Sample Assessment Materials SAMs (unitised)

NCFE Level 3 Technical Occupational Entry for the Data Technician (Diploma)
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Contents

Overarching scenario

A local 6th form college has recognised the need for enhanced data analytics. They believe they are not fully capitalising on various opportunities and that creating a new position would help address this need. As a result, you have been employed as a junior data technician to assist in help the college to develop their data analytics processes.

The college has identified several areas where data can significantly improve their operational effectiveness and efficiency. Based on this, your line manager has developed a variety of projects for you to complete during your initial sixth-month probation period. These projects are designed to help the college identify better solutions, improve their analytics and support you while settling in your new role.

The tasks you will be assigned within each project will assess your skills in research, communication, data analysis, cleansing, compliance, supporting other teams within the college, exploring existing systems, and making recommendations for improvement. You will be provided with a brief overview of each project at the start of each unit to provide contextualisation of requirements.

The purpose of these projects is to gather a portfolio of evidence that will demonstrate your ability to undertake tasks required to work as a junior data technician. While completing these tasks you should try to include evidence of research / planning and any conclusions and / or recommendations should be justified. To support the tasks, working examples should be used where possible.

Unit 1 – data fundamentals

Project scenario

The college has noticed a decline in the number of students enrolling in digital programmes over the past five years. They believe this decline may be due to a decrease in the number of students taking computing GCSEs in school.

The college has a wealth of internal data collected over the past decade from their digital programmes. This data includes information on student enrolment, course performance, and job placement rates. However, the college is also interested in any external data that can help them determine if this is a nationwide issue.

By analysing this data, you can help the college better understand the decline in recruitment for digital programmes. You can also help them develop strategies to increase enrolment and improve student outcomes.

To help them understand the issue better, they have asked you to conduct research on the various types of data in relation to this.

Task 1 – overview task (LO1)

Your departmental manager has asked you to create an overview to present to the department head. You can present your findings in any form that you feel appropriate to communicate this information (for example, but not limited to, a written report, PowerPoint slides or short video).

To complete this task, you create an overview which covers the following areas:

- the value of data to an organisation (AC1.1)
- how a range of qualitative and quantitative data can be used to highlight and explain trends (A1.2)
- how common data sources can be used within an organisation (AC1.3)
- how trusted external or third-party data can be used to support an organisation's data strategy (AC1.4)

Submission:

A completed 'overview' in a format of your choosing

Learning outcomes (LOs) The learner will:	**Assessment criteria (AC)**	**Pass** The learner will be able to:	**Merit** The learner will be able to:	**Distinction** The learner will be able to:
1. Understand the value,	1.1 The value of data to an organisation	Describe the value of data to an organisation.	Explain the importance of using a range of	Evaluate the importance of using a range of

types and sources of data	1.2 How a range of quantitative and qualitative data can be used to highlight and explain trends	Outline how a range of quantitative and qualitative data can be used to highlight and explain trends.	qualitative and quantitative data to highlight trends and patterns with consideration of how this could bring value to an organisation.	quantitative and qualitative data from various sources and how this can bring value to an organisation.
	1.3 How common sources of data are used within an organisation (for example, internal, external, open datasets, public and private)	Describe how common sources of data are used within an organisation.	Explain how an organisation could use different data sources to support their data strategy. Consideration should be given to any internal data available and the integration of trusted external or third-party data.	
	1.4 How trusted external or third-party data is used to support an organisation's data strategy	Outline how trusted external or third-party data is used to support an organisation's data strategy.		

Task 2 – research report (LO2)

Your manager has asked you to undertake some initial research to develop your knowledge around the use and extraction of data before you begin the practical element of this task. They have asked you to investigate and write a summary of the following areas:

- the purpose and use of a range of data types (AC2.1):
  - numeric
  - temporal
  - text
  - geospatial
  - media
  - logical
  - references
- the importance of selecting the most appropriate data suitable for analysis (AC2.2)
- how to access, extract and migrate data from a range of sources (AC2.3)

Submission:

A written summary of your research

Observation feedback for your practical task

Learning outcomes (LOs) The learner will:	**Assessment criteria (AC)**	**Pass** The learner will be able to:	**Merit** The learner will be able to:	**Distinction** The learner will be able to:
2. Understand the use of data and how to extract data from a range of sources	2.1 The purpose and use of data formats: • numeric • temporal • text • geospatial • media • logical • references	Outline the purpose and use of data formats (as identified in AC2.1).	Discuss a range of data types, comparing their use and suitability when preparing for analysis. Consideration should be given to issues faced by an individual/organisation when using, extracting and migrating data.	Justify why it is important to choose the right data and suitable methods for extracting it to meet specific requirements.
	2.2 The importance of selecting the most appropriate data suitable for analysis	Outline the importance of selecting the most appropriate data suitable for analysis.		
	2.3 How to access, extract and migrate data from a range of sources	Outline how to access, extract and migrate data from a range of sources.		

Task 3 – presentation (LO3)

You need to create a presentation (in any format that is appropriate for the situation) for your line manager which highlights digital interactions and connections across the digital landscape.

