# **Database Design Term Project**

**Student Name 1: Student ID:**

**Student Name 2: Student ID:**

**Student Name 3: Student ID:**

**Student Name 4: Student ID:**

# **SUBMISSION:**

# **Submit your project as pdf (without compression)**

# **PLEASE don’t use winRaR.**

# **Note: This project must consist of your own work completed during this semester**

# **Part 1:**

# **Requirements Analysis**

# Overview of Company and Product(s):

Provide a one page document entitles "Company Overview" that identifies:

a. Your name & student number

b. Your company

c. Type of company (example wholesaler or retailer)

d. Short description of the company

e. Product

i. Identify at least 6 characteristics (attributes), such as id or code, type, description, size, color, price, and so on

Customer Sales Invoice:

Modify the sample Customer Sales Invoice so that it reflects your company and the company's product. Although the company (and website) can advertise several products.

# **Part 2:**

# **Conceptual Design**

1. Create an ER diagram based on the customer invoice. Only include the entities identified

in the entity & attribute identification:

1. Entities
2. Attributes
3. Unique Identifiers
4. Named Relationships
5. Optionality and Cardinality
6. Foreign Keys
7. Create a second ER diagram that resolves many-to-many relationships

# **Part 3:**

**Logical Model**

Normalization & Relational Schema:

1. Create a document called "Database Normalization"
2. Normalize your database to 3NF
3. Modify the ER diagram if necessary
4. Include a relational schema for each entity

# **Part 4:**

**Physical Model**

Physical Table Representation:

1. Convert the logical model to a physical model using a table format (not implementation)
2. Create a table for each physical database table

Include key type, optionality, column name, data type, length

# **Part 5:**

**Implementation of Physical Model**

Create Database Tables:

1. Construct CREATE statements for each table

2. Include IDENTITY and SEQUENCE columns (optional)

3. Construct INSERT statements and populate each table with at least 10 rows

## Identify Business Rules/Database Constraints:

1. Create a document called "Business Rules/Database Constraints"

a. List the physical database rules/constraints for:

* NOT NULL
* DEFAULT
* Primary keys
* Unique keys
* Foreign keys
* Check constraints

b. List at least 3 business rules that must be programmed

1. Implement the constraints into the database creation statements

## **Constraint Testing:**

Test at least 5 constraint and provide documentation that each constraint works.

# **SUBMISSION:**

# **Submit your project as pdf (without compression)**

PLEASE don’t use winRaR.