# Luminus Technical University College - Assignment Brief (RQF)

## Higher National Diploma in Cloud Computing

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| **Student Name** | | **Ahmad Mohammad Abdel Latif Kullab** | | | **Language of assessment** | | | **AR** | **EN** |
| **College ID:** | | | **22036351** | |
| **Pearson ID:** | | |  | |
| **Unit Number and Title** | |  | 1. **Cloud Fundamentals** | | | | | | |
| **Academic Year** | | **Fall 2023** | | | | | | | |
| **Unit Tutor** | | **Ghena Barakat** | | | | | | | |
| **Internal Verifier Name and Approval (Signature)** | | **Sarah Shukri** | | | | **Approval Date:** | | | |
|  | | | |  | | | |
| **Assignment number and Title** | | **1** | **Cloud Fundamentals-Basics and Design** | | | | | | |
| **Issue Date (1St Submission)** | | **12/12/2022** | | **Submission Date (1st Submission)** | | | **17/1/2023** | | |
| **Issue Date (2nd Submission)** | | **18/1/2023** | | **Completion Date (2nd Submission)** | | | **21/1/2023** | | |
| **Submission Format** | | | | | | | | | |
| **The submission is in the form of: An individual written report. This should be written in a concise, formal business style using single spacing and font size 12. You are required to make use of headings, paragraphs and subsections as appropriate.**  **The submission should have a proper references list (Harvard style).** | | | | | | | | | |
| **Unit Learning Outcomes** | | | | | | | | | |
| **LO1** | Examine the fundamentals of cloud computing in relation to areas of application, architecture and platform | | | | | | | | |
| **LO2** | Design a deployment model to be hosted in the cloud for a given scenario | | | | | | | | |
| **LO3** | Explain different Cloud Service Providers’ (CSP) approaches to providing a cloud architecture framework for business use. | | | | | | | | |
| **LO4** | Assess the technical challenges and risks inherent in moving IT systems to the cloud. | | | | | | | | |
| Transferable skills and competencies developed | | | | | | | | | |
| Cloud computing fundamentals, Technical Skills, Business Concepts, Data Security in the cloud, V-Network, and Cloud Service Providers. | | | | | | | | | |
| **Vocational scenario:** | | | | | | | | | |
| You got an opportunity to work with a company called SmartTech as a cloud technician. SmartTech is a provider of IT services to many clients, it serves multinational corporations, the government, private institutions, non-profits, universities, schools, community-based organizations, and individuals since it was established in 2007.  The company has its own data centers, servers, and infrastructure that gives it the ability to be a provider of many cloud services. As well as the human resources required to provide such services, such as computer engineers, network security specialists, cloud specialists, consultants, data specialists, and developers.  A new client who is the owner of a new private school decided to work with SmartTech as a provider of cloud services to be responsible for providing the client with web hosting, Adobe Acrobat Pro, Data storage, Outlook, HR System, Oracle Database, Video streaming, and sensitive data.  As a part of the SmartTech team and as a cloud technician, you have been asked to meet with this new client and present them with a detailed report based on their business requirements. | | | | | | | | | |
| Assignment activity and guidance | | | | | | | | | |
| 1. As part of SmartTech you are required to clarify the importance of cloud computing by specifying the fundamental concepts of Cloud Computing highlighting: definition of cloud computing, cloud computing services models, deployment model and cloud architecture. 2. The SmartTech team has requested that you provide detailed information about the benefits of using cloud services for both users and organizations. Explore the advantages of cloud solutions in your response. 3. Suppose SmartTech desires to migrate all works to a cloud-based system. You understand the migration process from your perspective. Investigate the significance of migrating to a Cloud Computing solution and the challenges that may arise during this process. 4. The SmartTech Company's team requested that different deployment models be used with the three services, which include IaaS, SaaS, and PaaS. Your task is to examine why certain combinations of cloud deployment models and service models are only effective in certain situations. 5. Assume SmartTech wishes to migrate their Adobe Acrobat Pro, Data storage, Outlook, HR System, Oracle Database, Video streaming, network and sensitive data. By comparing service models your tasks are to:    1. Formulate the best deployment model for SmartTech.  |  |  |  |  |  | | --- | --- | --- | --- | --- | | **Applications** | **IaaS, SaaS, or PaaS** | **Platform hosting option** | **Management option** | **Cloud Models** | | Adobe Acrobat Pro |  |  |  |  | | Data Storage |  |  |  |  | | Outlook |  |  |  |  | | HR System |  |  |  |  | | Oracle Database |  |  |  |  | | Video streaming |  |  |  |  | | Network |  |  |  |  | | Sensitive Data |  |  |  |  |  * 1. Examine at least 5 different deployment models, service models, and technologies and how they interact in your proposed solution in task 5.A  1. Criticize the possible effect of **cloud migration strategies** on both users and organizations. 2. Assume that SmartTech asked you to list the services provided by cloud service providers for Virtual Server, Object Storage, and Relational Database Management Service. You are invited to differentiate between Microsoft, Amazon, and Google services. 3. SmartTech request from you to make clear the cloud architecture frameworks and tools such as: Microsoft, Amazon, and Google provide. 4. SmartTech plans to move their database and storage to the cloud. You've been asked to investigate the storage and database services supplied by Microsoft Azure and AWS in greater detail in terms of pricing and availability in order to make the best decision. 5. Assume that SmartTech has asked you to create e-mail and backup services utilizing a cloud service provider. You are asked to investigate the evidence and discuss the benefits and drawbacks of using CSP technologies to construct previous apps. 6. SmartTech is concerned that migrating to the cloud will threaten their data, allowing attackers to access and alter it. You have asked to analyse the security features offered by cloud service providers. 7. SmartTech has asked for all of the information regarding managing and maintaining cloud-based computing solutions. Your job is to determine the most typical technical issues that occur in a Cloud Computing platform and propose acceptable solutions. 8. SmartTech is concerned about the possibility of cloud-based risks in its services. As an IT technical member, you need to evaluate security risks as well as legal issues that may affect both the user and the business that uses your services. 9. SmartTech needed to know about the legal and security features of migrating their data-center to the cloud, including networking, storage, servers, and virtualization. Your job is to examine the IaaS legal and security features and develop solutions to the problems that can occur in a cloud-based environment. | | | | | | | | | |
| **Recommended Resources**  **Please note that the resources listed are examples for you to use as a starting point in your research – the list is not definitive.**  **Textbooks** | | | | | | | | | |