Your presentation should focus on the following key points:

- the significance of data and how it underpins digital interactions and connections across the digital landscape (AC3.1)
- how data can be obtained through customer-centric interactions (AC3.2)
    - applications

- devices
- internet of things (IoT)

Submission:

Presentation (in format of your choosing)

Learning outcomes (LOs) The learner will:	**Assessment criteria (AC)**	**Pass** The learner will be able to:	**Merit** The learner will be able to:	**Distinction** The learner will be able to:
3. Understand how data underpins digital interactions and how it is obtained through customer-centric interactions	3.1 The significance of data and how it underpins digital interactions and connections across the digital landscape (for example, transactional or booking data)	Outline the significance of data and how it underpins digital interactions and connections across the digital landscape.	Discuss a range of ways that customer-centric data can be obtained and the benefits this data offers to an organisation.	Analyse the value of customer interaction data and how this underpins personalised and effective digital experiences.
	3.2 How data can be obtained through customer-centric interactions: • applications • devices • internet of things (IoT)	Identify how data can be obtained through customer-centric interactions (as identified in AC3.2).		

Task 4 - data report and practical task (LO3)

Your manager has selected a number of data sets they believe will be of most use to the college in understanding the decline in uptake of digital qualifications in recent years. This includes:

- students' information – including school, qualifications undertaken, grades
- jobs within the digital sector – skills required, vacancies, pay rates
- historical course data – previous applications and destination data

They would now like to see a demonstration of how these different data sets could be combined into a single data set, which could then be used in future to provide insights.

To complete this task, you need to:

- combine the datasets (these will be given to you by your course leader) into one dataset (AC4.2) through appropriate migration and formatting techniques
- save the new dataset in a suitable format (AC4.2) for future use

Once you have combined the datasets you will need to:

- write an evaluation explaining how you undertook collating data from multiple sources to create a dataset to meet the college's requirements (AC4.1)

Submission:

A combined dataset saved in a suitable format

Evaluation

Learning outcomes (LOs) The learner will:	**Assessment criteria (AC)**	**Pass** The learner will be able to:	**Merit** The learner will be able to:	**Distinction** The learner will be able to:
4. Understand and be able to collect, collate and format data and save to meet requirements	4.1 How to collate data from multiple sources to produce a dataset to meet requirements	Outline how to collate data from multiple sources to produce a dataset to meet requirements.	Explain techniques that could be used to identify the most relevant data and methods that could be used to collate it.	Justify the selection of methods used to collect, organise, and format data to meet requirements.
	4.2 Collect data from a range of sources and migrate, format and save the new dataset	Demonstrate the ability to collect data from a range of sources and migrate, format and save the new dataset.		

Unit 2 – data architecture and legislation

Project scenario

The college has questioned if their current data architecture is adequate and if it complies with internal and external policies and regulations. They are interested in exploring various frameworks that can help them meet all compliance requirements. To do this, they need more information on legal obligations, data security, and data ethics.

The following information has been provided by the college:

- legal obligations: the college is subject to a variety of laws and regulations that govern how they collect, use, and store data
    - these laws and regulations vary from country to country, so it is important for the college to understand the specific laws and regulations that apply to them
- data security: the college is responsible for protecting the data that they collect from students, staff, and other third parties
    - this includes protecting data from unauthorised access, use, disclosure, alteration, or destruction
- data ethics: the college is committed to using data in an ethical way
    - this means that they will only collect data that is necessary for their legitimate business purposes, and they will only use data in ways that are consistent with the expectations of the individuals whose data they collect

Task 1 – departmental information posters

Create a series of four one-page A3 information posters which provide a detailed outline of data architecture. These will be placed around all departments to highlight key areas surrounding data architecture and educate other colleagues. This should include the following:

- the role of the data architecture frameworks in supporting the college's strategy (AC1.1)
- the function of data architecture frameworks in supporting the college's data architecture strategy (AC1.2)
- the type of data architecture available and their different uses within the college (AC1.3)
- the characteristics of data architecture in relation to the college securing, complying and governing data use (AC1.4)

Submission:

Four information posters

Learning outcomes (LOs) The learner will:	**Assessment criteria (AC)**	**Pass** The learner will be able to:	**Merit** The learner will be able to:	**Distinction** The learner will be able to:
1. Understand data architecture	1.1 The role of data architecture frameworks (for example, The Open Group Architecture Framework (TOGAF)) in supporting business strategy	Outline the role of data architecture frameworks in supporting business strategy.	Describe the role of data architecture frameworks in supporting business strategy.	Evaluate the importance of data architecture frameworks in supporting business strategy.
	1.2 The function of data architecture frameworks in supporting an organisation's data architecture strategy (for example, access, managed, shared)	Outline the function of data architecture frameworks in supporting an organisation's data architecture strategy.	Describe the role of data architecture frameworks in supporting an organisation's data architecture strategy.	Evaluate the importance of data architecture frameworks in supporting an organisation's data architecture strategy.
	1.3 The types of data architecture (for example, warehouse, mart, lake) and their different uses within an organisation	Identify the types of data architecture and their different uses within an organisation.	Discuss the use of data architecture, considering the many ways it is used to support an organisation.	Evaluate the importance of data architecture for supporting business strategy.
	1.4 The characteristics of data architecture (for example, governance,	Outline the characteristics of data architecture.		

	compliance, security)			

Task 2 – CPD materials

The college management wants to upskill all colleagues with easy-to-understand key factors relating to the most important areas of data compliance to ensure that all aspects of legal and regulatory requirements are being complied with.

