Data Analyst Sample Assessment Brief

NCFE Level 4 Diploma: Data Analyst
QN: 603/7751/3

Unit 03 Data structure and databases
(F/651/0926)

Student name / ID number	
Unit number, title and learning outcomes (LOs)	**Unit 03** Data structure and databases (F/651/0926) **LO1**: Examine the fundamentals of database system design **LO2**: Explore the application of data modelling and database design and the implementation and maintenance of database systems and process **LO3**: Investigate common quality risks in data and implement mitigation techniques
Assignment title	Data analyst

Scenario

You have secured a work experience opportunity as a junior data analyst at a prominent fast-food retailer. Your role is to help the retailer transition towards a data-driven approach by collecting and storing purchase data from their mobile application into a database. Throughout the project, you will be actively engaged in each phase, starting from researching effective database designs to implementing the final database solution and offering valuable guidance.

Additionally, part of your responsibilities involves identifying potential quality risks that may arise due to the actions of a new employee who disregards proper guidance. In such cases, you will be required to compose an email highlighting the issue and explaining the consequences of their actions. Furthermore, you will need to suggest appropriate measures to mitigate the risks and send the email to the relevant recipient for further action.

Tasks

In this assignment, you will be laying the foundation for an exciting new project to support data analysts to get quality insights on their customer base through purchase data.

Task 1

First, you will need to describe data and design requirements through a mind map. Then, you will need to research different schemas and platforms, noting the advantages and disadvantages of each in relation to key factors of database system design (for example scalability). This should also feature details on relational and non-relational databases, analysing and comparing the key features of each.

Task 2

Using your research, you will create an entity relationship diagram (ERD) of the database you have designed. You will need to critically assess whether your design meets the requirements, and then suggest a platform to implement the design on. This will be collated and presented in a report containing justifications and recommendations, as well as data risk mitigation and maintenance procedures to ensure the database remains clean.

Task 3

To illustrate the need for this to executives, you will need to write an essay on the impact of inconsistent unclean data and the risks involved when combining data from multiple sources, arguing strongly for your guidance to be followed.

Task 4

After your design is implemented, a user of the database ignores your guidance and creates a set of quality risks. You will need to identify the quality risks and then write an email to the appropriate recipient, reviewing the quality risks with suggested mitigations.

Evidence requirements
You must provide/include: • a mind map of requirements • an ERD of the database design • a report justifying your design, with recommendations on data risk mitigation • an essay on the impact of inconsistent data • an email of risk mitigation, escalating to the appropriate level.
Unit learning outcomes (LOs)
LO1: Examine the fundamentals of database system design Pass 1, Pass 2, Merit 1, Distinction 1 LO2: Explore the application of data modelling and database design and the implementation and maintenance of database systems and process Pass 3, Pass 4, Pass 5, Merit 2, Merit 3, Distinction 2 LO3: Investigate common quality risks in data and implement mitigation techniques Pass 6, Pass 7, Pass 8, Merit 4, Merit 5, Distinction 3

Grading criteria

Learning outcomes (LOs)	Pass	Merit	Distinction
LO1: Examine the fundamentals of database system design	**P1**: Describe the features and application of both relational and non-relational databases **P2**: Explain the database development lifecycle	**M1**: Determine how database fundamentals, design considerations, and the relationship between data analysis and database system design contribute to ensuring robust and efficient data management	**D1**: Compare and contrast relational and non-relational databases, justifying use cases for both by referencing design considerations
LO2: Explore the application of data modelling and database design and the implementation and maintenance of database systems and process	**P3**: Explain the process and purpose of data modelling using suitable design tools **P4**: Describe the characteristics of different data formats within different types of databases and outline processes to implement and maintain databases	**M2**: Evaluate the importance of implementation processes and routine maintenance to ensure a well-functioning database system	**D2**: Assess data modelling techniques for conceptual, logical and physical designs and reflect on the design process
	P5: Outline appropriate database designs to meet future analytical needs, using the data analysis lifecycle	**M3**: Examine why aligning database designs with analytical goals facilitates efficient and meaningful future analyses	
LO3: Investigate common quality risks in data and implement mitigation techniques	**P6**: Explain various types of inconsistencies in data and outline the impact of using unclean data **P7**: Summarise the risks associated with combining data and state methods for escalating data risks	**M4**: Explore examples of data quality risks and how to mitigate them	**D3**: Evaluate data inconsistencies and issues, as well as their associated risks, and justify recommended mitigation techniques
	P8: Discuss the ability to identify data risks and explain how mitigation techniques can be used	**M5**: Apply mitigation techniques to known data quality issues	