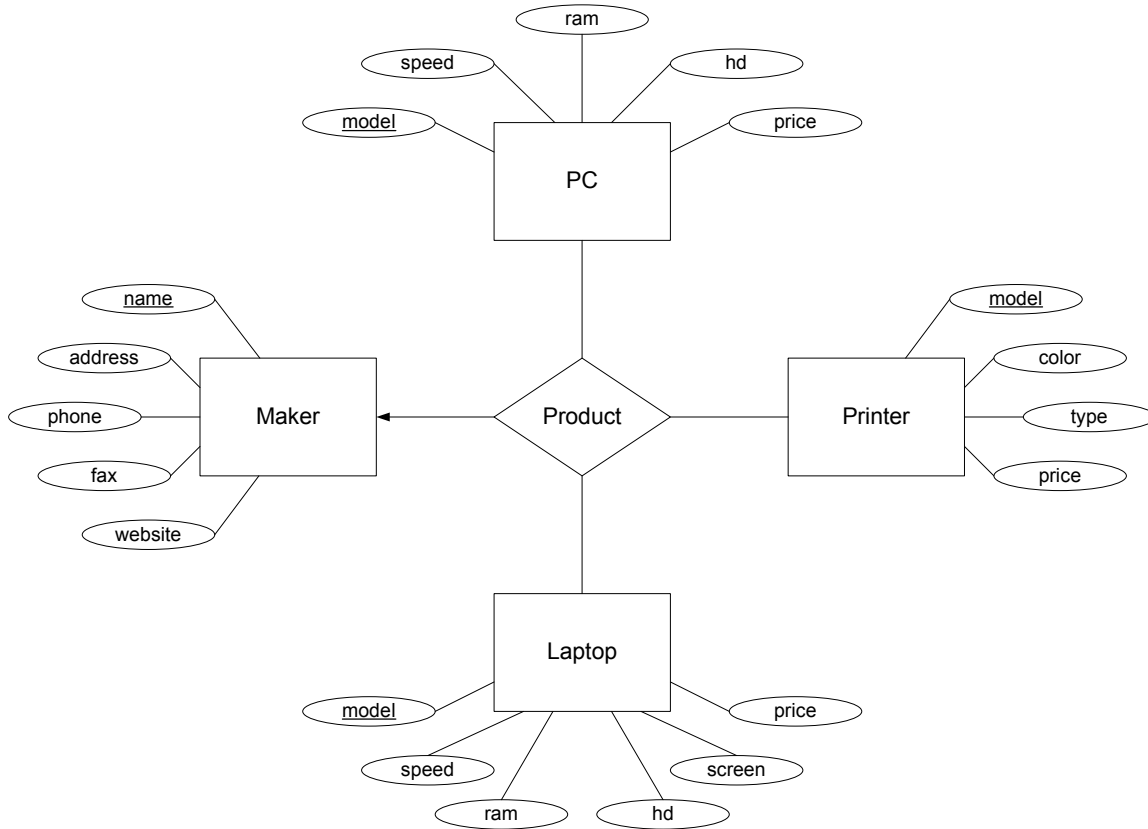


Exercise 2.4.1



Exercise 4.5.3

`Ships(name, yearLaunched)`

`Sisterof(name1, name2)`

or (more precisely):

```
CREATE TABLE Ships(
    name          VARCHAR(20) PRIMARY KEY,
    yearLaunched  SMALLINT
);
```

```
CREATE TABLE Sisterof(
    name1         VARCHAR(20),
    name2         VARCHAR(20)
);
```

Exercise 4.5.4a

Stars(name, addr)
Studios(name, addr)
Movies(title, year, length, genre)
Star-of(star, contract)
Studio-of(studio, contract)
Movie-of(movie, contract)
Contracts(star, studio, movie, salary)

Simplified
====>

Stars(star_name, addr)
Studios(studio_name, addr)
Movies(movie_title, movie_year, length, genre)
Contracts(star_name, studio_name,
 movie_title, movie_year, salary)

Exercise 6.2.2a

```
SELECT maker, speed FROM product, laptop
WHERE product.model = laptop.model AND hd > 30;
```

maker	speed
A	2
A	2.16
A	2
B	1.83
E	2
E	1.73
E	1.8
F	1.6
F	1.6
G	2

Exercise 6.2.2b

```
SELECT product.model, pc.price from product, pc
WHERE product.model = pc.model AND product.maker = 'B';
```

model	price
1004	649
1005	630
1006	1049

Exercise 6.2.2c

```
SELECT DISTINCT maker FROM product WHERE type = 'laptop' AND
      maker NOT IN (SELECT maker FROM product WHERE type = 'PC');
```

```
+-----+
| maker |
+-----+
| F     |
| G     |
+-----+
```

Exercise 6.2.2d

```
SELECT DISTINCT PC1.HD FROM PC AS PC1, PC AS PC2
      WHERE PC1.HD = PC2.HD AND PC1.model != PC2.model;
```

```
+-----+
| HD   |
+-----+
| 250  |
| 80   |
| 160  |
+-----+
```

