# **Database Design Term Project**

# [**Database Design**](https://moodle.cestarcollege.com/moodle/mod/assign/view.php?id=476134)**(10%)**

A Client needs a website to advertise several products. This requires developing a database that reflect the client’s company (website) and the **products**. **The goal of this project is to design and implement a database.**

Note that you are not asked to develop a website.

# **Requirements Analysis**

# Overview of Company and Product(s) of your choice:

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:

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

# **Conceptual Design**

* + - 1. Create an ER diagram reflecting your company and the company's product. based on the customer invoice. You must identify:

1. Entities
2. Attributes
3. Unique Identifiers
4. Named Relationships
5. Optionality and Cardinality
6. Foreign Keys
7. Resolves many-to-many relationships
8. **Logical Model**

Normalization & Relational Schema:

1. Normalize your database to 3NF
2. Modify the ER diagram if necessary
3. Include a relational schema for each entity

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**1. 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.

**2. Implementation of Physical Model**

Create Database Tables:

1. Construct CREATE statements for each table.

2. Include IDENTITY and SEQUENCE columns.

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

1. List at least 3 business rules that must be programmed
2. Implement the constraints into the database creation statements

## **Constraint Testing:**

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

1. Implement views and indexes.

## **Create views and indexes**

* Create a simple view based on one of your tables and deny DML operation.
* Create a complex view based on two or more tables.
* Create two indexes for two different tables.
* Modify one of your views by adding one more column.
* Drop one of your indexes.