Task 2a

You have been asked to help in the creation of CPD materials to be used at the next all-staff training day. You will need to create the following:

- PowerPoint slides for your line manager to present which cover the following three areas (with sub-sections), including a short video to cover data compliance.

Legal requirements

- the purpose and use of legislation and standards to support the use of data (AC2.1):
  - The Data Protection Act 2018
  - Computer Misuse Act 1990
  - Copyright and Patents Act 1988
  - Payment Card Industry Data Security Standard (PCI-DSS)
  - ISO27001
- the purpose and use of intellectual property rights to support the use of data (AC2.2)
- the purpose and use of the data sharing code of protection (AC2.3)
- the concept of marketing consent and how this applies to data analysis (AC2.4)
- how to define personally identifiable information (PII) and why it is important to protect this information (AC 2.5)
- the impact of non-compliance with legal and regulatory requirements on an organisation (AC2.6)

Data quality and security

- how to collect datasets in line with Data Standards Authority (DSA) recommendations (AC2.7)
- the purpose of security controls and procedures to ensure data security (AC2.8)

Task 2b – storage, management and distribution of data in compliance

As part of your day-to-day job, you need to store, manage, and distribute data safely and securely, meeting compliance regulations. The college wishes to promote this as best practice so to support this, your line manager has asked you to create a short instructional video

demonstrating how you do this, whilst you explain how you are meeting compliance with legislation and regulation.

To complete this task, you will need to create an instructional video which should be embedded within the presentation slides. This video must demonstrate your ability to:

- store, manage and distribute data in compliance with data security standards and legislation (AC2.9)

Submission:

PowerPoint slides including embedded video

Learning outcomes (LOs) The learner will:	**Assessment criteria (AC)**	**Pass** The learner will be able to:	**Merit** The learner will be able to:	**Distinction** The learner will be able to:
2. Understand legal and regulatory requirements and store, manage and distribute data in compliance with standards and legislation	2.1 The purpose and use of legislation and standards to support the use of data: • Data Protection Act (DPA) 2018 • Computer Misuse Act 1990 • Copyright, Designs and Patents Act 1988 • Payment Card Industry Data Security Standard (PCI DSS) • ISO/IEC 27001	Outline the purpose and use of legislation and standards to support the use of data (as identified in AC2.1).	Explain the impact that legislation and standards can have upon an organisation and its employees.	Evaluate the importance of storing, managing, and distributing data in compliance with relevant legislation, regulations and standards.

	2.2 The purpose and use of intellectual property rights (IPR) to support the use of data	Outline the purpose and use of IPR to support the use of data.		
	2.3 The purpose and use of the data sharing code of practice	Outline the purpose and use of the data sharing code of practice.		
	2.4 The concept of marketing consent and how this applies to data analysis	Outline the concept of marketing consent and how this applies to data analysis.	Discuss ways in which organisations can protect PII and techniques for mitigation against non-compliance.	
	2.5 How to define personally identifiable information (PII) and why it is important to protect this information	Outline how to define PII and why it is important to protect this information.		
	2.6 The impact of non-compliance with legal and regulatory requirements on an organisation	Identify the impact of non-compliance with legal and regulatory requirements on an organisation.	Explain the impact of non-compliance with legal and regulatory requirements on an organisation.	
	2.7 How to collect datasets in line with Data Standards Authority (DSA) recommendations (for example, transparency, accountability, fairness)	Outline how to collect datasets in line with DSA recommendations.	Discuss a range of security controls and procedures that can be applied to ensure data security and how this can be used to support adherence to DSA recommendations.	
	2.8 The purpose of security controls and procedures to ensure data	Outline the purpose of security controls and procedures to ensure data security.		

	security (for example, encryption, resilience)			
	2.9 Store, manage and distribute data in compliance with data security standards and legislation	Demonstrate the ability to store, manage and distribute data in compliance with data security standards and legislation.		

Task 3 – data ethics

Your line manager has asked you to create a short training video (5 – 10 mins) outlining the ethical use of data.

To complete this task the video needs to cover the following 2 areas:

- the purpose and use of the Data Ethics Framework to support the use of data (AC3.1):
  - transparency
  - accountability
  - fairness
- the ethical considerations when working, gathering, analysing and presenting data (AC3.2)

Submission:

Training video

Learning outcomes (LOs) The learner will:	**Assessment criteria (AC)**	**Pass** The learner will be able to:	**Merit** The learner will be able to:	**Distinction** The learner will be able to:
3. Understand the ethical use of data	3.1 The purpose and use of the Data Ethics Framework to support the use of data: • transparency • accountability	Outline the purpose and use of the Data Ethics Framework to support the use of data (as	Explain how the principles of the Data Ethics Framework can be implemented when gathering,	Evaluate the importance of using data ethically, considering transparency, accountability and fairness, and

	• fairness	identified in AC3.1).	analysing and presenting data.	potential impacts on individuals and organisations.
	3.2 The ethical considerations when gathering, analysing and presenting data (for example, consent, contract, legal obligations)	Outline the ethical considerations when gathering, analysing and presenting data.		

