Exercises on JDBC

February 22, 2017

1   Questions

The following exercises are taken from the book "*Database Systems: The Complete Book (2nd Edition)*", Exercises 9.3.1 and 9.3.2. Solutions to these exercises are provided separately.

Exercise 9.3.1 Write the following embedded SQL queries, based on the database schema

```
Product(maker, model, type)
PC(model, speed, ram, hd, price)
Laptop(model, speed, ram, hd, screen, price)
Printer(model, color, type, price)
```

of Exercise 2.4.1.

    a. Ask the user for a price and find the PC whose price is closest to the desired price. Print the maker, model number, and speed of the PC.

    b. Ask the user for minimum values of the speed, RAM, hard-disk size, and screen size that they will accept. Find all the laptops that satisfy these requirements. Print their specifications (all attributes of `Laptop`) and their manufacturer.

    c. Ask the user for a manufacturer. Print the specifications of all products by that manufacturer. That is, print the model number, product-type, and all the attributes of whichever relation is appropriate for that type.

    d. Ask the user for a "budget" (total price of a PC and printer), and a minimum speed of the PC. Find the cheapest "system" (PC plus printer) that is within the budget and minimum speed, but make the printer a color printer if possible. Print the model numbers for the chosen system.

e. Ask the user for a manufacturer, model number, speed, RAM, hard-disk size, and price of a new PC. Check that there is no PC with that model number. Print a warning if so, and otherwise insert the information into tables `Product` and `PC`.

Exercise 9.3.2 Write the following embedded SQL queries, based on the database schema

```
Classes(class, type, country, numGuns, bore, displacement)
Ships(name, class, launched)
Battles(name, date)
Outcomes(ship, battle, result)
```

of Exercise 2.4.3.

a. The firepower of a ship is roughly proportional to the number of guns times the cube of the bore of the guns. Find the class with the largest firepower.

b. Ask the user for the name of a battle. Find the countries of the ships involved in the battle. Print the country with the most ships sunk and the country with the most ships damaged.

c. Ask the user for the name of a class and the other information required for a tuple of table `Classes`. Then ask for a list of the names of the ships of that class and their dates launched. However, the user need not give the first name, which will be the name of the class. Insert the information gathered into `Classes` and `Ships`.