CS2102 Query Languages (T-uple and Domain Relational Calculus) Tutorials (Week 12)

Let us consider a database application for a pizza company. The company manages several stores in different parts of Singapore. Pizzas have a code identifying them, a name, and a size in inches. A store has a name. The database records the location of the store (area) and the telephone number of the store. Different stores may sell the same pizzas at different prices.

The schema of the database is as follows. Prime attributes are underlined and you can assume the natural referential integrity. Take these integrity constraints into account to simplify the queries.

pizza (pcode, pname, psize)

store (sname, sarea, sphone)

sells (sname, pcode, sprice)

Write the following queries in T-uple and Domain Relational Calculus. For each of the following queries try and find several equivalent queries in SQL.

1. Find the names of pizzas that come in a 10 inch size.
2. Find the names of pizzas that come in a 10 inch or a 12 inch size.
3. Find the names of pizzas that come in both a 10 inch and a 12 inch size.
4. Find the names and phone numbers of the stores in "Pioneer" or "Tuas" that sell a 10 inch pizza named "pepperoni" for less than $22.
5. Find the codes of the most expensive pizzas – assume that the schema of the database is reduced to a relation pizza(pcode, pprice) for the sake of simplicity.
6. Find the names of the stores that sell all the pizzas.