Unit 3 – data cleansing

Project scenario

During recent audits, the college has found inconsistent data that presents several issues, including missing information, type errors, and previously identified compliance concerns.

To assess the scale of this issue, they have assigned you the task of creating a 'how to guide' explaining how to undertake appropriate data cleansing measure and cross-checking methods on a data set so that heads of department can be aware of this when they are preparing their own tasks. This should be a written document, submitted as a PDF.

Task 1 – 'how to guide'

Create a 'how to guide' which will have five distinct sections covering the following areas:

- the characteristics and impact of common data quality issues (AC1.1):
  - inconsistent data
  - human error
  - compliance issues
- the application of data cleansing methods, including (AC1.2):
  - correction of typos
  - removal of duplicate entries
  - excluding out-of-date data
  - parse data
  - replacing null / missing values
- the importance of data quality in ensuring confidence and integrity (AC1.3):
  - usability
  - validity
  - reliability
  - repeatability
  - source of data
  - appropriateness to task based on bias identified within the dataset
- the application of cross-checking methods for validation and verification (AC2.1):
  - validation
  - verification:
    - double keying
    - proofreading data
- the importance of taking corrective action when validating data (AC2.2)

Task 2 – explanatory video

Your manager has given you a college dataset and asked you to record an explanatory video demonstrating how to cleanse, test and assess the integrity in the data.

You will need to create a 5 – 10min explanatory video demonstrating the following skills on the dataset (this will be provided by your course leader):

- apply cross-checking methods to identify any faults (AC2.3)
- based on findings, apply appropriate data cleansing measures (AC1.4)
- test and assess confidence and integrity in the data (AC1.5)
- apply cross-checking to ensure data results meet requirements (AC2.3)

Submission:

Explanatory video

How to Guide (written document saved as a PDF)

Learning outcomes (LOs) The learner will:	**Assessment criteria (AC)**	**Pass** The learner will be able to:	**Merit** The learner will be able to:	**Distinction** The learner will be able to:
1. Understand common data quality issues, apply data cleansing measures and test and assess confidence and integrity in data	1.1 The characteristics and impact of common data quality issues: • inconsistent data (for example, duplicate entries, out-of-date data) • human error (for example, spelling errors, introduction of bias) • compliance issues (for example, the Data Protection Act 2018)	Outline the characteristics and impact of common data quality issues (as identified in AC1.1).	Explain the importance of data quality and the data cleansing methods used to address common data quality issues.	Analyse how data cleansing methods are used to provide confidence in the quality and accuracy of the data produced.
	1.2 The application of data cleansing methods, including: • correction of typos • removal of duplicate entries	Outline the application of a range of data cleansing methods (as		

	• excluding out-of-date data • parse data • replacing null/missing values	identified in AC1.2).		
	1.3 The importance of data quality in ensuring confidence and integrity: • usability • validity • reliability • repeatability • source of data (for example, primary or secondary data) • appropriateness to task based on bias identified within the dataset	Outline the importance of data quality in ensuring confidence and integrity (as identified in AC1.3).		
	1.4 Apply appropriate data cleansing measures	Demonstrate the ability to apply appropriate data cleansing measures.		
	1.5 Test and assess confidence and integrity in the data	Demonstrate the ability to test and assess confidence and integrity in the data.		
2. Understand and apply cross-checking methods	2.1 The application of cross-checking methods for validation and verification • validation (for example, length, format, data type) • verification: • double keying • proofreading data	Outline the application of cross-checking methods for validation and verification (as identified in AC2.1).	Discuss a variety of validation and verification techniques and their role in ensuring data accuracy and reliability.	Evaluate the importance of validation and verification techniques for cross-checking data and taking corrective action when validating data.
	2.2 The importance of taking corrective action when validating data	Identify the importance of taking corrective		

		action when validating data.		
	2.3 Apply cross-checking methods to identify faults and data results to meet requirements	Demonstrate the ability to apply cross-checking methods to identify faults and data results to meet requirements.		

Unit 4 – blending and merging data

Project scenario

Your line manager has been contacted by the college marketing team who need some support with a data analysis project. They have noticed an increase in website visitors, but the number of applications received is lower than in previous years. They would like you to analyse the data they have provided, apply appropriate filters, and then blend and manipulate the data to gain a deeper understanding of the problem.

Task 1 – training tool

The college marketing team needs some training on the fundamentals of filtering data and their knowledge developing on the value of blended data and some of the techniques. You have been asked to create a training tool in whatever format you see fit (for example, written document, short video, how to guide).

To complete this task, you need to ensure that your training tool covers the following areas:

- an explanation of the importance of filtering data for accuracy and reliability (AC1.1)
- how to filter data to meet project requirements (AC1.2)
- the value of blended data (AC2.1)
- the application of blending and manipulation techniques (AC2.2):
  - data joining
  - consolidation
  - merging dataset
- an identification of the importance of manipulating and linking different datasets (AC2.4)

Submission:

Training tool

Learning outcomes (LOs) The learner will:	**Assessment criteria (AC)**	**Pass** The learner will be able to:	**Merit** The learner will be able to:	**Distinction** The learner will be able to:
1. Understand how to filter data	1.1 The importance of filtering data (for example, accuracy, reliability)	Identify the importance of filtering data.	Explain a range of techniques used when filtering data to meet requirements.	Evaluate the importance of filtering data to meet project requirements.

