

Review INSERT, UPDATE,
DELETE

Exercise – PC/Laptop/Printer

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, or printer) of various products.

For simplicity, we assume that the model number uniquely identifies each product.

Creation of Tables

```
CREATE TABLE Product (  
  maker CHAR(10),  
  model INT,  
  type CHAR(7)  
);
```

```
CREATE TABLE PC (  
  model INT,  
  speed INT,  
  ram INT,  
  hd INT,  
  price INT  
);
```

```
CREATE TABLE Laptop (  
  model INT,  
  speed INT,  
  ram INT,  
  hd INT,  
  screen INT,  
  price INT  
);
```

```
CREATE TABLE Printer (  
  model INT,  
  color CHAR(1),  
  type CHAR(5),  
  price INT  
);
```

Product(maker, model, type)

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

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

Printer(model, color, type, price)

```
INSERT INTO Product(maker,model,type)
VALUES('C',1100,'PC');
```

```
INSERT INTO PC(model,speed,ram,hd,rd,price)
VALUES(1100,1800,256,80,20,2499);
```

a) Using two INSERT statements, store in the database the fact that PC model 1100 is made by manufacturer C, has speed 1800, RAM 256, hard disk 80, a 20x DVD, and sells for \$2499.

Product(maker, model, type)

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

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

Printer(model, color, type, price)

```
INSERT INTO Product(maker,model,type)
(SELECT maker,model+1000,'Laptop'
FROM Product
WHERE type='PC'
);
```

```
INSERT INTO Laptop(model,speed,ram,hd,screen,price)
(SELECT model+1000, speed, ram, hd, 15, price+500
FROM PC
);
```

b) Insert the facts that for every PC there is a laptop with the same manufacturer, speed, RAM and hard disk, a 15-inch screen, a model number 1000 greater, and a price \$500 more.

Product(maker, model, type)

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

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

Printer(model, color, type, price)

c) Delete all laptops made by a manufacturer that doesn't make printers.

```
DELETE FROM Laptop
WHERE model IN
(SELECT model
FROM Product
WHERE maker IN (
(SELECT maker
FROM Product NATURAL JOIN Laptop)
MINUS
(SELECT maker
FROM Product NATURAL JOIN Printer)
)
);
```

Product(maker, model, type)

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

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

Printer(model, color, type, price)

UPDATE PC

SET ram=ram*2, hd=hd+20;

d) For each PC, double the amount of RAM and add 20 GB to the amount of hard disk.

Product(maker, model, type)

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

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

Printer(model, color, type, price)

e) For each laptop made by manufacturer B, add one inch to the screen size and subtract \$100 from the price.

```
UPDATE Laptop
SET screen=screen+1, price=price-100
WHERE model IN
(SELECT model
FROM Product
WHERE maker='B'
);
```