HW1 Solution

Exercise 2.2.1a

For relation Accounts, the attributes are:

acctNo, type, balance

For relation Customers, the attributes are:

firstName, lastName, idNo, account

Exercise 2.2.1b

For relation Accounts, the tuples are:

(12345, savings, 12000),

(23456, checking, 1000),

(34567, savings, 25)

For relation Customers, the tuples are:

(Robbie, Banks, 901-222, 12345),

(Lena, Hand, 805-333, 12345),

(Lena, Hand, 805-333, 23456)

Exercise 2.2.1c

For relation Accounts and the first tuple, the components are:

123456 → acctNo

savings → type

12000 → balance

For relation Customers and the first tuple, the components are:

Robbie → firstName

Banks → lastName

901-222 → idNo

12345 → account

Exercise 2.2.1d

For relation Accounts, a relation schema is:

Accounts(acctNo, type, balance)

For relation Customers, a relation schema is:

Customers(firstName, lastName, idNo, account)

Exercise 2.2.1e

An example database schema is:

```
Accounts (
        acctNo,
        type,
        balance
)
Customers (
         firstName,
         lastName,
          idNo,
          account
```

)

Exercise 2.2.1f

A suitable domain for each attribute:

acctNo → Integer

type → String

balance → Integer

firstName → String

lastName → String

idNo→String (because there is a hyphen we cannot use Integer)

account → Integer

Exercise 2.2.1g

Another equivalent way to present the Account relation:

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

Another equivalent way to present the Customers relation:

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

Exercise 2.3.1a

```
CREATE TABLE Product (
        maker CHAR(30),
        model CHAR(10) PRIMARY KEY,
        type CHAR(15)
);
```

Exercise 2.3.1b

```
CREATE TABLE PC (
        model CHAR(30),
        speed DECIMAL(4,2),
        ram INTEGER,
        hd INTEGER,
        price DECIMAL(7,2)
);
```

Exercise 2.3.1c

```
CREATE TABLE Laptop (
        model CHAR(30),
        speed DECIMAL(4,2),
        ram INTEGER,
        hd INTEGER,
        screen DECIMAL(3,1),
        price DECIMAL(7,2)
);
```

Exercise 2.3.1d

```
CREATE TABLE Printer (
        model CHAR(30),
        color BOOLEAN,
        type CHAR (10),
        price DECIMAL(7,2)
);
```

Exercise 2.3.1e

```
ALTER TABLE Printer DROP color;
```

Exercise 2.3.1f

```
ALTER TABLE Laptop ADD od CHAR (10) DEFAULT ‘none’;
```