**Assessment item 3 - AWS implementation**

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**Value:** 10%

**Due Date:** 04-May-2020

**Submission method options:** Alternative submission method

TASK

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***Please Note:You are required to do EITHER task 1 OR Task 2. DO NOT submit both tasks***

**Task 1  - *DO NOT* attempt this task if you have completed Task 2**

**Overview**

This assessment item requires you to produce a short report for some of the Technical and Development staff of DSI.

**Task**

DSI is starting to migrate some of its applications and services to a public cloud. Many of the technical staff have had no experience in the Cloud and are concerned about this process. You have been asked to create a WordPress site on AWS where staff can share their experiences and ask other staff members about problems and issues that concern them.

1. You are to produce an instruction manual that describes:
   1. How to create a WordPress instance on AWS (40 marks). This instruction manual must:
      * Describe all the steps that are required to access AWS and create a working WordPress instance,
      * Include screenshots of each step of the process, along with sufficient explanatory text to ensure that another user could follow the instructions without problems.
2. Your WordPress site should contain brief instructions for users on how to add comments and photos or screenshots to your site (30 marks).
   1. These instructions must also be included in your instruction manual, along with a screenshot of the completed site.
3. Your instruction manual should also contain brief instructions on:
   1. How you have secured your WordPress site (20 marks),
   2. How you will provide users with secure access to your WordPress site (10 marks).

You will be given access to an AWS Classroom and an AWS Educate account. You will be able to access the AWS services that you need to create your WordPress site through the AWS classroom. AWS has provided a tutorial to take you through the process of creating a WordPress site.  It is highly recommended that you review this tutorial before commencing work on creating your WordPress site. The tutorial can be accessed at: [https://aws.amazon.com/getting-started/tutorials/launch-a-wordpress-website/?trk=gs\_card#](http://antispam.csu.edu.au:32224/?dmVyPTEuMDAxJiZkMjYxZjBiZmVkYjQxYWMxOT01QzQ1ODA5RF82ODlfMTA2MTJfMSYmNDRmYzZlZWE3YzI5ZDIyPTEzMzMmJnVybD1odHRwcyUzQSUyRiUyRmF3cyUyRWFtYXpvbiUyRWNvbSUyRmdldHRpbmctc3RhcnRlZCUyRnR1dG9yaWFscyUyRmxhdW5jaC1hLXdvcmRwcmVzcy13ZWJzaXRlJTJGJTNGdHJrJTNEZ3MlNUZjYXJkJTIz)

You are not required to create or write any other text on your WordPress site. You are also not required to implement secure access for users, but you must have investigated this process.

You are also strongly advised to shut down your site as soon as you have completed all tests and documentation.

**Task 2 - *DO NOT* attempt this task if you have completed Task 1**

**Overview**

This assessment item requires you to produce a short report for some of the Technical and Development staff of DSI.

**Task**

DSI is starting to migrate some of its applications and services to a public cloud. Many of the technical staff have had no experience in the Cloud and are concerned about this process. You have recommended to DSI management that they should consider the use of microservices as part of their application architecture. DSI now want you to redesign one of their monolithic applications as a microservice application

DSI has an old and image and video processing application. This is used by a number of DSI customers to upload images and videos for inclusion in spatial layers for their own use. DSI create the specialised  layer for each customer and supply it to them when complete. The application has a number of modules as shown in Figure 1, below. Some of these modules may not need any development work done on them for long periods of time as their functions and outputs are relatively stable. Other modules though can be modified quite frequently as changes occur in the Industry. Other modules experience great peaks in workload which often slows services to DSI customers.

Figure 1: DSI Image and Video Processing Application architecture

1. You are to assess each of the modules shown in Figure 1 above, and determine:

1. Which modules are likely to be relatively stable, a together with the reasons for this categorisation,
2. Which modules are likely to require frequent modification, together with the reasons for this categorisation,
3. Which modules are likely to experience workload peaks, together with the reasons for this categorisation.

