# COMP 189: Homework 6 (revised!)

Assigned March 30, 2020

Due midnight April 13, 2020

12 points total

## Technical Exercises

*For each problem, show all your work (required for credit). For answers requiring written answers, while no more than five or six sentences are expected, sufficient justification must be given for any position, opinion, or perspective taken.*

### 1. Address Book (12 points)

Complete the schema below for the relational database for an address book in which a person can have zero or more phone numbers.

1. You are given the following table for “Person”.

**Person**

ID : integer

FirstName : string

LastName : string

Birthday : DateTime

IsMarried

1. Which field is most likely the primary key? Why? (2 pts)

The field ID is most likely the primary key for the following reasons. First, it is unique for every person, so we can easily use the ID to identify different data for different person. Additionally, the ID will not be a null value. Every person will have their own special ID number. Consequently, I think the field ID is most likely the primary key.

1. What is the type of the field “IsMarried”? (2 pts)

I think the field “IsMarried” should be Boolean type, since the field only need to store if the person is married or not. There are only true or false, two values. Consequently, I think it should be Boolean type.

1. Design the table “PhoneNumber” that allows each person to have zero or more phone numbers. In the schema, indicate the fields and their types. Label any foreign keys with the table to which they refer. (6 pts)

Table of Personal Information

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ID | FirstName | LastName | Birthday | IsMarried |
| 101(primary key) | Leo | Wang | 1999-07-14 | No |
| 102(primary key) | Steven | Lyu | 1999-04-12 | No |

Table of PhoneNumber

|  |  |
| --- | --- |
| ID(Integer) | PhoneNumber(Integer) |
| 101(foreign key) | 1437864531 |
| 101 (foreign key) | 8879380534 |
| 101 (foreign key) | 5140233698 |
| 102 (foreign key) | 8056035448 |

The table of PhoneNumber has two fields, both of them are integer type. The field ID is foreign key, which is used to refer the primary key. By doing so, we can easily connect the personal information with their PhoneNumbers. If there is no related foreign key, this means that the person does not have any phone number.

1. You need to indicate which of each person’s phone numbers is their *main* number. What field to you add to capture this? Indicate the table, the field name, and the field type that you add. (2 pts)

|  |  |  |
| --- | --- | --- |
| PhoneNumber(Integer) | Type(String) | PhoneNumber(Integer) |
| 1437864531 | Main | 1437864531 |
| 8879380534 | Office | 8879380534 |
| 5140233698 | Home | 5140233698 |
| 8056035448 | Main | 8056035448 |

We can add a field called Type in the table of PhoneNumber, which type is string. By doing so, we can easily distinguish which is the main phone number of the person.