	1.2 How to filter data to meet project requirements	Outline how to filter data to meet project requirements.		

Learning outcomes (LOs) The learner will:	**Assessment criteria (AC)**	**Pass** The learner will be able to:	**Merit** The learner will be able to:	**Distinction** The learner will be able to:
2. Understand the value of blended data and manipulate, link and audit data	2.1 The value of blended data (for example, deeper business insights)	Identify the value of blended data.	Discuss a range of blending, manipulating and linking data techniques and their importance in preparing data for analysis and auditing.	Evaluate the importance of blending, manipulating and linking data techniques when preparing data for analysis and auditing.
	2.2 The application of blending and manipulation techniques: • data joining (for example, inner, full) • consolidation (for example, combining separate worksheets into one worksheet) • merging dataset (for example, combining files with the same structure into one dataset)	Outline the application of blending and manipulation techniques (as identified in AC2.2).		
	2.4 The importance of manipulating and	Identify the importance of manipulating and		

	linking different datasets	linking different datasets.		

Task 2 – data blending and assessing

The college marketing department is looking at using data analysis to help identify their website visitors, course enquiries, course applications and potential students interested in attending taster days. This has resulted in the gathering of a range of datasets (these will be provided by your course leader).

They would like you to undertake the following actions on the data to prepare them for further analysis:

- identify the most appropriate information and then, using the most appropriate blending technique, create a single dataset that provides the marketing department with the most useful information (AC2.3)
- apply the most appropriate manipulation techniques to link the datasets so that the department can see which visitor has enquired about a course, attended a taster day, and then completed an application. (AC2.5)

Once complete, you should write a report that assesses the integrity of the blended and manipulated data results to check they are valid, within scope of the requirements and free from anomalies (AC2.6 and Unit 7 AC2.2) and identify why it is important that you produced a clear and concise technical document to communicate the gathered data (Unit 7 AC2.1).

Submission:

Single blended dataset

Single linked dataset

Report on the integrity of the dataset*

*this report will also be used as evidence for unit 7 (AC2.1 & AC2.2)

Learning outcomes (LOs) The learner will:	**Assessment criteria (AC)**	**Pass** The learner will be able to:	**Merit** The learner will be able to:	**Distinction** The learner will be able to:
2. Understand the value of blended data and manipulate,	2.3 Provide blended data from multiple sources in an appropriate format	Demonstrate the ability to provide blended data from multiple sources in an appropriate format.	Discuss a range of blending, manipulating and linking data	Evaluate the importance of blending, manipulating and linking data

link and audit data	2.5 Apply manipulation techniques to link different datasets and meet requirements	Demonstrate the ability to apply manipulation techniques to link different datasets and meet requirements.	techniques and their importance in preparing data for analysis and auditing.	techniques when preparing data for analysis and auditing.
	2.6 Assess the integrity of blended and manipulated data results: • validity • scope • anomalies	Demonstrate the ability to assess the integrity of blended and manipulated data results (as identified in AC2.6).		

Unit 5 – statistical analysis

Project scenario

The college has made several investments in new systems over the years, but these systems do not integrate seamlessly. As a result, it is difficult to get a complete picture of the college's data. You have been tasked with assessing the current systems in use and constructing a comprehensive data model.

To enhance your understanding of the data, you will be provided with a dataset that requires statistical analysis to help identify trends and patterns.

Task 1 – short report

Before you undertake statistical analysis of the dataset your line manager has asked you to create a short report to evidence your knowledge of data modelling, statistical methods and algorithms.

Your report should include:

- the application of data modelling techniques to extract relevant data (AC1.1):
  - conceptual
  - logical
  - physical
- the application of statistical methods to normalise data and to identify trends and patterns (AC1.2):
  - standard deviation
  - linear regression
  - clustering
  - time series modelling
  - correlation
- the process of data normalisation to remove redundancy and improve integrity (AC1.3)
- the features and function of algorithms to solve problems within data (AC1.4)

Task 2 – data modelling

You have been provided with a range of historical college data (your course leader will provide this) in relation to programme and student performance. From this, the college hopes to identify any trends and patterns that will show them which courses are performing well, and the overarching student performance. You should use your own initiative to identify trends and patterns that you feel will be most appropriate.

You have been set the following two tasks:

- apply a data modelling technique using the data provided as a basis for this, to create an entity relationship diagram (ERD) using software of your choice, showing how this data

could be stored in a database – this database would theoretically be used for the analysis of trends and patterns (AC1.5).