2. DSI wants to transition to a microservice approach with the Image and Video Processing Application. But they want to move in a phased approach so that they can handle the workload peaks first.

1. Which modules should be refactored first?
2. Discuss how a move to a microservice approach for these modules would resolve issues around workload peaks?

3. Discuss how a move to a microservice approach will improve DSI’s ability to maintain high availability for this application.

4. Draw a diagram that shows the architecture of the  Image and Video Processing Application after the transition to a microservice approach.

RATIONALE

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**SUBJECT LEARNING OUTCOMES**

This assessment task will assess the following learning outcome/s:

* be able to compare and evaluate the ability of different cloud computing architectures to meet a set of given business requirements.
* be able to evaluate a set of business requirements to determine suitability for a cloud computing delivery model.
* be able to identify and design an ICT Risk Management strategy for a cloud computing delivery plan to meet business requirements.
* be able to critically analyse business requirements to plan a migration to a cloud model.

**GRADUATE LEARNING OUTCOMES**

This task also contributes to the assessment of the following [CSU Graduate Learning Outcome/s](https://student.csu.edu.au/study/glo):

* Information and Research Literacies (Knowledge) - CSU Graduates demonstrate that disciplinary knowledge is developed through research and evidence.
* Information and Research Literacies (Skill) - CSU Graduates demonstrate the skills required to locate, access and critically evaluate existing information and data.
* Digital Literacies (Knowledge) - CSU Graduates understand professional, social and cultural implications of the global use of technology.
* Digital Literacies (Skill) - CSU Graduates use, create, communicate and share multimodal information in digital environments.
* Digital Literacies (Application) - CSU Graduates ethically, legally, safely and critically use technology to select, create and share information and participate in online learning, professional and social communities.
* Professional Practice (Knowledge) - CSU Graduates possess the knowledge and understanding of the discipline and the nature of professionalism required for the given profession or discipline in contemporary societies.
* Professional Practice (Skill) - CSU Graduates demonstrate discipline-specific technical capabilities and self-appraisal required for a beginning practitioner or professional.

MARKING CRITERIA AND STANDARDS

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**Assessment Rubric Task 1**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Question** | **HD** | **DI** | **CR** | **PS** | **FL** |
| 1. Steps and screenshots to create WordPress instance (40 marks) | Thorough description of the steps required to create WordPress instance with appropriate screenshots of each step | Detailed description of the steps required to create WordPress with good screenshots of most steps | Good description of the steps required to create WordPress with screenshots of some steps | Adequate description of the steps required to create WordPress with some screenshots | Inadequate or incomplete description of the steps required to create WordPress with few or no  screenshots |
| 2. Steps and screenshots to edit WordPress (30 marks) | Thorough description of the steps required to edit WordPress with appropriate screenshots of each step | An detailed  description of the steps required to edit WordPress with screenshots of most steps | An good description of the steps required to edit WordPress with screenshots of some steps | An adequate description of the steps required to edit WordPress with some  screenshots | An incomplete or inadequate description of the steps required to edit WordPress with few or no appropriate screenshots |
| 3a. Steps and screenshots to secure WordPress site (20 marks) | Thorough description of the steps required to secure the WordPress site with appropriate screenshots of each step | Detailed description of the steps required to secure the WordPress site with screenshots of most steps | Good description of the steps required to secure the WordPress site with screenshots of some steps | Adequate description of the steps required to secure the WordPress site with some screenshots | An incomplete or inadequate description of the steps required to secure the WordPress site with few or no appropriate screenshots |
| 3b. Steps and screenshots to provide secure user access to WordPress site (10 marks) | Thorough description of the steps required to provide secure user access to the WordPress site with appropriate screenshots of each step | Detailed description of the steps required to provide secure user access to the WordPress site with screenshots of most steps | Good description of the steps required to provide secure user access to the WordPress site with screenshots of some steps | Adequate description of the steps required to provide secure user access to the WordPress site with some screenshots | An incomplete or inadequate description of the steps required to provide secure user access  to the WordPress site with few or no appropriate screenshots |
| Presentation | Marks will be deducted for NOT following the given report format (see below) as well as for poor presentation, spelling and/or grammar mistakes. | | | | |
| Referencing | Marks will also be deducted for NOT providing / following the proper APA style referencing. Referencing should be accurately documented using APA 6th edition and both in-text citation and bibliographic information are required. (Note that the guide for APA referencing is provided in the Resource section of Interact site) | | | | |