**Learning Outcomes and Assessment Criteria**

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| Pass | | Merit | | Distinction | |
| **LO1** Examine the fundamentals of cloud computing in  relation to areas of application, architecture and platform | | | | | **D1** Evaluate the potential impact of cloud computing on both users and organizations when considering a migration to the cloud. |
| **P1** Explain the fundamental aspects of cloud computing services.  **P2** Investigate the value of cloud computing to both end users and organizations | **M1** Analyze the advantages and disadvantages to an  organization of migrating to a wholly cloud-based  system | | | |
| **LO2** Design a deployment model to be hosted in the cloud for a given scenario | | | | |
| **P3** Investigate the relationships necessary between different service models and cloud deployment models for them to be effective.  **P4** Design a simple deployment to include service models and technologies of cloud computing for a given scenario. | **M2** Review how different deployment models, service models and technologies work together in a design for a given scenario. | | | |
| **LO3** Explain different Cloud Service Providers’ (CSP) approaches to providing a cloud architecture framework for business use. | | | | | **D2** Critically analyse the advantages and disadvantages of developing cloud applications with CSP tools. |
| **P5** Compare the services offered by a range of Cloud Service Providers (CSPs).  **P6** Explain cloud architecture frameworks and the tools offered by different CSPs. | | | **M3** Analyze the relative cost of moving an application to the cloud in terms of service level, management and level of availability. | |
| **LO4** Assess the technical challenges and risks inherent in moving IT systems to the cloud. | | | | | **D3** Analyse the legal and security aspects of cloud based computing and propose solutions for the risks identified. |
| **P7** Investigate the security options available for cloud computing solutions.  **P8** Assess the technical challenges involved in managing and maintaining cloud-based computing solutions. | | | **M4** Review the legal, security and practical risks to both users and organizations of using cloud-based technologies. | |