- using the data provided, identify and apply an appropriate statistical method to interpret any trends and patterns in data – use relevant charts or graphs to highlight any findings (AC1.6)

Submission:

Written report

ERD – submitted as a PDF

Dataset containing charts / graphs

Learning outcomes (LOs) The learner will:	**Assessment criteria (AC)**	**Pass** The learner will be able to:	**Merit** The learner will be able to:	**Distinction** The learner will be able to:
1. Understand and apply data modelling, statistical methods and algorithms	1.1 The application of data modelling techniques to extract relevant data: • conceptual • logical • physical	Outline the application of data modelling techniques to extract relevant data (as identified in AC1.1).	Explain data modelling techniques, algorithms and statistical methods used to normalise data, identify trends and patterns and support problem solving.	Evaluate the importance of data modelling techniques, algorithms and statistical methods used to normalise data, identify trends and patterns and support problem solving.
	1.2 The application of statistical methods to normalise data and to identify trends and patterns: • standard deviation – measures the variance from the mean • linear regression – identifies relationship between data variables • clustering – used to group related data points within a dataset • time series modelling – identifies patterns over time (for example, weekly or monthly trends)	Outline the application of statistical methods to normalise data and to identify trends and patterns (as identified in AC1.2).		

	• correlation – identifies a relationship between datasets			
	1.3 The process of data normalisation to remove redundancy and improve integrity	Identify the process of data normalisation to remove redundancy and improve integrity.		
	1.4 The features and function of algorithms to solve problems within data (for example, identifying patterns and trends, provides predictive analytics)	Identify the features and function of algorithms to solve problems within data.		
	1.5 Apply appropriate data modelling techniques and algorithms to identify trends and patterns in data	Demonstrate the ability to apply appropriate data modelling techniques and algorithms to identify trends and patterns in data.		
	1.6 Apply an appropriate statistical method to interpret trends and patterns in data	Demonstrate the ability to apply an appropriate statistical method to interpret trends and patterns in data.		

Unit 6 – data visualisation

Project scenario

Your line manager has asked you to explain how data management tools can effectively govern, store, process, and manage data. They are also interested in exploring the best way to use data with teaching staff to showcase student success and achievements in each course over a five-year period. As this is a new area, your manager has tasked you with undertaking research to develop your understanding of the area before you analyse data and produce a presentation.

Task 1 – exploration of data management and visualisation

You will need to undertake an exploration into the following areas to develop your own knowledge of data management and visualisation tools:

- the use of data management tools to govern, process, secure and store data (AC1.1)
- the use of data visualisation tools to manage, summarise and display data (AC1.2)
- the use of presentation tools to review and communicate data (AC1.3)
- the application of visualisation techniques used to present data for specific audiences (AC1.4)

Your investigation should explore how data management and a range of visualisation tools and techniques can be used to present findings. You should support your exploration with evidence of relevant research and working examples.

Task 2 – data analysis, visualisation and communication

The dataset you created in Unit 5 has been identified as extremely useful in the identification of trends and patterns, so your line manager has asked you to create a presentation which communicates your findings. However, this presentation will be used with a wide variety of stakeholders, so you have been tasked with creating two versions of the presentation: one aimed at a technical audience and the other for a non-technical audience.

To complete this task, you need to create two presentations (AC1.5) which include speaker notes:

- a presentation for a technical audience:
    - based on the findings from the dataset created in Unit 5 you need to create a presentation clearly explaining the trends and patterns that have been identified using visualisation techniques
- a presentation for a non-technical audience:
    - create a second version of your initial presentation by adapting the terminology used in the slides and the speaker notes so that this is then suitable for a non-technical audience

Submission:

Written report using this information gained from the task

Presentation slides including speaker notes for technical audience

Presentation slides including speaker notes for non-technical audience

Learning outcomes (LOs) The learner will:	**Assessment criteria (AC)**	**Pass** The learner will be able to:	**Merit** The learner will be able to:	**Distinction** The learner will be able to:
1. Understand data management and visualisation tools and apply visualisation tools and techniques to communicate data	1.1 The use of data management tools to govern, process, secure and store data	Outline the use of data management tools to govern, process, secure and store data.	Describe the use of data management tools to govern, process, secure and store data.	Analyse the effectiveness of data management tools to govern, process, secure and store data.
	1.2 The use of data visualisation tools to manage, summarise and display data (for example, Power BI, Microsoft Excel)	Outline the use of data visualisation tools to manage, summarise and display data.	Explain how data visualisation and communication tools can be used to prepare and present data for specific audiences.	Evaluate the importance of data visualisation and communication tools when presenting data to technical and non-technical audiences.
	1.3 The use of presentation tools to review and communicate data (for example, Microsoft PowerPoint, Canva)	Outline the use of presentation tools to review and communicate data.		
	1.4 The application of visualisation techniques used to present data for specific audiences (for example, charts/graphs, tables, infographics)	Outline how visualisation techniques are used to present data for specific audiences.		

	1.5 Apply a range of visualisation tools and techniques to identify trends and patterns in data and communicate results to meet technical and non-technical audience requirements	Demonstrate the ability to apply a range of visualisation tools and techniques to identify trends and patterns in data and communicate results to meet technical and non-technical audience requirements.		

Unit 7 – present and communicate data to the appropriate audience

Project scenario

You are coming to the end of your six-month probation period and your manager is extremely pleased with all your work. As part of the process of your probation being 'signed off' your manager has asked you to undertake some self-reflection before participating in a professional discussion. This will then feed into your CPD as you move forward in the role. The college are particularly interested in the experience of new members of staff in relation to different communication techniques and experience of collaborative work as this is an area they are hoping to develop across the workforce.

Task 1 – professional discussion

You should prepare for your professional discussion by reflecting on the tasks you have completed so far and undertaking any research on communication methods, formats and techniques.

