Multiverse Advanced Data Fellowship
Assessment Brief

Module title	DevOps Engineering		
Assessment No.	2	**Deadline**	22/03/2023
Format	Project Report (AP-PR)	**Feedback due**	19/04/2023
Length	2000 Words + Technical Solution	**Weighting**	70%
Assessment Title	Report on the development and operationalisation of a data-based application		
Module Learning Outcomes	1. Demonstrate an understanding of the fundamentals of software architectures and strategies for the development and deployment of software. 2. Effectively evaluate a software product, including the system's architecture, deployment strategy, design, processes and methodologies, and propose improvements. 3. Produce a cloud-hosted software solution effectively demonstrating all phases of the software development life cycle and related operational processes. 4. Communicate the technical requirements, timelines, and business outcomes effectively to technical and non-technical stakeholders.		
How to use the assessment brief	**Read this document in full** and bring any questions you have on the assessment to either a workshop or the next 1:1 with your coach. **Self-assess your progress** against the assessment criteria table while completing your project.		
Feedback	Written feedback and a grade will be given within 20 working days after the deadline. Opportunity for further discussion will be available during individual coaching sessions.		

What do I need to do for this assessment?

Part 1: Attend all sessions to develop your application!

During your live sessions you will be given the opportunity to develop a data application based on the Software Development Lifecycle and harnessing the principles of DevOps. Your application will be developed individually but we will be using the workshop time to discuss your approach to the development of your application, as well as introducing the collaborative DevOps concepts such as Peer Review, which will support the development of your application.

Your **individual contribution** to your application **must** include evidence of you:

Minimum Output	Evidence
Creating Read and Write scripts	Output processed data in the new file
Unit test within scripts	Test output from execution (e.g. code coverage, pass/fail %)
Creating Basic Infrastructure via Code	Infrastructure created in AWS
Using CI/CD workflow	Show visually in GitHub (access via link)
Contributing to Peer Reviews	Tagged pull request (screenshot and/or links)

Part 2: Write a report on your approach to application development

You will be required to document your approach to development and deployment of your application and submit this as part of a report you will submit to 'stakeholders'. Your stakeholders will be from technical and non-technical backgrounds and your report should highlight:

- Your approach to the development of your application
- The outcomes of your application development and its operation.
- The architecture employed and how it was implemented in the cloud.
- The automated deployment and testing you employed.
- A reflection of your learning and contribution as part of the collaborative and peer review elements of the build.
- Evidence of your application deployed into a cloud environment.

Part 3: Submit your report

Your submission should be prepared as a single Word/PDF document (or similar word processing format). You will submit your document online via Applied and it will be assessed for plagiarism using Turnitin.

Important note: whilst you will be working on your application with your peers, your report should be written and submitted by you alone. Your reflections and evidence will authenticate your contribution to the application and your project report should be your individual analysis of your project approach and outcomes.

Why is this assessment important to me?

As data professionals, you are involved in developing data products, where users can utilise visualisations, insights or models, derived from the data you work with. For this to occur, users require access to these outputs, which is increasingly done online, using cloud solutions. This assessment enables you to familiarise yourself with the process of deploying a data product using automated pipelines that integrate testing. This is to support you in working in an agile manner, whilst remaining confident in the quality of your work, when sharing your data products with users.

How should I structure this assessment?

The following is an example of how you could structure your report. It is absolutely fine for you to organise your report in a different format, but ensure you still cover the following areas throughout.

Introduction	This section should introduce your stakeholders to the content of your report.
Development & Operational Approach	This section should make up the main bulk of your report and highlight your approach to building, testing, deploying and automating your application. You should explain your approach and evaluate its effectiveness.
Outcomes	In this section you should evaluate the outcomes of the application you have developed and highlight the extent to which your solution met the original requirements, discussing any potential future developments to your application.
Personal Reflection on Peer Review Process	In this section you should highlight the role that you played in the peer review process, the skills you have developed and how you will utilise those skills in your professional practice.
Appendix 1 - Your project	Appendix 1 should evidence your completed application. You should add links for your stakeholders to access (consider both front end and back end).
Appendix 2 - Your peer review	Appendix 2 should evidence your contribution and response to a peer review. This evidence should take the form of a tagged pull request.
References	Make sure you add any references to your citations at the end of your report.

