# **NHigher Nationals**

# **Assignment Brief – BTEC (RQF)**

**Higher National Diploma in Computing**

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| **Student Name /ID Number** | Aaron Mascarenhas |
| **Unit Number and Title** | **Unit 16 – Cloud Computing** |
| **Academic Year** | **2019- 2020** |
| **Unit Assessor** | **Dr Sam Al-Jajjoka** |
| **Assignment Title** | **Implementing Cloud Computing Solutions\_ Assignment 2** |
| **Issue Date** | **21.04.2020** |
| **IV Name** | **Omar Mufti** |
| **Final submission date** | **19.05.2020** |
| **Re-submission date (if required)** |  |

**Plagiarism**

Plagiarism is a particular form of cheating. Plagiarism must be avoided at all costs and students who break the rules, however innocently, may be penalised. It is your responsibility to ensure that you understand correct referencing practices. As a university level student, you are expected to use appropriate references throughout and keep carefully detailed notes of all your sources of materials for material you have used in your work, including any material downloaded from the Internet. Please consult the relevant unit lecturer or your course tutor if you need any further advice.

**Student Declaration**

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| **Student declaration**  I certify that the assignment submission is entirely my own work and I fully understand the consequences of plagiarism. I understand that making a false declaration is a form of malpractice.  Student signature: Aaron Date: 24/04/20 |

**Learning Outcomes and Assessment Criteria**

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|  | Grading Criteria | Met | Grading Criteria | Met | Grading Criteria | Met |  |
| **LO3** | P5 |  | M3 |  | D2 |  |  |
|  | P6 |  |  |  |  |
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| **LO4** | P7 |  | M4 |  | D3 |  |  |
|  | P8 |  |  |  |  |

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| **Assessor Feedback:**  \*Please note that constructive and useful feedback should allow students to understand:   1. Strengths of performance 2. Limitations of performance 3. Any improvements needed in future assessments   Feedback should be against the learning outcomes and assessment criteria to help students understand how these inform the process of judging the overall grade.  Feedback should give full guidance to the students on how they have met the learning outcomes and assessment criteria. | | | | |
| **Grade:** | **Assessor Signature:** | | | **Date:** |
| **Resubmission Feedback:** | | | | |
| **Grade:** | | **Assessor Signature:** | **Date:** | | |

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| Submission Format: |
| **The submission is in the following two forms:**   1. Azure Screenshots containing every step you have taken to implement the solutions. Also including a discussion on how you overcame the issues and constraints, you have faced during the implementation process. 2. A demonstration to show the satisfactory performance of both solutions.   You are required to make use of headings, paragraphs, subsections and illustrations as appropriate, and all work must be supported with research and (where appropriate) referenced using the Harvard referencing system. |
| Unit Learning Outcomes: |
| **LO3** Develop Cloud Computing solutions using service provider’s frameworks and open source tools.  **LO4** Analyse the technical challenges for cloud applications and assess their risks |
| Assignment Brief and Guidance: |
| Cloud computing solutions can be realised using various frameworks and tools.  You will work with both cloud service providers and open source tools to configure and implement multiple cloud solutions based on the design you have created for **ComC** in your first assignment.  **Task 1**  **Creating a VM in Azure**   * **Create two VMs (Linux and Windows) from the Azure Portal by using an Azure Marketplace images** * **Verify the functionality of the VMs** * **Log into the virtual machines you have created using different clients** * **Analyse the most common problems in creating the VMS and their associated resources, e.g. Disks, Networking, management, Tags, etc. (at least 6 problems) and discuss appropriate solutions for them.** * **Assess how Azure Portal can protect your Virtual Machines from viruses and malware.**   **Task 2**  **Web Apps and Cloud Services**   * **Upload either the HTML Website you have created in your HND/Y1 (Unit 10: Website) or any other website of your choice to one of the servers you have created above.** * **Discuss the issues and constraints you will face during the deployment process.** * **Use the price calculator in Azure Portal to compare the monthly usage for at least 3 different VM sizes (either Windows or Linux based VMs) from 3 different regions and show if there are any savings that could be made and compare your findings with another cloud providers, e.g. AWS.** * **Discuss how to overcome security issues associated with deploying your website in Azure.**   **Task 3**  **Implement and manage the following virtual networks in Azure**     * **Configure the virtual network connectivity** * **Facilitate resources to allow the creation of subnets.** * **Create a Load balancer.** * **Critically discuss the following issues and constraints:** * **if the subnets where created in different regions,** * **on premises and on the cloud.**   **and how can be overcomed.**   * **Critically discuss how ComC should protect their data when they migrate to a cloud (e.g financial cost, skill shortage, dependable technological infrastructure, security, connecting legacy with cloud applications, modifying the architecture of cloud services, etc.?**   \**Please access HN Global for additional resources support and reading for this unit. For further guidance and support on report writing please refer to the Study Skills Unit on HN Global. Link to www.highernationals.com* |
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| **Learning Outcomes and Assessment Criteria** | | |
| Pass | Merit | Distinction |
| **LO3** Develop Cloud Computing solutions using service provider’s frameworks and open source tools | |  |
| **P5** Configure a Cloud Computing platform with a cloud service provider’s framework  **P6** Implement a Cloud platform using open source tools | **M3** Discuss the issues and constraints one can face during the development process. | **D2** Critically discuss how one can overcome these issues and constraints.  **D3** Critically discuss how an organisation should protect their data when they migrate to a cloud solution. |
| **LO4** Analyse the technical challenges for cloud applications and assess their risks | |
| **P7** Analyse the most common problems which arise in a Cloud Computing platform and discuss appropriate solutions to these problems.    **P8** Assess the most common security issues in cloud environments. | **M4** Discuss how to overcome these security issues when building a secure cloud platform. |

