**Coursework Assignment 1 Brief**

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| **Academic year and term:** | 2020 |
| **Module title:** | **Cloud Computing** |
| **Module code:** | **QAC020N254** |
| **Module Convener:** | Masum Billah |
| **Learning outcomes assessed within this piece of work as agreed at the programme level meeting** | *On successful completion of this module students will be able to*   1. Critical appraisal of design and development methods and services that access local and remote data from various data sources. 2. The ability to design, develop, deploy and test services to cloud environments. 3. Identifying hardware required for different Cloud Computing models. 4. Evaluate and elaborate the importance of dataflow-computational processing in the Cloud. 5. Create scalable, load-balanced services and implement growth strategies. |
| **Type of assessment:** | Group work - §1Report  Students will work in groups of 3 - 4. |
| **Assessed Learning outcomes** | 2, 3 & 5 |
| **Weighting** | 60% |
| **Assessment 1 deadline:** | **XXXX, via Turnitin** **(no later than 2pm)**  **Specific submission requirements:** PDF, .DOC, .DOCX |
| **Kind reminder:** *You* ***MUST make a reasonable attempt at your assignment*** *and* ***submit it****. Failure to do so may result in CAPPED Resit and/or failure of the module.*  *It is also student’s full responsibility to ensure that all assignments are submitted on the correct link and on time before the submission date.* | |

**Assessment**

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| **60%: Assignment 1** (involving a case study)  Assignment 1 consists of 3 compulsory Tasks.  **Note: To pass this module:**   * You **must attempt all pieces of** assessment and you must achieve at least 40% overall. * If you have a re-sit, you **must attempt all the elements you have failed** as failing marks cannot be carried forward without attempting re-sits.   **Word count: 2000**  For written assignments, students need to state the word count at the end of the assignment. 10% over the stated word count is permitted without penalty. If students go beyond this, then there is a penalty of 5 marks for every additional 10% beyond the word count. The word count includes the Abstract or Executive Summary and all in-text citations. The word count excludes the Bibliography and Appendices. Please note that Appendices should only include supplementary information not provided in the main text. There is no specific penalty for submitting a piece which is below the word count, but please note that shorter written submissions are likely to attract poorer grades, particularly where they lack the necessary depth of analysis.  Feedback will be provided via Moodle. |

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| **Assignment support:**  Although you will be guided throughout the module by your lecturer, you can get extra support for your assignment, just make an appointment with the ACE team for any language, research and study skills issues and/or talk, email the Computing ACE expert for any advice on how to approach your assignment. *REMEMBER: they are not here to give you the answers!*  **Specific requirements for the assignment: Amazon EC2 Services (Student version is available and free)** |

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| **Reading List:**  Cloud Computing: Theory and Practice, D.C. Maninescu (Morgan Kaufmann 2013)  Distributed and Cloud Computing (From Parallel Processing to the Internet of Things) K. Hwang, G.C. Fox, and J. Dongarra (Morgan Kaufmann 2011)  Urs Hoelzle and Luiz Andre Barroso. 2009. The Data center as a Computer:  An Introduction to the Design of Warehouse-Scale Machines (1st ed.).  Morgan and Claypool Publishers. |

**Assignment 1**

**Scenario:**

Retail4Profit is expanding business lines and strategy and as an online e-commerce company established ten years ago, the aim of the business is to make profit. The aim of the company is to ensure quality services to its customers. It has grown over the years into a company with a turnover of £50 million.  The company is headquartered in London, where the company was originally founded, with regional offices across the country in different provinces.

They are looking to develop an effective e-commerce and product management solution using Amazon Cloud to meet the needs of their growing business. As a junior Cloud Consultant, you have been asked to develop and deploy an effective e-commerce solution for them.

**Tasks / Deliverables of the Assignment 1:**

Marks are awarded for producing a properly documented system that meets the requirements as specified below:

**Task 1: [30%]**

In this task, you are to write a comprehensive report critically discussing Cloud Computing Technology and its services:

## You are required to write a proposal to the company discussing the different cloud providers (Amazon, Azure), their services and deployment models for the advancement of the company’s functionalities [10%]

1. In the report, critically evaluate IAM services and create 2 groups (admin, non admin), 2 users and allocate them appropriate group(s) and role(s) for the required personals of the company. You are expected to critically illustrate this with illustrations and images. [10%]

## For the enablement of cloud computing technology, the importance of virtual machine cannot be over emphasized. In the report to be sent, you should critically evaluate the *Amazon EC2 Web Service's features* and create a virtual machine (Amazon AMI) using admin user in the AWS cloud for the company. You should demonstrate how to launch an Amazon EC2 Instance; configure and select Amazon AMI; create a new security key pair; connect to instance, among others. [10%]

*(Please note that screenshots are necessary with explanations)*

**Task 2: [30%]**

In this Task, you are to critically demonstrate your understanding of Amazon Relational Database Service (RDS):

1. Critically evaluate Amazon ***Relational Database Service (RDS).*** Inyour evaluation, illustrate how toconnect to the MySQL database using MySQL Workbench. For example, show how to create a MySQL DB Instance for the given scenario, download a SQL Client (Workbench) and also connect to the MySQL Database.