**Assessment Rubric Task 2**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Question** | **HD** | **DI** | **CR** | **PS** | **FL** |
| 1. Describe the 3 categories of modules with reasoning to support decisions (30 marks) | Thorough description of the 3 categories of modules with excellent reasoning to support decisions | Detailed description of the 3 categories of modules with good reasoning to support decisions | Good description of the 3 categories of modules with some reasoning to support decisions | Adequate description of the 3 categories of modules with some reasoning in support | Inadequate or incomplete description of the 3 categories of modules with little or no reasoning to support decisions |
| 2. Discuss how microservices can resolve issues with workload peaks and identify services to be refactored first (25 marks) | Thorough discussion of the scaling capabilities of microservices deployed on the Edge and identification of services to be refactored first | A detailed discussion of the scaling capabilities of microservices deployed on the Edge and identification of services to be refactored first | A good discussion of the scaling capabilities of microservices deployed on the Edge with some identification of services to be refactored first | Adequate discussion of the scaling capabilities of microservices deployed on the Edge with some identification of services to be refactored first | Inadequate or incomplete discussion of the scaling capabilities of microservices deployed on the Edge and little or no identification of services to be refactored first |
| 3. Discuss how microservices will improve high availability (25 marks) | Thorough discussion of high availability and how it can be achieved through microservices deployed at the Edge | A detailed discussion of high availability and how it can be achieved through microservices deployed at the Edge | A good discussion of high availability and how it can be achieved through microservices deployed at the Edge | An adequate discussion of high availability and how it can be achieved through microservices deployed at the Edge | Inadequate or incomplete discussion of high availability and how it can be achieved through microservices deployed at the Edge |
| 4. Draw a diagram of the refactored application architecture (20 marks) | A complete diagram that shows all modules in the monolithic application, all refactored microservices, and scaling | A detailed diagram that shows all modules in the monolithic application, most refactored microservices, and some scaling | A good diagram that shows all modules in the monolithic application and most refactored microservices, possibly with some scaling | An adequate diagram that shows most modules in the monolithic application and some refactored microservices | An incomplete or inadequate diagram that shows some modules in the monolithic application, with few or no refactored microservices, and no scaling |
| Presentation | Up to 5 marks will be deducted for NOT following the given report format (see below) as well as for poor presentation, spelling and/or grammar mistakes. | | | | |
| Referencing | Up to 5 marks will also be deducted for NOT providing / following the proper APA style referencing. Referencing should be accurately documented using APA 7th edition and both in-text citation and bibliographic information are required. (Note that the guide for APA referencing is provided in the Resource section of Interact site) | | | | |

PRESENTATION

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The report should be submitted as a single MS Word (.doc or .docx) document with all images embedded in the document.

Submissions in in \*.zip, \*.rar , .pdf or any other format will not be marked.

The report presentation structure is:

**Cover page**

* Title of Report
* Student Name and Student ID
* Student Email address

**Main Report**  
 This section should contain main body of the report. It should discuss all tasks / challenges asked in the case study. You should have sub-sections that answers each task. Support your answers with solid literature (in-text citations), diagrams and figures (if applicable).

**Reference List**  
 You must cite your references using the APA 7th edition referencing style for all material you have used as sources for the content of your work.

**Glossary (optional)**  
 A glossary should assist the reader in understanding any technical terms used in the report. Use a generally accepted source for the definition of the terms and include appropriate referencing.