Multiverse Technology Consulting
Portfolio Project Brief

How to use the 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. **Advance in your project journey by completing milestones**, which are progress checks on tasks that build to your overall output. Milestone submission and reviews will be part of your workshop and independent work. **Self-assess your progress** against the assessment criteria table while completing your project.

Module title	**DevOps Principles & Practices**		
Format	Written report	**Deadline**	On MyMultiverse
		Feedback due	Within 20 working days of submission date
Length	3000 words	**Weighting**	100%
Project Title	Digital product development report		
Project Learning Outcomes	1. Explain organisational strategies for the design, development and deployment of software.(K7) 2. Evaluate the design, development and deployment of a software product. (K6) 3. Design, code, test and debug a software component for a digital and technology solution (S4) 4. Reflect on the benefits of an effective cross functional team working in the development and operation of a software product. (S7, K8, B2)		
Project Milestones	**Milestone 1:** Perform a systems analysis at your organisation to determine where software improvements could be made to enhance efficiency, and thus generate business impact. Clearly outline the current state, to arrive as recommendations for improvement. Within this evaluation, your recommendations should also consider your company's alignment to DevOps principles and where improvements could be made. (completed by week 3). **Milestone 2:** Design a digital product's software component, ensuring robust functionality through test-driven development and debugging, while considering how you would successfully deploy your solution. By conducting peer review, consider how both the software improvement you have created, as well as DevOps principles have had a business impact at your company. (completed by week 7)		
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.		

Why is this project important to me and my organisation?

By actively engaging in this project, you will play a pivotal role in enhancing your organisation's software lifecycle management. Your contributions will drive rapid development, deployment, and the delivery of high-quality software solutions. Embracing DevOps and Agile practices not only benefits the organisation but also fosters your personal and professional growth.

At the end of this project, you'll be well-prepared to share your achievements with your manager and showcase how your dedication to DevOps has directly contributed to the organisation's success. By aligning technical processes with business objectives and fostering teamwork, you'll not only improve operational effectiveness but also empower yourself with valuable skills and experience.

What do I need to do for this assessment?

For this project you will perform a system analysis to consider any inefficiencies that could be enhanced by designing, coding, and implementing a digital product to optimise efficiency. At the same time, you will consider how these products are designed within the Software Development Lifecycle and consider how you can enhance these processes by integrating DevOps practices to update the SDLC, optimising efficiency and cross-functional team synergy.

By the deadline, you must submit a comprehensive written report that includes reflective analysis, detailed diagrams, and code examples, which chronicles the entire process—from initial evaluation to final deployment—concluding with a critical assessment of the return on investment and strategic recommendations for stakeholders, showcasing your adeptness in marrying DevOps culture with digital product development.

Final project output

You will submit a Digital Product Development Report, which will include all milestones, reflective analysis, diagrams, and code snippets as appendices. Absolutely, here's the structure of your project output presented in a tabular format:

Section	Content Covered
1: Introduction (200 words)	- Overview and scope of the report - Significance of DevOps integration in digital product development - Objectives related to DevOps practices
2: Systems analysis (500 words)	- State your choice of system (process, software component, etc.), and explain why you chose it - Requirement elicitation for the system (functional and non-functional) - Analyse against software development quality frameworks - Based on requirements, make recommendation(s) for where updates or optimisations can be made.

3: Evaluation of DevOps Practices (500 words)	- Link system analysis recommendation to the SDLC - Evaluate current DevOps practices (using CALMS) at your organisation, showing where they can be integrated into the SDLC. - Analysis of inefficiencies and strategic recommendations
4: Design, test-driven development, and debugging (500 words)	- Architectural design and prototyping of data application - System architecture and alignment with DevOps practices - Coding foundation and version-control - Test-driven development approach and examples - Test cases construction, testing frameworks, and debugging process
5: Deployment and CI/CD approaches (300 words)	- How would you successfully deploy your software component? - What steps could be taken to create a CI/CD environment? - How could your process benefit from CI/CD? - Describe key practices involved in CI/CD
6: Cross-Functional Teamwork and Communication (500 words)	- Impact of collaborative practices from Milestone 3 - Influence of Agile methodologies on project outcome - Communication strategies for stakeholder engagement
7: Conclusion and ROI Communication (500 words)	- Summary of DevOps integration effectiveness across SDLC - Potential ROI and business value projection - Conclusive success statement of the project objectives and impact

Project milestones

Project milestones are completion points for the overall output of your module project. Please note that the project is intended to be a piece of applied work that develops over the course of the module, rather than a summative assessment to be completed in a short, intense period of time at the end of module learning.

NOTE: For step-by-step guidance on milestone completion, follow the **2002-5 Milestone Guide**.

Check your durable skills:

In addition to the assessment criteria, all projects across your apprenticeship will be critiqued with the consideration of your durable skills development. Use this checklist to ensure you are submitting a high quality piece of work.

