HOMEWORK 1

Exercise 2.2.1:

acctNo	type	balance
12345	Savings	12000
23456	checking	1000
34567	savings	25

The relation Accounts

firstName	lastName	idNo	account
Robbie	Banks	901-222	12345
Lena	Hand	805-333	12345
Lena	Hand	805-333	23456

The relation Customers

a) Attributes of relation Accounts : acctNo, type, balance
    Attributes of relation Customers : firstName, lastName, idNo, account

b) Tuples of relation Accounts:
    - (12345, Saving, 12000)
    - (23456, checking, 1000)
    - (34567, savings, 25)

    Tuples of relation Customers:
    - (Robbie, Banks, 901-222, 12345)
    - (Lena, Hand, 805-333, 12345)
    - (Lena, Hand, 805-333, 23456)

c) Components of the first tuple of relation Accounts :

   12345, savings, 12000

   Component of the first tuple of relation Customers

   Robbie, Banks, 901-222, 12345

d) Relation schema = relation name and attribute list

   • relation Accounts : Accounts (acctNo, type, balance)

   • relation Customers : Customers (firstName, lastName, idNo, account)

e) Database schema : set of all relation schemas in DB

   • relation Accounts :

      Accounts (
      <u>acctNo</u> (PK) : integer,
      type : string,
      balance : real
)

   • relation Customers :

      Customers (
      firstName : string,
      lastName : string,
      <u>idNo</u> (PK) : string,
      account : integer
)

f) Suitable domain for each attribute

   • relation Accounts :
     Accounts (acctNo : integer, type : string, balance : real)

   • relation Customers :
     Customers (firstName : string, lastName : string, idNo : string, account : integer)

.f) Another equivalent way to present each relation
   change the attributes's column:

- relation Account

acctNo	balance	type
12345	12000	Savings
23456	1000	checking
34567	25	Savings

- relation Customers

firstName	LastName	account	idNo
Robbie	Banks	12345	901-222
Lena	Hand	12345	805-333
Lena	Hand	23456	805-333

Exercise 2.3.1: (p36)

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

a) Suitable schema for relation Product

   CREATE TABLE Product (

       maker   VARCHAR (20),

       model   VARCHAR (20) PRIMARY KEY,

       type   VARCHAR (20)

   );

b) Suitable schema for relation PC

```
CREATE TABLE PC (
        model   VARCHAR (20) PRIMARY KEY,
        speed      FLOAT,
        ram        FLOAT,
        hd         FLOAT,
        price      FLOAT
    );
```

c) Suitable schema for relation Laptop

```
CREATE TABLE Laptop (
      model  VARCHAR (20 ) PRIMARY KEY,
      speed   FLOAT,
      ram     FLOAT,
      hd      FLOAT,
      screen    FLOAT,
      price     FLOAT
    );
```

d) Suitable schema for relation Printer

```
CREATE TABLE Printer (
      model   VARCHAR (20)  PRIMARY KEY,
      color    BOOLEAN,
      type     VARCHAR (20),
      price     FLOAT
    );
```

e) An alteration to your Printer schema from (d) to delete the attribute color
```
ALTER TABLE Printer DROP color ;
```

f) `ALTER TABLE Laptop ADD od VARCHAR (10) DEFAULT 'none';`