



Unit: Databases

Organisational summative report Assignment

Spring – Winter 2023

Important notes

- Please refer to the *Assignment Presentation Requirements* for advice on how to set out your assignment. These can be found on the NCC Education website. Hover over 'About Us' on the main menu and then navigate to 'Policies and Procedures' then scroll to the 'Student Support' area.
- You **must** read the NCC Education document *Academic Misconduct Policy* and ensure that you acknowledge all the sources that you use in your work. These documents are available on the NCC Education website. Hover over 'About Us' on the main menu and then navigate to 'Policies and Procedures' then scroll to the 'Student Support' area.
- You **must** complete the *Statement and Confirmation of Own Work*. The form is available on the NCC Education website. Hover over 'About Us' on the main menu and then navigate to 'Policies and Procedures' then scroll to the 'Student Support' area.
- Please make a note of the recommended word count. You could lose marks if you write 10% more or less than this.
- You must submit a paper copy and digital copy (on disk or similarly acceptable medium). Media containing viruses, or media that cannot be run directly, will result in a fail grade being awarded for this assessment.
- All electronic media will be checked for plagiarism.

Introduction

This assignment requires you to demonstrate the knowledge and skills you have acquired throughout this unit by designing and creating a functional database application that addresses the tasks given below.

In order to complete this assignment, you should choose an appropriate organisation on which to conduct research and base your database application.

This assignment is split into THREE (3) tasks and accounts for 100% of the overall coursework mark for this unit.

Step 1: Select an industry in which you have an interest. For example, commercial airlines, commercial banking, retail, beauty, healthcare, fitness, publishing, hospitality, leisure and tourism, automotive, production, construction etc.

Step 2: From the industry selected you should investigate the different types of data that they hold and the types of transactions they carry out.

For example, an educational establishment will hold data about:

- Students
- Attendance
- Staff
- Rooms
- Units
- Assessments
- Results

Their transactions might include:

- Adding new students
- Adding new staff
- Deleting staff who leave
- Adding student attendance information
- Adding students to units
- Allocating staff to teach units
- Allocating rooms to units
- Allocating different assessments to units and recording the results for each assessment the student undertakes.

Do not choose an educational organisation as this has been used as an example.

You should reference the business/company or organisation that you research.

Step 3: Produce relevant documents from the tasks below:

Task 1 Analysis and Design (LO 1, 3, 4) – 45 Marks

Produce the following documents:

a) Introduction, outline and initial analysis:

Write a clear *summary* for a company's senior **management team**, their **stakeholders**, and **shareholders**.

Assume that your *summary* will be read by those who have very limited knowledge or digital skills in databases.

In your *summary* use clear language and fully **explain the technical terms** so that the readers can understand its contents.

The **summary** should:

- 1) Introduce the company and describe what it does.
- 2) Explain **what a database is** and what typical **functions the proposed** database will perform.
- 3) Clearly list and describe **the transactions** the database will carry out to **help daily functions** of the organisation.
- 4) **List all entities** to be included in the database.
- 5) Identify and discuss specific **advantages and disadvantages** of implementing a **database for the organisation**.

(15 marks)

b) Using the list of entities and functions identified in task 1a), complete the following:

- 1) Draw an **Entity Relationship Diagram ERD** and list and normalise to 3rd normal form (3NF) all of the attributes that will be required in the database.
- 2) The **Entity Relationship Diagram (ERD)** should show **at least SIX (6) data entities** from **the initial analysis** from the identification of the transactions that was carried out in task 1a).
- 3) Provide a written statement **of any problems** that you encountered during the process of creating the ERD and production of 3rd Normal Form (3NF) and explain the process you undertook to resolve them.

(20marks)

c) Create a full **Data dictionary for the entity relationship model using the entities and attributes identified in task 1b). The data dictionary should include the following:**

- 1) All of the **attributes used**.
- 2) Identify all **primary, foreign and compound** keys that you have created
- 3) Show the **data type** for each attribute used
- 4) Include any field **constraints that have** been identified from your chosen **organisation**.

(10 marks)

Task 2 Implementation (LO 4, 5) – 40 Marks

- a) Create all of the normalised tables from task 1b) in SQL. Write your SQL scripts clearly showing the commands you have used with the keys, data types and field lengths. Show the finished tables and ensure they are consistent with the tables you created earlier.
(10 marks)
- b) Enter a range of sample data in all tables (minimum THREE (3) rows per table).
(10 marks)
- c) Write FIVE (5) *queries* that demonstrate your knowledge and understanding of SQL. *SQL statements* to be used should include all of the following: Select, Update, Delete, From, Where, And, Count, Ascending, Order By. Ensure TWO (2) of your queries use multiple commands.

TWO (2) of the queries should join TWO (2) or more tables together.

(20 marks)

Task 3 (LO 3) – 15 Marks

Provide a written assessment and evaluation of the work you have undertaken.

Your discussion should include:

- 1) How the database you have created meets the data and information requirements of your chosen organisation as identified in task 1a).
- 2) Why the use of ER modelling is an essential part in the design of a database solution, and how you used it to identify and rectify any design issues you encountered.
- 3) Any assumptions that you have made.
- 4) How the database supports the transactions that you identified in task 1a).

(15 marks)

Assignment Notes

- You must complete all THREE (3) tasks of this assignment.
- The total assignment should be **1500** words, including all THREE (3) tasks (text on diagrams and the data dictionary are excluded from this word count).
- Please submit your assignment as ONE (1) document. This can be in printed form or electronic version as instructed by your teacher.

Candidate checklist

Please use the following checklist to ensure that your work is ready for submission.

- Have you read the NCC Education document *Academic Misconduct Policy* and ensured that you have acknowledged all the sources that you have used in your work? ☐
- Have you completed the *Statement and Confirmation of Own Work* form and attached it to your assignment? **You must do this.** ☐
- Have you ensured that your work has not gone over or under the recommended word count by more than 10%? ☐
- Have you ensured that your work does not contain viruses and can be run directly? ☐