*(Students must provide all screenshots and explanations)*

**Task 3: [30%]**

In this task, you are to critically demonstrate your understanding of Amazon Relational Database Service (RDS):

1. Discuss the following AWS storage services and how it can be useful for Retail4Profit company [15%]
2. S3
3. S3 Glacier
4. AWS Backup
5. Critically evaluate ***Amazon Website and App Services***. Deploy web applications of the given case study to cloud environments e.g. download, install, configure WordPress, PHP, MySQL, Apache into EC2 instance to query and manipulate cloud based data structures. [15%]

*(Students must provide all screenshots and explanations)*

**Referencing and Bibliography: [10%]**

Although your report will make use of an existing body of knowledge, you must write your assignment with your own words to demonstrate your understanding of the subject. You are required to follow the **Harvard referencing system** when citing others' work. An accompanying list of references must also be provided as part of your report. Extensively referenced work reflects the level of research you conducted in the process of producing the document. It is also an acknowledgement of other people’s work. Correct referencing demonstrates your academic and professional skill. It also reflects your academic honesty and thus to some degree protects you from cases of plagiarism.

**Assignment Checklist**

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| **TASKS COMPLETED** | Related imagetick |
| Cover sheet |  |
| Table of Content |  |
| Introduction |  |
| Detailed explanation of theories and practicalities of cloud provides, Amazon EC2 Web Service's features, Launch an Amazon EC2 Instance, configuring and selecting Amazon AMI, creating a new security key pair, connect to instance. |  |
| Detailed explanation of theories and practicalities of Amazon *Relational Database Service (RDS) and created* a MySQL DB Instance for the given scenario. |  |
| Analyses of Amazon Storage Services, Website and App Services and correctly loaded the web app to the cloud environment. |  |
| Figures labelled |  |
| Grammatical errors corrected |  |
| Conclusion |  |
| References created on a separate page and written in Harvard referencing style format. |  |
| In-text citations written correctly |  |

**Preparation Guidelines for Assignment Report**

1. All components of the assignment report must be word processed (hand written text or hand drawn diagrams are not acceptable), font size must be within the range of 12 point to 14 point including the headings, body text and any texts within diagrams.
2. Standard and commonly used fonts such as Times New Roman, Arial or Calibri should be used.
3. Your document must be aligned left or justified with line spacing of 1.5.
4. All figures, graphs and tables must be numbered and labeled.
5. Material from external sources must be properly refereed and cited within the text using the **Harvard** referencing system.
6. All components of the assignment (text, diagrams. Code etc.) must be submitted in one PDF or .DOC, .DOCX file.

**Extensions to Assessment Deadlines and Late Submission**

You may apply on grounds of mitigating circumstances for an extension to the deadline for this assessment. Applications for extension must be made sufficiently in advance. Extension may be granted where among other conditions the mitigating circumstances and supporting evidence are judged to be sufficient.

Late submission, where the student submits work seven calendar days after the deadline up to 2pm, will be accepted and marked. The percentage mark for the component of assessment will be capped at 40%.

**Plagiarism and Collusion**

Any act of **plagiarism** (presenting another person’s published or unpublished work e.g. from a book or the web in any quantity without adequately identifying it and citing its source) or **collusion** (copying another learner’s assignment or work submitted by others in previous years and submitting it as your own effort) is considered academic misconduct and will be dealt with according to the regulations.

**Marking Criteria**

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| **Task** | **Guidance/Criteria** | **Marks** |
| **1** | You have explained theoretically and practically in detail about cloud provides, *Amazon EC2 Web Service's features,* Launch an Amazon EC2 Instance, configuring and selecting Amazon AMI, creating a new security key pair, connect to instance. | 30 |
| **2** | You have explained theoretically and practically in detail about Amazon *Relational Database Service (RDS),* Creating a MySQL DB Instance for the given scenario, downloading a SQL Client (Workbench), Connecting to the MySQL Database in the cloud environment. | 30 |
| **3** | You have analysed Amazon Storage Services, Website and App Services and correctly loaded the web app to the cloud environment. | 30 |
| Referencing and Bibliography | Your report is well laid out and formatted according to the given requirements. Your report is free from grammatical and spelling errors. Harvard Referencing has been used to cite the work where necessary, and a list of references is provided. | 10 |
| **Total** | | **100** |