The discussion will relate to the following:

- reflecting on previous tasks (AC1.1)
- how you could apply a range of communication methods, formats and techniques (AC1.2, AC1.3 and AC1.4)

In order to complete this task, you should prepare by:

- reflecting on how you have applied data communication methods to the projects you have completed so far (AC1.1) – this should include any written documentation, any verbal communication (for example, any videos recorded) and any non-verbal communication (for example, tone of voice within any video recordings)
- researching into:
    - a range of formats used in the communication of data (AC1.2)
    - the application of communication techniques (AC1.3):
        - technical / non-technical
        - active listening
        - tailoring to audience
        - use of open questioning
        - reflection and review
        - storyboarding
    - the use of communication tools and technologies for collaborative working (AC1.4)

Evidence of this will be presented through a recorded professional discussion.

Submission:

Tutor will provide your recorded professional discussion

Learning outcomes (LOs) The learner will:	**Assessment criteria (AC)**	**Pass** The learner will be able to:	**Merit** The learner will be able to:	**Distinction** The learner will be able to:
1. Understand and apply communication methods, formats and techniques appropriate for the use of data	1.1 The application of data communication methods: • written (for example, business case, report) • verbal (for example, public speaking, conversation) • non-verbal (for example, tone of voice, body language, active listening)	Outline the application of data communication methods (as identified in AC1.1).	Describe different ways of communicating information, including various methods, formats, and techniques, and how they are used in practice.	Compare a range of communication methods, formats and techniques to determine the most appropriate based on requirements.
	1.2 The application of a range of formats used in the communication of data (for example, presentation, emails, virtual/augmented reality)	Outline the application of a range of formats used in the communication of data.	Describe the use of a range of formats used to communicate data clearly and effectively to different audiences.	Analyse the importance of applying a range of formats when communicating data.
	1.3 The application of communication techniques: • technical / non-technical (for example, complexity levels of language) • active listening • tailoring to audience	Outline the application of communication techniques (as identified in AC1.3).	Describe how different communication techniques can be applied to ensure information is clear and accurate.	Analyse the importance of applying various communication techniques.

	• use of open questioning • reflection and review • storyboarding			
	1.4 The use of communication tools and technologies for collaborative working	Outline the use of communication tools and technologies for collaborative working.	Describe ways the communication tools and technologies are used for collaborative working.	Analyse the role of communication tools and technologies in supporting effective collaborative working.

Task 2 – self-reflection

Your manager has asked you to reflect on some of the work you have completed throughout the project and has chosen a report you produced as the basis for this.

To complete this task, you need to:

- using your report of assessment of the integrity of the blended and manipulated data results (Unit 2, task 4) produce an analysis. The analysis can be in the format of your choice but should identify why it is important to produce a clear and concise technical document which communicated the gathered data. (AC2.1)

Submission:

Completed analysis

Learning outcomes (LOs) The learner will:	**Assessment criteria (AC)**	**Pass** The learner will be able to:	**Merit** The learner will be able to:	**Distinction** The learner will be able to:
2. Understand technical documentation and summarise data within a technical document	2.1 The importance of using clear and consistent technical documentation when communicatin	Outline the importance of using clear and concise technical documentation when communicating gathered data.	Describe the importance of using clear and concise technical documentation to effectively communicate data analysis.	Evaluate the importance of clear and concise technical documentation in effectively communicating

	g gathered data			analysed data and insights.
	2.2 Apply initiative to analyse findings from gathered data and summarise within a clear and consistent technical document	Demonstrate the ability to apply initiative to analyse findings from gathered data and summarise within a clear and consistent technical document.		

AC2.2 – Evidence for this has already been submitted as part of Unit 4 (AC2.6)

Unit 8 – collaborate and continuous professional development (CPD)

Project scenario

As you have successfully completed your probationary period, your line manager has seconded you to the college's new multidisciplinary team, which will focus on a holistic approach to digital transformation throughout the college and on supporting staff through their ongoing CPD to ensure currency and reliability of their knowledge.

Task 1 – information poster

As this is a newly formed team, the team leader has asked you to create an informational poster to be displayed in the college staff room to outline the purpose and roles of the multidisciplinary team whilst considering its values.

To complete this task, your information poster must contain the following information:

- the purpose of a multidisciplinary team (AC3.1)
- how the roles within a multidisciplinary team are identified (AC3.2)
- the value of communication within multidisciplinary teams (AC3.3)
- the importance of valuing difference and being sensitive to the needs of others (AC3.4)

Submission:

Information poster

Learning outcomes (LOs) The learner will:	**Assessment criteria (AC)**	**Pass** The learner will be able to:	**Merit** The learner will be able to:	**Distinction** The learner will be able to:
3. Understand multidisciplinary teams and working with others	3.1 The purpose of a multidisciplinary team	Outline the purpose of a multidisciplinary team.	Explain the benefits and limitations of implementing multidisciplinary teams.	Evaluate the importance of effective multidisciplinary teams in enhancing working practices.
	3.2 How the roles within a multidisciplinary team are identified	Identify how the roles within a multidisciplinary team are identified.		
	3.3 The value of communication within	Outline the value of communication		

	multidisciplinary teams	within multidisciplinary teams.		
	3.4 The importance of valuing difference and being sensitive to the needs of others	Identify the importance of valuing difference and being sensitive to the needs of others.		