- **Clear communication**. I've clearly and concisely communicated my findings and demonstrated professional language, spelling and grammar, and adhered to the word count. Please note that any referencing should be included at the end of the slide show, please refer to the style guide on Applied for further guidance.

- **Thinking strategies**. I've engaged in the critical analysis of available facts, evidence, observations, and arguments to form a judgement on what I think is important. Ultimately I've framed my analysis in a way that arrives at a solution.

- **Self-reflection.** I've considered feedback from previous work to inform the current submission. With this, I am engaging with feedback with a growth mindset in order to cultivate an attitude of continuous improvement.

How should I submit this Portfolio Project?

Your submission should be prepared as a single PDF file. Please make sure your work adheres to the MV referencing and style guide. All work is checked for plagiarism using Turnitin.

Ensure that you meet the MV guidelines for academic integrity by considering the following:

Referencing: When discussing someone else's work, clearly acknowledge the work by using in-text citations and a reference list adhering to the Harvard referencing style.

Word Count: Any text exceeding the maximum word limit will not be marked. Text that adds to the word count includes all text except the reference list or appendices. All text in diagrams and in-text citations count towards the overall word limit.

Submission time: All submissions must be made by mid-day on the specified deadline.

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

How will my assessment be marked?

Carefully review the assessment criteria as you complete milestones and outputs of your project.

Description	F	E	D	C	B	A
Describe organisational strategies in the design, development and deployment of software (K7)	Shows limited understanding of DevOps CALMS framework and SDLC integration.	Displays a rudimentary application of the CALMS framework in evaluating current practices. Makes minimal DevOps recommendations for SDLC enhancements with slight attention to inefficiencies.	Uses the CALMS framework effectively to assess current DevOps practices, linking them to the SDLC. Proposes well-considered recommendations for refining processes and resolving identified inefficiencies.	Integrates the CALMS framework thoroughly with SDLC analysis, leading to insightful DevOps recommendations for optimization and updates that align with organisational strategies.	Offers a comprehensive evaluation of current practices using CALMS, linked coherently with the SDLC. Presents significant strategic recommendations that address inefficiencies in a targeted manner.	Demonstrates an expert-level assessment of DevOps practices through an in-depth analysis using CALMS, aligned with the SDLC. Delivers innovative and highly effective strategic recommendations for transforming inefficiencies into best practices.
Design, code, test and debug a software component for a digital and technology solution (S4)	Shows insufficient grasp of software development basics, with no practical version control or CI/CD application.	Demonstrates limited understanding and application of coding and basic software design principles, with minimal use of version control.	Demonstrates proficiency in designing, coding, testing, and debugging a data product, as well as basic DevOps practices for continuous integration and delivery.	Demonstrates skill in employing software architecture techniques and selected tools to design, code, test, and debug effectively. Applies version control accurately and demonstrates a good understanding of CI/CD pipelines.	Shows advanced skill in modularizing code and integrating various architectural patterns. Proficient in coding and adept at leveraging version control and CI/CD for improved software development workflow.	Exhibits expert-level software design and development, solving complex problems with innovative coding solutions. Excels in applying version control, CI/CD, and cutting-edge DevOps strategies to maximise product quality and operational efficiency.
Demonstrates understanding of approaches and techniques of SDLC through system analysis (K6)	Demonstrates insufficient system analysis and neglects quality frameworks, resulting in inadequate data application improvements.	Shows basic system analysis and some use of quality frameworks, with minimal improvements in data application processes.	Exhibits proficiency in system analysis, leveraging software product quality frameworks, and the software development life cycle to refine data application design, development, and deployment techniques.	Applies system analysis effectively, integrating software product quality frameworks and the software development life cycle to enhance data application design, development, and deployment practices.	Skillfully conducts system analysis, incorporating software product quality frameworks, the SDLC, and stakeholder analysis. This then yields significant improvements in data application design, development, and deployment. However, efficiencies could still be achieved.	Expert system analysis through use of software product quality frameworks, the SDLC, in-depth stakeholder analysis, leading to innovative and highly efficient practices in data application design, development, and deployment.
Reflect on the benefits of an effective cross functional team working in the development and operation of a software product. (S7, K8, B2)	Demonstrates limited insight into cross-functional teamwork within DevOps and its relation to professional standards.	Identifies general impacts of team dynamics in a DevOps setting with some awareness of professional standards.	Describes benefits of cross-functional teams with reference to DevOps, noting some ethical and professional standards considerations.	Delivers a proficient analysis that identifies the benefits of cross-functional teamwork within a DevOps context, noting improvements in project outcomes. Recognizes the role of these team structures in maintaining ethical, social, and professional standards, though with less critical depth.	Provides a detailed examination of cross-functional team contributions, identifying specific improvements attributed to the integration of DevOps practices. Reflects thoughtfully on how these dynamics reinforce ethical, social, and professional standards within the team and the wider organisation.	Conducts an exceptional and critical analysis on the synergy between cross-functional teams and DevOps, demonstrating a clear and measurable impact on organisational performance. Articulates how this interplay has been crucial in upholding and promoting ethical, social, and professional standards.