THE UNIVERSITY OF NORTHAMPTON

COMPUTING

CSY1026 | DATABASE DEVELOPMENT ASSESSMENT BRIEF

MODULE NAME: Databases 1
MODULE TUTOR: Mandy Morrell

CSY1026|DATABASE DEVELOPMENT

STUDENT DECLARATION:
Submission of this piece certifies that the submitted work is my (or in the case of group work) our own. All external references and sources are clearly acknowledged and identified within the contents. Referencing is in accordance with the University's Guidelines. I am/we are aware of the University's regulations concerning plagiarism and collusion.

ASSESSMENT AIM AND OBJECTIVES

The aim of this assessment is to develop and demonstrate knowledge of database architecture through the translation of an entity relationship diagram and associated table specifications to create and query a functioning database using SQL. The database should adhere to good practice, professionalism and appropriate standards throughout. You need to complete the assignment requirements below to achieve the learning outcomes for this module which are:

a) Demonstrate understanding of database design and integrity
b) Demonstrate knowledge of database programming language SQL
c) Implement development requirements into physical database structures
d) Utilise database programming language SQL for the development of databases applying appropriate standards, conventions and good practise
e) Apply data modelling techniques to establish a data structure and associated components eg entity, relationship, attribute definitions
f) Assists as part of a team to deliver a database structure conforming to appropriate standards and good practise

To achieve this you will need to:

1. Demonstrate a database system, explaining how it adheres to integrity constraints
2. Participate as a member of a team to deliver a database system conforming to appropriate standards and convention

**See assignment requirements and deliverables below*

ASSESSMENT REQUIREMENTS

The assessment includes 2 key elements:

1. Database Design based on ERD provided (Table Specifications)
2. Database Development based on 1.design (Script Files)

DATABASE DEVELOPMENT

This assignment requires you to complete the following tasks. You will need to complete all the assignment tasks to achieve the learning outcomes for this module. You should complete this assessment in groups of 3 or 4.

TASK A: TABLE SPECIFICATIONS

Develop a correct set of table specifications based on the entity relationship diagram provided (see separate appendix A) with reference to the good practise. You should consider the following;

- → appropriate table name, datatypes, constraints and defaults
- → integrity
- → case

Consider the design requirements before implementation and use the example table structure provided in appendix B.

TASK B: SCRIPT FILES

Use the entity relationship model and your table specifications to create the following script files: All files should have an appropriate extension and be in Notepad++ with correct run commands and comments.

The focus of this assignment is on **good practice and professionalism**, as highlighted throughout term. Files must adhere to appropriate industry standards and conventions. See good practice notes provided.

Achievement:

Students aiming for a good grade must submitted the required completed work to a high standard. You should aim to demonstrate a range of skills, methods and approaches, within the boundaries of good practice and standard conventions. ie if there are 2 methods of achieving a task, both good practice, you will get more marks for demonstrating both methods, eg inserts with and without column lists.

An exceptional grade cannot be achieved if the basics are not correct or are of poor quality. In addition to completing the requirements demonstrate consideration and submit a comprehensive and quality assignment.

See below for tasks details.

1. create_*yourgroupnumber*.sql (eg create_15.sql)

This file should contain:

- → Create table commands for all tables
- → Tables should be in the correct order to maintain integrity
- → Include:
  - → Any changes to the attributes you consider important
  - → Any not null constraints and defaults you consider important for integrity
  - → Any sequencing you consider useful

2. constraint_ *yourgroupnumber*.sql

This file should contain:

- → Alter table… add constraint commands for all tables
  - → Constraints should enforce integrity
- → Constraints should be in the correct order to maintain integrity
- → Any validation or defaults you consider relevant

3. insert_ *yourgroupnumber*.sql

This file should contain:

- → Insert commands for all tables
- → Minimum of 5 records should be inserted as test data for each table
- → Inserts should be in the correct order to maintain integrity
- → Inserts should be appropriate to support queries in task 5
- → Inserts should demonstrate range of skills and apply methods used in task 1 and 2

4. drop_ *yourgroupnumber*.sql

This file should contain:

- → Drop table, constraints and sequencing commands for all structures
- → Drops should be in the correct order to maintain integrity
- → Any additional commands you consider important

5. queries_ *yourgroupnumber*.sql

This file should contain the following as a *minimum*. You will need to consider the ERM:

- → Queries to achieve the following data:
  - a) All the records from one table
  - b) A projection with 3 columns
    - → data returned sorted in reverse alphabetical order
  - c) Restriction queries with *multiple* clauses demonstrating the following
    - → a predicate eg for people who live in Northampton
    - → a condition matching a pattern eg beings with M
    - → a negative condition predicate eg do *not* live in Northampton
    - → a date range condition eg last year January - December
  - d) Join queries with pertinent data from
    - → 2 tables
    - → 3 tables
  - e) Bonus: Extra query demonstrating additional or integrated skills eg b, c and d

Additional: You may wish to include the following:

Additional statements and queries to check the databases development

A run file to execute the complete database

DELIVERABLES

This assessment requires you to submit the following:

- → Completed Table Specifications based on ERD provided
- → Runable script files (.sql)
- → Demonstration (Video) of your database

- → You should use **SQL and Oracle** to produce your database
- → Submission should be in the appropriate format eg *.txt* or *.sql* files
- → Deliverables do **not** include additional database documentation
- → All submissions should be through the module Blackboard 'Submit Your Work' section
- → All practical elements of this assessment are in groups
  Group submission only require one submission per group

You are responsible for keeping backup copies of your own work. Loss of work will not be accepted as an excuse for late submission.

GROUPS

You can select your own groups. I suggest you work with like-minded people aiming for a comparable grade, not just friends. You will need to manage the group process and resolve any group issues amongst your team.

RESPONSIBILITY

The completion and submission of your assignment is your responsibility.

FEEDBACK METHODS

Grades and feedback methods for this module are outlined in the Module Blackboard under the 'Feedback and Grades' sections.

MARKING CRITERIA

Marks are based on correctness, professionalism, industry good practice and standards applied in the development of the submission not end result. See marking rubric on Blackboard

Grades above D- (40%) are a pass mark. Students with grades lower than the pass level will get an opportunity to resit the assessment in the summer. Resit grade are capped at D-

---

Appendix A| Entity Relationship Model

*** Entity Relationship Diagram to be provided separately ***

Appendix B |*Sample* Skeleton Table Specifications

Attribute	Datatype	Constraint	Default
students			
student_id		PK (pk_students)	
student_firstame		UPPER	
student_lastname		UPPER	
address_line1			
town			BEDFORD
county			
postcode			
country			UK
contact_number			NN
email		UNIQUE	
enrolled			Y
stage		CHECK IN (4, 5, 6, 7)	
date_registered			sysdate

**Note this is a sample table specification as an example of structure. It is incomplete and contains inappropriate information for your model.