TUTORIAL 9

Relational Algebra

Q1. Consider a database with the following schema:

Person (name, age, gender) **name is a key**

Frequents (name, pizzeria) **(name, pizzeria) is a key**

Eats (name, pizza) **(name, pizza) is a key**

Write relational algebra expressions for the following queries:

a. Find all pizzerias frequented by at least one person under the age of 18.

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

c. Find the names of all females who eat both mushroom and pepperoni pizza.

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

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

f. Find pizzerias that are frequented by all persons.

Q2. Write relational algebra expressions for following SQL statements on the given schema:

a) SELECT *
FROM User
WHERE id>2 **OR** Age != 31;

b) SELECT *
FROM User u**,** Occupation o
WHERE u.OccupationId = o.OccupationId;

c) **SELECT** *

FROM User **NATURAL JOIN** Occupation **NATURAL JOIN** City;

d) **SELECT** Name**,** Gender

FROM User **NATURAL JOIN** City
WHERE CityName = ”Boston”;

User

Id	Name	Age	Gender	OccupationId	CityId
1	John	25	Male	1	3
2	Sara	20	Female	3	4
3	Victor	31	Male	2	5
4	Jane	27	Female	1	3

Occupation

OccupationId	OccupationName
1	Software Engineer
2	Accountant
3	Pharmacist
4	Library Assistant

City

CityId	CityName
1	Halifax
2	Calgary
3	Boston
4	New York
5	Toronto