Exercise 6.2.2e

```
SELECT pc1.model, pc2.model FROM pc AS pc1, pc AS pc2
      WHERE pc1.speed = pc2.speed AND
            pc1.ram    = pc2.ram AND
            pc2.model > pc1.model;
```

```
+-----+-----+
| model | model |
+-----+-----+
| 1004  | 1012  |
+-----+-----+
```

Exercise 6.2.2f

```
SELECT product.maker
      FROM product, (
        SELECT model, speed FROM pc UNION
        SELECT model, speed FROM laptop
      ) AS computer
 WHERE product.model = computer.model AND speed >= 3.0
 GROUP BY product.maker HAVING count > 1;
```

```
+-----+
| maker |
+-----+
| B      |
+-----+
```

Exercise 6.4.6a

```
SELECT AVG(speed) FROM pc;
```

```
+-----+
| AVG(speed) |
+-----+
| 2.4846153809474063 |
+-----+
```

Exercise 6.4.6b

```
SELECT AVG(speed) FROM laptop WHERE price > 1000;
```

```
+-----+
| AVG(speed) |
+-----+
| 1.9983333547910054 |
+-----+
```

Exercise 6.4.6c

```
SELECT AVG(price) FROM product, pc
      WHERE product.model = pc.model AND maker = 'A';
```

```
+-----+
| AVG(price) |
+-----+
|  1195.6667 |
+-----+
```

Exercise 6.4.6d

```
SELECT AVG(price)
      FROM product, (
        SELECT model, price FROM pc UNION
        SELECT model, price FROM laptop
      ) AS computer
      WHERE product.model = computer.model AND product.maker = 'D';
```

```
+-----+
| AVG(price) |
+-----+
|   730.0000 |
+-----+
```

Exercise 6.4.6e

```
SELECT speed, AVG(price) FROM product, pc
      WHERE product.model = pc.model GROUP BY speed;
```

```
+-----+-----+
| speed | AVG(price) |
+-----+-----+
|  1.42 |    478.0000 |
|  1.86 |    959.0000 |
|    2 |    650.0000 |
|   2.1 |    995.0000 |
|   2.2 |    640.0000 |
|   2.66 |   2114.0000 |
|   2.8 |    689.3333 |
|   3.06 |    529.0000 |
|   3.2 |    839.5000 |
+-----+-----+
```

Exercise 6.4.6f

```
SELECT maker, AVG(screen) FROM product, laptop
      WHERE product.model = laptop.model GROUP BY maker;
```

maker	AVG(screen)
A	15.233333269755045
B	13.300000190734863
E	17.5
F	14.75
G	15.399999618530273

Exercise 6.4.6g

```
SELECT maker FROM product GROUP BY maker HAVING count(model) > 2;
```

maker
A
B
D
E

Exercise 6.4.6h

```
SELECT maker, MAX(price) FROM product, pc
      WHERE product.model = pc.model GROUP BY maker;
```

maker	MAX(price)
A	2114
B	1049
C	510
D	770
E	959

Exercise 6.4.6i

```
SELECT speed, AVG(price) FROM pc WHERE speed > 2.0 GROUP BY speed;
```

speed	AVG(price)
2.1	995.0000
2.2	640.0000
2.66	2114.0000
2.8	689.3333
3.06	529.0000
3.2	839.5000

Exercise 6.4.6j

```
SELECT maker, AVG(hd) FROM product, pc
WHERE product.model = pc.model AND
maker IN (
    SELECT maker FROM product, printer
    WHERE product.model = printer.model
) GROUP BY maker;
```

maker	AVG(hd)
D	266.6667
E	133.3333

Exercise 6.5.1a

```
INSERT INTO product(maker, model, type)
VALUES('C', 1100, 'pc');

INSERT INTO pc(model, speed, ram, hd, price)
VALUES(1100, 3.2, 1024, 180, 2499);
```

Exercise 6.5.1b

```
INSERT INTO product(maker, model, type)
    SELECT maker, model+1100, 'laptop'
    FROM product WHERE type = 'pc';

INSERT INTO laptop(model, ram, hd, price, speed, screen)
    SELECT model+1100, ram, hd, price+500.00, speed, 17 FROM pc;
```

Exercise 6.5.1c

```
DELETE pc, product FROM pc
    JOIN product ON product.model = pc.model
    WHERE pc.hd < 100
```

Exercise 6.5.1d

```
DELETE laptop, product FROM laptop
    JOIN product ON product.model = laptop.model
    WHERE product.maker NOT IN (
        SELECT product.maker FROM product
        JOIN printer ON product.model = printer.model)
```

Exercise 6.5.1e

```
UPDATE product SET maker='A' WHERE maker='B'
```

Exercise 6.5.1f

```
UPDATE pc SET ram=ram*2, hd=hd+60
```

Exercise 6.5.1g

```
UPDATE laptop JOIN product ON product.model = laptop.model
    SET laptop.screen=laptop.screen+1,
        laptop.price=laptop.price-100.00
    WHERE product.maker = 'A'
```