

Exercise Sheet I (DBMS Course)

Problem 1 is based on the CREATE TABLE statement of SQL that is used to declare the schema of relations and can also be used to specify primary key. For reference, the textbook or online tutorial sites can be used.

Problem 1 (Exercise 3.1 of textbook). The database schema consists of four relations

Product(maker, model, type)

PC (model, speed, ram, hd, price)

Laptop(model, speed, ram, hd, screen, price)

Printer(model, color, type, price)

The Product relation gives the manufacturer, model number and type (PC/laptop/printer) of various products. It is assumed that model numbers are unique across all manufacturers and product types.

The PC relation gives for each model number that is a PC, the speed of the processor (in Ghz), RAM memory (in MB), disk storage (in GB) and its price.

The Laptop relation is similar, except that it has the screen attribute (in inches).

The Printer relation records for each printer model, whether it produces color output (yes/no), printer type (laser/ink-jet etc.) and the price.

Write the following declarations.

1. A suitable schema for relation Product.
2. A suitable schema for relation PC.
3. A suitable scheme relation Laptop.
4. A suitable schema for relation Printer.
5. Alter Printer schema to delete attribute color.
6. Alter Laptop schema to add attributes eth and usb. The eth attribute gives a count of the number of LAN ports available on the laptop (0 if no lan port). The usb attribute counts number of USB ports available (0 if not available).

Specify keys for each of the tables. Also specify foreign keys as applicable.