Task 2 – report on digital transformation

As part of the digital transformation project, the college has purchased a new customer relationship management (CRM) system. Your next task within this new team is to investigate the impact that ongoing digital transformation could have on the business development team, how the data gained from this can be used to improve stakeholder relationships and approaches that will contribute to improved efficiency and problem-solving in the day-to-day operations of a CRM system.

They have asked you to create a report to be shared with all heads of department across the college.

There are three stages to this report, and you will need to prioritise the order for approaching this and manage your time efficiently as this needs to be completed and shared before the new system is put into place (AC4.3).

Part (a)

In order to complete this task, you will need to create a report that discusses the impact that the CRM could have on day-to-day college operations and the analysis of data (AC1.1). The report should be broken into the following sections and consider:

Section 1

- customer issues and problems
- business value
- brand awareness
- cultural/diversity awareness

Section 2

- internal and external stakeholders:
  - user experience
  - accessibility
  - level of technical knowledge (AC4.1)

Section 3

- how logical reasoning to a thorough, organised approach would contribute to improved efficiency and problem-solving in the day-to-day operations of a CRM system (AC4.2)

Part (b)

Your manager has asked that you keep a record of time spent and actions completed so they can see how effectively you have prioritised the report and managed your time.

You should provide a brief explanation of how you have coordinated this task in relation to:

- prioritisation of tasks when producing the report
- how you managed your time when completing the task (AC4.3)

Submission:

Written report

Time and action record

Learning outcomes (LOs) The learner will:	**Assessment criteria (AC)**	**Pass** The learner will be able to:	**Merit** The learner will be able to:	**Distinction** The learner will be able to:
1. Understand digital transformation	1.1 The impact of digital transformation (for example, new IT system) on data-related occupations and within an overall business context: • customer issues and problems • business value • brand awareness • cultural/diversity awareness • internal and external stakeholders • user experience • accessibility	Outline the impact of digital transformation on data-related occupations and within an overall business context (as identified in AC1.1).	Discuss ways in which the impact of digital transformation can be managed effectively, ensuring minimal disruption.	Evaluate the impact of digital transformation on data-related occupations and businesses, and its advantage in a business context.

	• level of technical knowledge			
4. Understand technical and non-technical stakeholders and apply prioritisation skills within a project	4.1 A range of technical and non-technical stakeholders within an organisation: • customer/client • management • peer/colleague	Outline a range of technical and non-technical stakeholders within an organisation (as identified in AC4.1).	Describe the benefits of technical and non-technical stakeholders using logical reasoning and taking a thorough and organised approach when working within a project.	Evaluate the impact of technical and non-technical stakeholders using logical reasoning and taking a thorough and organised approach when working within a project.
	4.2 The benefits of logical reasoning and taking a thorough and organised approach when working within a project	Identify the benefits of logical reasoning and taking a thorough and organised approach when working within a project.		
	4.3 Apply prioritisation and time management skills to meet the requirements of a project	Demonstrate the ability to apply prioritisation and time management skills to meet the requirements of a project.		

Task 3 – CPD

The college recognises the importance of self-reflection and continuous professional development (CPD) and expects all staff to regularly assess their own development needs. This is a 3-step process which is repeated on a yearly basis.

To complete this task, you must complete the following three steps (in an appropriate format of your choosing):

Step 1

- You should explain how learning techniques such as self-reflection and evaluation support and contribute to your own CPD (AC2.1).

Step 2

- You should explain how professional networks and academic journals can be used to improve your own CPD. You should also consider any other sources of knowledge that can be used to improve your knowledge and skills (AC2.2).

Step 3

- You should explore the skills and knowledge required for a range of data analysts' roles and then complete a skills gap analysis that would review your own development needs to meet these roles. You should consider how you would develop these skills over the next 12 months (AC2.3).

Submission:

Completed 3-step process in a format of your choosing

Learning outcomes (LOs) The learner will:	**Assessment criteria (AC)**	**Pass** The learner will be able to:	**Merit** The learner will be able to:	**Distinction** The learner will be able to:
2. Understand learning techniques and sources of knowledge, and review own development needs	2.1 How learning techniques (for example, evaluation and reflection) support and contribute to continuing professional development (CPD) of data-related occupations	Outline how learning techniques contribute to CPD of data-related occupations.	Describe how different types of learning techniques and sources of information contribute to ongoing development in CPD data-related occupations.	Analyse a range of learning techniques and knowledge sources, evaluating their relevance and effectiveness in addressing CPD needs.
	2.2 The use of a range of sources of knowledge and verified information applicable to data-related occupations (for example, professional networks, academic publications)	Demonstrate the ability to use a range of sources of knowledge and verified information applicable to data-related occupations.		

	2.3 Review own development needs and use a range of sources to keep up to date with developments in technologies, trends and innovation	Demonstrate the ability to review own development needs and use a range of sources to keep up to date with developments in technologies, trends and innovation.		

Change history record

Version	Description of change	Approval	Date of Issue
v0.1	First draft		July 2023
V0.2	Second draft		May 2025
V1.0	First publication		August 2025