**IST659 Lab 2**

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**M004 09/23/2019**

**Data Modeling II Using MS Visio and MS Access**

**Problem Description**

For this lab, you are required to use MS Visio to create two relational/logical data models for two different database problems, then use MS Access to build the corresponding tables, establish their relationships, and add sample data. Please make sure to use composite primary keys.

**Question 1**

Use the relational data model to illustrate the relationships among members of Twitter, a social media service. To simplify the problem, just consider that **any member can have a profile.** The **profile retains the following information, twitter handle, email address, user first name, user last name, and an account description**. A **member can have one or more members in his/her network**, and that the **user themselves can be part of one or many other networks.**

**Question 2**

Design a simplified Library Database System. Assume that a Library Employee can loan out one to many Books to Customers, and a Customer can loan out one or more books at a time.

**Assignment**

Create two relational models according to the following instruction…

1. Create **necessary tables**, and give appropriate names to them.
2. Add the **appropriate attributes**.
3. Make sure their **attributes are at atomic level** and using **good naming conventions** (no composite attribute, no multi-value attribute).
4. Identify a **primary key** for each entity.
5. Establish **the relationships between entities**. Give the relationships appropriate verbs and recognize the associations (foreign keys).
6. **Mark correct cardinality** of the relationships.
7. Use **identifying and non-identifying relationships** appropriately.
8. **Use MS Access t**o build the tables, establish relationships, and add sample data.
9. Please provide **column descriptions** as well.

**Deliverables**

Please attach the following screenshots with your report.

Make sure that your screenshots are legible, if not you will not receive credit.

**Visio**

1. Logical / Relational Model for Question 1.



1. Logical / Relational Model for Question 2.



**Access**

1. The datasheet view of each table for Question 1 and Question 2.

Question 1

USER Table:

图片包含 屏幕截图

描述已自动生成

NETWORK Table:

图片包含 屏幕截图

描述已自动生成

Question 2

BOOK Table:

图片包含 屏幕截图

描述已自动生成

图片包含 屏幕截图

描述已自动生成CUSTOMER Table:

图片包含 屏幕截图

描述已自动生成EMPLOYEE Table:

BOOK\_RENTING Table:

图片包含 屏幕截图

描述已自动生成

RENTING\_DETAIL Table:

图片包含 屏幕截图

描述已自动生成

1. The table design of each table for Question 1 and Question 2.

Question 1

USER Table:

图片包含 屏幕截图

描述已自动生成

Network Table:

图片包含 屏幕截图

描述已自动生成

Question 2

CUSTOMER Table:

图片包含 屏幕截图

描述已自动生成

BOOK Table:

图片包含 屏幕截图

描述已自动生成

EMPLOYEE Table:  
图片包含 屏幕截图

描述已自动生成

BOOK\_RENTING Table:

图片包含 屏幕截图

描述已自动生成

RENTING\_DETAIL Table:

图片包含 屏幕截图

描述已自动生成

1. The data relationship model for Question 1 and Question 2.

Question 1

图片包含 屏幕截图

描述已自动生成

Question 2

图片包含 屏幕截图

描述已自动生成

**Submission Instruction**

Please submit your report in one Word file to BlackBoard under the appropriate Lab in the Labs section. You should copy and paste your Visio ERD directly to MS Word file.

Name your file in this format “IST659SectionNumber-Lab2-Lastname-Firstname.doc”. Please also bring a paper copy to class for the first 3 labs. It is easier to mark and comment on data models on paper. Make sure to print your names on the paper copy as well.

**Due Date**

Labs are due by the start of class of the following week. Please refer to the syllabus if there is any confusion. The reason that this is done is so that I can review the solution in class while still giving you the most time possible.

**Grading Rubric:**

This lab evaluates students’ understanding of some key concepts: entities, attributes, primary keys, cardinality of relationships, foreign key constraints. The grading is based on the assessment whether the student has grasped these key concepts.

5 points – all concepts correctly understood, all answers correct

4.5 points – confusion about a key concept, sometimes right

4 points – one key concept obviously misunderstood

3.5 points – confusion about a couple concepts, sometimes right 3 points – two key concepts obviously misunderstood

2 points or below – basically don’t understand these concepts