Note: Information in your appendices does not count towards your overall word count.

Check your professional skills:

In addition to the assessment criteria, all assessments across your apprenticeship will also be marked on your professional skills. Use this checklist to ensure you are submitting a high quality piece of work.

- **Written communication**. I've clearly and concisely communicated my findings and demonstrated professional language, formatting, spelling and grammar.

- **Critical thinking**. I've analysed available facts, evidence, observations, and arguments to form a judgement on what I think is important.

- **Referencing**. When discussing someone else's work, I've clearly acknowledged original sources through in-text referencing or citations, and created a reference list.

- **Word count.** I've stuck to the word count using a clear, concise and compelling writing style.

How should I submit this assessment?

Your submission should be prepared as a single Word/PDF document (or similar word processing format). You will submit your document online via Applied and it will be assessed for plagiarism using Turnitin.

Please name your assignment submission file using the following format **<ULN_ModuleNumber_AssessmentNumber>** (e.g. 0012345_Module2_Assessment2).

How will my assessment be marked?

Description	F	E	D	C	B	A
Development Approach	Little/no discussion or evidence of the development of the application.	An approach to building and testing of the application is discussed but evidence of this being applied is insufficient.	The approach to the building and testing of the application has been described, with limited evaluation. The development of the application has been sufficiently evidenced.	The approach to the building and testing of the application has been evaluated. The coding and testing of the application has been fully evidenced.	The approach to the building and testing of the application has been evaluated with solid justification of decisions made. The coding and automation of testing of the application has been fully evidenced.	A creative approach to the building and testing of the application has been critically evaluated using common frameworks and/or approaches. All decisions have been fully justified. The coding and the automation of a sophisticated testing approach has been fully evidenced.
Deployment Approach	Little/no discussion or evidence of the deployment of the application.	An approach to deployment and maintenance of the application is discussed but evidence of this being applied in practice is insufficient.	The approach to the deployment and maintenance of the application has been described, with limited evaluation. Evidence of the application deployed into the Cloud environment has been submitted.	The approach to the deployment and maintenance of the application has been evaluated, with recommendations made for a continuous deployment strategy. Evidence of a fully functional application deployed into the Cloud environment has been submitted.	The approach to the deployment and maintenance of the application has been evaluated with solid justification of decisions made. A clear approach to the continuous deployment of the application had been highlighted. Evidence of a fully functional and automated application deployed into the Cloud environment has been submitted.	A creative approach to the automated deployment and maintenance of the application has been critically evaluated using common frameworks and/or approaches. All decisions have been fully justified. Evidence of a fully functional application, automatically deployed into multiple Cloud environments has been submitted.

Outcomes	Little/no discussion of the outcomes of the application.	The outcomes of the application have been mentioned with no reference back to the original application requirements.	The outcomes of the application have been communicated through the lens of the original requirements. Communication of these outcomes is accessible to technical and non-technical stakeholders.	The outcomes of the application have been evaluated through the lens of the original requirements and potential future developments have been discussed. Communication of these outcomes is accessible to technical and non-technical stakeholders.	The outcomes of the application have been evaluated through the lens of the original requirements. A clear plan for future developments has been offered. Communication of these outcomes is accessible to technical and non-technical stakeholders.	The outcomes of the application have been critically evaluated through both the lens of the original requirements and using frameworks. A thorough and detailed plan for future developments has been described. Communication of these outcomes is accessible to technical and non-technical stakeholders.
Reflection on peer review and collaboration	There is little/no evidence of a contribution to peer review.	There is evidence of a contribution to peer review, but with no supporting reflection.	The peer review process has been reflected upon with supporting evidence but discussion around how this developed the application or personal skills is lacking.	The peer review process and any collaboration has been reflected upon through a description as to how the process supported the development of the application.	The peer review process and any collaboration has been thoroughly reflected upon through a self-evaluation as to how the process supported the development of the application and the enhancement of development skills.	The peer review process and any collaboration has been fully reflected upon through a critical self-evaluation as to how the process supported the development of the application and the enhancement of skills. Application to the workplace environment has also been considered.