CSCE 520 – Homework 2

Exercise [2.2.1]: In Fig. 2.6 are instances of two relations that might constitute part of a banking database. Indicated the following:

1. The attributes of each relation.

Accounts: acctNo, type, balance

Customers: firstName, lastName, idNo, account

1. The tuples of each relation.

Account tuples:

[12345, savings, 12000],

[23456, checking, 1000],

[34567, savings, 25]

Customer tuples:

[Robbie, Banks, 901-222, 12345],

[Lena, Hand, 805-333, 12345],

[Lena, Hand, 805-333, 23456]

1. The components of one tuple from each relation.

Second Tuple of Accounts has 3 components, [23456, checking, 1000].

Second Tuple of Customers has 4 components, [Lena, Hand, 805-333, 12345].

1. The relation schema for each relation.

Accounts (acctNo, type, balance)

Customers (firstName, lastName, idNo, account)

1. The database schema.

Accounts (

acctNo:integer,

type:string,

balance:float

)

Customers (

firstName:string,

lastName:string,

idNo:string,

account:integer

)

1. A suitable domain for each attribute.

Accounts:

acctNo: integer

type: string

balance: float (decimal balance)

Customers:

firstName: string

lastName: string

idNo: string (to handle ‘-‘)

account: integer

1. Another equivalent way to present each relation.

Accounts (acctNo, balance, type)

Customers (account, firstName, lastName, idNo,)

This relation seems easier on the eyes. In order of importance for Accounts would be account number, the balance, and then type of account. In order of importance for Customers would be accounts, first name or last name, and then the id number.

Exercise [2.2.2]: In section 2.2.7 we suggested that there are many examples of attributes that are created for the purpose of serving as keys of relations. Give some additional examples.

Some additional examples could be creating a unique ID. The unique ID would not run into issues, such as “remake” movie titles or movies released in the same year. While it would be wasteful to create a unique ID attribute, it would be foolproof. Another example could be using the attributes title and length, as the probability of a movie having the exact same time and length would be minimal to impossible.