# IST 659 Lab 1

**Data modeling I using MS Visio and MS Access**

**Name: Wanyue Xiao**

**Problem description**

For this lab, you are required to use MS Visio to create an Entity Relationship Diagram (ERD) that models the “Shopping Site Database”, then use MS Access to build the corresponding tables, establish their relationships, and add sample data.

We assume that this database retains profile information about products, vendors, customers, purchases, and their relationships. To model (conceptual model) this database, we have identified these four entities:

1. The Product entity contains data about all the products that are offered at this shopping site. This entity shall store at least the following information:
   1. Product ID
   2. Product Name
   3. Product Price
   4. Vendor ID
2. The Vendor entity stores data about vendors that supply products for sale at the shopping site. This entity shall store at least the following information:
   1. Vendor ID
   2. Vendor Name
   3. Vendor Address
   4. Vendor Phone Number
3. The Customer entity stores data about the customers of the shopping site. The Customer entity shall store at least the following information:
   1. Customer ID
   2. Customer Name
   3. Customer Address
4. The Purchase entity contains data about all the purchases made at this shopping site. Each purchase consists of one or more units of the same product. This entity shall store at least the following information:
   1. Purchase ID
   2. Product ID
   3. Number of products
   4. Customer ID
   5. Total Price

**Assignment**

1. Use Visio to create an ERD according to the following instruction.
2. Create the above entities, give the **entities appropriate names**, and add the **appropriate entity attributes**.
   1. Make sure that you use good naming conventions and that these attributes are at an atomic level (meaning **no composite attributes and no multi-valued attributes**).
3. Set up a **primary key** for each entity.
4. **Establish the relationships** between the entities. Give the relationships **appropriate verbs**, **mark the cardinality**, and recognize the associations (**foreign keys**).
5. Use MS Access to
   1. **Build the tables**
   2. Identify **a primary key**
   3. Provide a **description for each column**
   4. Establish relationships (make sure **referential integrity is enabled**)
   5. **Add sample data**. Don’t worry about other details like datatypes. We will talk about them later.

**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. Entity Relationship Diagram for the question above



1. Entity Relationship Diagram for the below question
   1. Currently in this ERD every purchase can only have at most one type of product. If we want to allow one purchase to have more than one type of product, how would you change this ERD to accommodate this new need?



**Access**

1. The datasheet view of each table

Customer

图片包含 屏幕截图

描述已自动生成

Purchase

图片包含 屏幕截图

描述已自动生成

Supply

图片包含 屏幕截图

描述已自动生成

Product

图片包含 屏幕截图

描述已自动生成

Vendor

图片包含 屏幕截图

描述已自动生成

1. The table design of each table.

CUSTOMER:

图片包含 屏幕截图

描述已自动生成

PRODUCT:

图片包含 屏幕截图

描述已自动生成

PURCHASE

图片包含 屏幕截图

描述已自动生成

SUPPLY

图片包含 屏幕截图

描述已自动生成

VENDOR

图片包含 屏幕截图

描述已自动生成

1. The data relationship model

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-Lab1-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