

**Cloud Foundations**  
**COSC2757/ Semester 1, 2021**  
**Milestone 1 (Case study)**

<b>Assessment Type</b>	To be attempted individually.  Submit online via Canvas→Assignments→First Milestone  Marks awarded for meeting requirements as closely as possible. Clarifications/updates may be made via announcements/relevant discussion forums.
<b>Due Date</b>	Week 5, Friday 9 <sup>th</sup> April 2021, <b>5:00 pm</b> AEST
<b>Marks</b>	30

**1. Overview (you must read this first)**

You are to attempt this assignment individually, no group work is allowed. You will use material and knowledge gained from reading AWS Academy week 1 till 5: Cloud Foundations course.

If you find a specification open to interpretation, post a query identifying the specification in the corresponding discussion board for assignment 1. Software development and deployment in real life does not come with a definitive roadmap and flowcharts complete with instructions. More often than not, it is the job of the developer/analyst to clarify requirements from the client.

All of us have been affected by the unfortunate COVID-19 scenario and its aftermath. It is often hard to concentrate and study online; but as a student enrolled in this course, it is your responsibility to regularly attend online session(s).

- Bring your questions to online discussion board, online facilitation sessions
- Watch the online recordings on a regular basis if you cannot attend the live sessions.
- Do NOT start the work on assignment at the last minute.
- Do NOT ask for last minute extensions, these are often rejected. Extensions can only be granted for personal and medical reasons, provided you can supply some evidence.

**Learning Outcomes**

This assessment relates to all of the learning outcomes of the course which are:

- CLO 1: Define and understand AWS and its components
- CLO 5: Understand architectural principles , security and compliance issues in AWS Cloud

## 2. Academic integrity and plagiarism (standard warning)

Academic integrity is about honest presentation of your academic work. It means acknowledging the work of others while developing your own insights, knowledge and ideas. You should take extreme care that you have:

- Acknowledged words, data, diagrams, models, frameworks and/or ideas of others you have quoted (i.e. directly copied), summarised, paraphrased, discussed or mentioned in your assessment through the appropriate referencing methods,
- Provided a reference list of the publication details so your reader can locate the source if necessary. This includes material taken from Internet sites.

If you do not acknowledge the sources of your material, you may be accused of plagiarism because you have passed off the work and ideas of another person without appropriate referencing, as if they were your own.

RMIT University treats plagiarism as a very serious offence constituting misconduct. Plagiarism covers a variety of inappropriate behaviours, including:

- Contract cheating- paying/asking someone to do your work
- Failure to properly document a source involving none, insufficient or incorrect referencing
- Copyright material from the internet or databases
- Collusion between students

## 3. Submission

You must submit only 1 PDF file via Assignment submission link under Milestone 1 Canvas. The PDF file must be named as **yourStudentNumber\_a1.pdf**, as an example if your student number is s1234567 the file must be named as

s1234567\_a1.pdf

**INCORRECT file name will attract a penalty of 5 marks from the total score.**

After the due date, you will have 5 business days to submit your assignment as a late submission. Late submissions will incur a penalty of 10% per day. After these five days, Canvas will be closed, and you will lose ALL the assignment marks.

Assessment declaration: When you submit work electronically, you agree to the assessment declaration:

<https://www.rmit.edu.au/students/student-essentials/assessment-and-exams/assessment/assessment-declaration>

For further information on our policies and procedures, please refer to:

<https://www.rmit.edu.au/students/student-essentials/rights-and-responsibilities/academic-integrity>

## 4. Marking Guidelines

The marks allocated have been added to each of the tasks. **Please read rubrics for details.**

Go to the next page for tasks→

## 5. Assignment tasks

Read the following scenarios and answer the questions that follow:

### **Task 1 [15 marks]**

A school in Melbourne caters to a total of 5000 students from four different districts: city centre Melbourne, South Melbourne, Carlton & Richmond. The school employs 450 staff members which includes senior management, middle management, teachers and admin.

The school library is struggling due to increased online demand for the resources due to COVID restrictions. The library has lots of physical books in stock and around 20 computers. They have a very limited inventory of digital assets (*books, papers, etc.*) They maintain a local server room to support the digital infrastructure. This is maintained by a part-time junior system admin. The server infrastructure works on Windows 2000 platform and has not been upgraded for a while.

Owing to COVID-related restrictions and teaching moving to online and hybrid mode (*part online and part face to face*), there is an increased demand for digital assets and sophisticated online access. For children to be fully equipped for the current scenario and future, the school library must adapt. As more teaching and learning activities move online, it is crucial for the children and staff members to have access to all online programs and facilities.

Currently the 20 desktop computers cannot be accessed from outside the school. There is no robust search, security or access mechanism. In its current form, the library simply cannot function.

A complete redesigning of digital infrastructure of the library is required to accommodate student and staff needs. Someone recommends an AWS infrastructure implementation.

Your task is to answer the following questions:

- a. (3 marks) Which of the models: IaaS, PaaS, SaaS would you recommend for the cloud implementation? Justify your answer with a supporting explanation. *Your answer should not exceed a page.*
- b. (3 marks) Which of the AWS services would you deem suitable for the cloud implementation in this case? Justify your answer by providing a supporting explanation. You may draw diagrams. *Your answer should not exceed more than 2 pages.*
- c. (9 marks) You need to figure out a total cost involved in such implementation. You need to display all assumptions made, information sourced and calculations. In particular, you need to consider costs involving server hardware, Virtual machines, CPU, RAM, operating system, storage, IT labour costs and anything else that you may think is necessary.

**Task 2 follows →**

**Task 2 [15 marks]**

**Community Centre:** manages activities, events, and a few event spaces for the local community. Their IT needs are a website with low, locally focused traffic, an email server, and an internal calendar-based booking service to manage their spaces, as well as a Content Management System for listing their short courses. Occasional downtime, especially outside of business hours, is not a significant issue. They contract their IT needs to a local IT company.

**Theater Chain :** this national theater chain has over 100 cinemas across the country. They need infrastructure to manage their website and booking system. They need to be able to deal with their regular high volume traffic patterns, as well as unpredictable spikes in traffic, without downtime and without significant over expenditure.

They have a long-term contract with an IT company that specialises in cloud development.  
This theater chain is also exploring the possibility of streaming new release films to its customers.

Your task is to answer the following questions:

- a. (3 marks) Which of the above i.e., Community centre or Theater would benefit from utilising Cloud implementation and AWS infrastructure? Justify your answer by providing a supporting explanation. *Your answer should not exceed a page.*
- b. (3 marks) Which of the models: IaaS, PaaS, SaaS would you recommend for the cloud implementation? Justify your answer with a supporting explanation. *Your answer should not exceed a page.*
- c. (3 marks) What would be the purpose of the theater chain spreading their AWS resources across two regions? Explain your answer. *Your answer should not exceed a page.*
- d. (3 marks) What type of security model would you recommend and why? Explain your answer. *Your answer should not exceed a page.*
- e. (3 marks) Which of the AWS services would you deem suitable for the cloud implementation in this case? Justify your answer by providing a supporting explanation. You may draw diagrams. *Your answer should not exceed more than 2 pages.*

Do not just copy and paste definition of services and their role. You will get no marks for doing so. For each of the stated service in your answer, explain the benefit to the client in their context.

**Each answer must be backed by online references used, you must cite each reference external and including your own notes. You must use *Harvard style of referencing- no other style should be used.***