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| database Design Project |

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# Database Build

## Relational (Physical) Model

* Create a relational (physical) model in table format of the proposed database:
  + Tables
  + Key Types (PK, FK, UK)
  + Column Optionality
  + Column Names
  + Data Types
  + Length/Decimal Positions

### SQL File

* Create a file called DB2\_C00000.SQL, where C00000 is your student number. This file will contain all SQL code for the database build
* All non-code must be commented so the entire code will run as a script
* At the top of the file, include your name, student number, project name, term, and professor name
* Include headings and comments throughout the document that clearly identify the SQL code and each step in the process
* Upon completion, this SQL file will contain (1) DDL Create Statements; (2) , DDL Database Constraint Statements; and (3) Database Constraint Testing

### DDL Create Statements

1. Construct CREATE statements for each database table
2. Create INSERT statements that populate each table with test data. Include:

* 5 customers
* 3 associates
* 10 products
* 10 orders with at least two products on each order

# Business Rules and Constraints

## Identify Business Rules

* Create a table (Word or Excel) in the DB1 Word document that lists each database table, column, and constraint
* Your database MUST include the following constraints:
  + NOT NULL
  + DEFAULT
  + Primary key
    - Primary key of the CUSTOMERS table is an IDENTITY auto generated column
    - Primary key of the ORDERS table is a SEQUENCE auto generated column
  + Unique key
  + Foreign key
  + Check constraint

## DDL Database Constraint Statements

* Use the ALTER TABLE statement to create the constraints identified in the business rules
* The NOT NULL constraints may be defined at the column level

## Database Constraint Testing

1. Include at least the following constraint testing:
   1. NOT NULL (1)
   2. DEFAULT (1)
   3. Primary keys (2)
   4. Unique keys (1)
   5. Foreign keys (4)
   6. CHECK constraints (at least three, but test all CHECK constraints)
2. Test each constraint and provide unit-testing documentation:
   1. Provide a test that validates valid data is accepted
   2. Provide a test that validates invalid data is refused. For constraints such as ranges, test the upper and lower ranges. In other words, verify that all conditions work correctly.

# Final Database Build Project Submission

* The final database build project includes two files:
  + SQL File (.sql file)
* Suggested marking scheme. Your professor will provide the making scheme used.



* Build components are marked out of two as follows:
  + Two marks if component completed 100% according to the specifications
  + One mark if component is included but one item is incomplete or incorrect
  + Zero if component not included or more than one item is incomplete or incorrect