Assessment Brief

Module title:	Big Data and Cloud Computing
Module code:	COM7020
Assignment title:	RetailChain Big Data Analytics and Decision Support Project
Assignment format:	Written report (MS Word/PDF) **or** Video of narrated presentation
Word/time limit:	4500 Words equivalent
File type	Docx/Pdf file or MP4
Percentage of final grade	This assignment is worth **100%** of your final grade for this module.
Submission deadline	See module iLearn page for date of submission
Grade release	You will normally receive your provisional grade and feedback within 20 working days of the submission deadline

Learning outcomes (LOs)	The skills and knowledge that you should be able to show in your work.
Rubric/Marking Matrix	A set of rules or guidelines used to grade or assess work.

Assignment instructions:

- You are required to submit a written technical report or a recorded presentation (20 minutes) that presents your conceptual design and analytical discussion of the RetailChain scenario.
- You may include illustrative or simulated examples (e.g., data tables, pseudocode, workflow mock-ups, or visualisations) to demonstrate your understanding.
- Use a small or synthetic dataset (e.g., sales transactions, customer profiles, product data).
- Focus on clarity of workflow, explanation, and interpretation, not large-scale implementation.

Task Scenario:

RetailChain, a large national retailer, operates hundreds of stores and an expanding online platform. Every day, it gathers vast amounts of information from sales systems, customer loyalty programmes, website activity, and supplier deliveries.

Currently, these data sources are disconnected, limiting the company's ability to make informed business decisions. The management team now wants to explore how big-data and analytics can be used to enhance operations, identify sales trends, and improve customer engagement.

As a Big Data Analyst working in the RetailChain innovation team, your task is to design and demonstrate a data analytics solution that supports evidence-based business decision-making. You will evaluate relevant big-data technologies, outline a suitable data architecture, and provide a small practical example to illustrate how analytics can drive business improvement.

Question 1 – RetailChain Data Strategy and Technology Evaluation

Prepare a strategic discussion and evaluation explaining how RetailChain could use big-data principles and technologies to improve its decision-making capability.

Your answer should include:

- Describe the types of data RetailChain generates and how these could be combined for analytics.
- Explain the key characteristics of big data (5 Vs) in the retail context.
- Identify the technical and governance considerations that must be addressed (e.g., data security, privacy, ethical use).
- Analyse at least two contrasting technological approaches to handling big data (for example, real-time streaming vs batch processing).
- Evaluate appropriate tools, frameworks, or architectures for RetailChain's data processing and analysis.
- Conclude with a justified recommendation for an approach or framework most suitable for RetailChain's business needs.

Question 1: (50 marks, 2000 words – LO1 & LO2)

Question 2 – RetailChain Solution Design, Demonstration, and Reflection

Propose and demonstrate a **practical data analytics solution** that illustrates how RetailChain could apply big-data techniques to support operational or strategic decisions.

Your response should include:

- A clear workflow or system diagram outlining how data would be collected, stored, processed, and visualised.
- Explanation of each stage, showing how the implemented process or analysis contributes to business insight and decision-making.
- Development of a small-scale demonstration using the platform mentioned by your instructor or another suitable environment.
- Example demonstrations could include analysing product sales trends, predicting customer purchasing behaviour, or visualising seasonal demand.
- Include brief evidence of implementation (screenshots, charts, or code samples).
- Discussion of your findings, explaining how the results relate to your design and support business goals such as improving sales forecasting or optimising inventory.
- A reflection summarising what you learned, any challenges faced, and how the approach could be enhanced or scaled up in future.

Question 2: (50 marks, 2500 words – LO3 & LO4)

Learning Outcomes:

By completing this assessment, you will have shown and be assessed on **all** of the learning outcomes:

1. Understand the evolution of Cloud Computing and the challenges involved in analysing big data.

2. Critically evaluate cloud computing platforms and their application in perspective on data processing.

3. Design and implement solutions to relevant scenarios, applying knowledge of relevant architectures and approaches to implementing cloud-based solutions for a big-data scenario.

Graduate Attributes:

4. Contextually Innovative: Identify and solve novel and complex problems related to aims and desired outcomes. Critically evaluate and reflect on the approaches and solutions identifying and embedding possibilities for originality or creativity.

You will be graded based on how well you meet these learning outcomes. Your marker will use a rubric/marking matrix to grade your work, and you can find this on the “My Assessment” tab on the module iLearn page.

Guidelines and policies

You can find links to more useful information about the assignment and university policies below.

Word/time limit policy	Click here to view the Arden University word count/time limit policy
Referencing guidelines Please follow the referencing guidelines that are appropriate for your degree programme. If you are unsure which you should be using, please contact your module team.	Click here for Harvard referencing guidelines
Academic integrity and misconduct policy	Click here to view Arden University's policy on academic integrity and misconduct
Statement on use of artificial intelligence on assessment	Click here to view Arden University's statement on the use of artificial intelligence on assessment
Support information	Click here to view guidance on how to apply for short-term extensions Click here to view guidance on how to apply for extenuating circumstances Please click here for link to academic skills team support