 2: Creating and manipulating a "Pizzerias" database

Advanced DataBases (NDS/AI)

General objective

Implement, step by step, the creation of a relational database with PostgreSQL, using declarative SQL only (no programming). The goal is to design, secure and query a small database named "pizzerias", representing people, their habits and the pizzerias they frequent.

Business rules

1. A person can frequent several pizzerias (and vice versa).
2. A person can eat several types of pizza (and vice versa).
3. A pizzeria can serve several pizzas (and each pizza can be served by several pizzerias). The price depends on the (pizzeria, pizza) pair.

(Conceptual) schema of the database

Relation	Attributes	Primary key
Person	(name, age, gender)	name
Frequents	(name, pizzeria)	(name, pizzeria); name ref. → Person(name)
Eats	(name, pizza)	(name, pizza); name ref. → Person(name)
Serves	(pizzeria, pizza, price)	(pizzeria, pizza)

Instance of the "Pizzerias" database — Sample data

name	age	gender
Lamis	16	F
Louey	21	M
Wael	33	M
Danny	13	M
Dida	45	F
Wassila	21	F
Laidi	24	M
Amy	30	F
Ouail	18	M

Person

name	pizzeria
Lamis	Pizza Hut
Louey	Pizza Hut
Louey	Magic Pizza
Wael	Galaxy Pizza
Wael	Gargat Pizza
Danny	Galaxy Pizza
Danny	Gargat Pizza
Dida	Galaxy Pizza
Dida	Magic Pizza
Wassila	Dominos
Wassila	Family Pizza
Laidi	Magic Pizza
Laidi	Pizza Hut
Amy	Dominos
Amy	Galaxy Pizza
Amy	Pizza Hut
Ouail	Gargat Pizza
Ouail	Galaxy Pizza
Ouail	Dominos

Frequents

name	pizza
Lamis	tuna
Lamis	mushroom
Louey	tuna
Louey	cheese
Wael	supreme
Danny	tuna
Danny	cheese
Danny	chicken
Danny	supreme
Danny	mushroom
Dida	supreme
Dida	cheese
Wassila	mushroom
Laidi	mushroom
Laidi	supreme
Laidi	cheese
Amy	supreme
Amy	cheese
Ouail	supreme
Ouail	tuna

Eats

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pizzeria	pizza	price (DZD)
Pizza Hut	tuna	1200.0
Pizza Hut	chicken	1200.0
Pizza Hut	cheese	900.0
Pizza Hut	supreme	1200.0
Family Pizza	tuna	975.0
Family Pizza	chicken	950.0
Family Pizza	cheese	700.0
Family Pizza	mushroom	925.0
Dominos	cheese	975.0
Dominos	mushroom	1100.0
Galaxy Pizza	tuna	800.0
Galaxy Pizza	cheese	925.0
Galaxy Pizza	chicken	975.0
Gargat Pizza	tuna	800.0
Gargat Pizza	cheese	700.0
Gargat Pizza	supreme	850.0
Magic Pizza	cheese	775.0
Magic Pizza	supreme	850.0

Serves

Questions

Questions

1. Find all pizzerias frequented by at least one person under the age of 18. (Return: pizzeria)
2. Give the names of all women who eat mushroom or tuna (or both). (Return: name)
3. Give the names of all women who eat both mushroom and tuna. (Return: name)
4. Find all pizzerias that serve at least one pizza that Amy eats for less than 1000.00 DZD. (Return: pizzeria)
5. Find all pizzerias frequented only by women or only by men. (Return: pizzeria)
6. For each person, list the pizzas they eat that are not served by any pizzeria they frequent. (Return: (name, pizza))
7. Give the names of the people who frequent only pizzerias serving at least one pizza they eat. (Return: name)
8. Give the names of the people who frequent every pizzeria serving at least one pizza they eat. (Return: name)
9. Find the pizzeria that serves the cheapest "tuna" pizza. In case of a tie, display all the pizzerias concerned. (Return: pizzeria)

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