Faculty Name: IT
Certificate: Information Technology: Software Development
Programme Name: Software Development
Formative Assessment 2 Paper

CTU training solutions | Private Tertiary Education

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Formative Assessment 2 Paper

Faculty Name:	Information Technology
Qualification Name:	FET Certificate: Information Technology: Database Development
Progarmme Name:	**Software Development**
Module Name:	DevOps Engineering Semester 2
Module Code:	DOE522
Hand Out:	05 – 04 – 2024
Hand In:	19 - 04 – 2024
Time:	23:30
Total Marks:	100
Examiner:	Junior Manganyi
Resources Required:	None

Scenario Question(s)	100

This Formative Assessment 2 (FA3) contributes 10% towards the final mark.

Instruction(s) to Students

1. All assessments are due at 23:30 (local time) on the specified date.

2. Copying from any source, including other students' work, is strictly prohibited. Plagiarism will result in disciplinary action.

3. Before submitting your assessment, download the "Declaration of Authenticity" form provided from Campus Online. Sign the form and include it as part of your submission.

4. Late submissions will be accepted within a three-day grace period after the closing date. However, there will be a deduction in marks:

5. On the first day, a 5% deduction will be applied, From the second day onwards, the deduction will be 1% per day, up to a maximum deduction of 15%.

6. If you need to submit your assessment during the grace period, you must inform your facilitator.

   It is your responsibility to ensure that you have access to a reliable internet connection and the necessary resources to complete and submit your assessment on time.

Project Question(s)   100 Mark

Formative Objective

In this assessment, we will be focusing on the following topics from our course on Microsoft DevOps solutions (AZ-400):

Unit 4: Design and Implement a Release Strategy
In this unit, we explored the concepts of designing and implementing effective release strategies for software applications. We learned about various deployment strategies, rollback procedures, and how to ensure a smooth release process for complex applications.

Unit 5: Implement a Secure Continuous Deployment using Azure Pipelines
Unit 5 delved into the importance of security in continuous deployment processes. We discussed how to implement security measures within Azure Pipelines, handle sensitive information, and maintain compliance with industry standards.

Unit 6: Manage Infrastructure as Code using Azure and DSC
In this unit, we covered the concept of managing infrastructure as code (IaC) using Azure and Desired State Configuration (DSC). We explored the benefits of IaC, learned how to define and manage infrastructure using code, and discussed the role of DSC in maintaining configuration consistency.

Your Formative 2 assessment will be based on these topics, and the questions will test your understanding, application, and problem-solving skills related to these units. Be prepared to demonstrate your knowledge of designing release strategies, ensuring secure deployments, and managing infrastructure using Azure and DSC.

Question (S)

Unit 4: Design and Implement a Release Strategy

Question 1: Release Pipeline Design (15 marks)
Explain the stages, triggers, and deployment strategies you would use to ensure a smooth release pipeline process. Consider aspects like canary deployments, blue-green deployments, and feature toggles.

Question 2: Rollback Strategy (15 marks)

Describe a rollback strategy that you would implement in case of a failed deployment. Explain the steps, tools, and techniques you would use to quickly revert to a stable version of the application without causing extended downtime.

Unit 5: Implement a Secure Continuous Deployment using Azure Pipelines

Question 3: Security Measures in Pipelines (20 marks)

Outline the security measures and best practices you would implement in your Azure Pipelines to ensure the safety of your code and deployment process. Include strategies for securing sensitive information like API keys and managing access control.

Question 4: Compliance and Auditing (15 marks)

Explain how you would ensure compliance with industry standards and regulations during your continuous deployment process. Describe the mechanisms you would put in place for auditing and tracking changes to your pipeline configurations.

Unit 6: Manage Infrastructure as Code using Azure and DSC

Question 5: Infrastructure as Code Benefits (10 marks)

List and explain at least three benefits of using Infrastructure as Code (IaC) for managing your cloud resources in Azure. Provide real-world examples to support your explanations.

Question 6: DSC Configuration Management (25 marks)

Demonstrate how you would use Azure Desired State Configuration (DSC) to manage the configuration of virtual machines in a multi-node environment. Include the steps to define configurations, apply them, and handle any configuration drift that might occur.

Grand Total: 100

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End of Formative Assessment 2