COMPX527 - Assignment 2

Total Marks: 40
Due: 24th September 2021, 5.00 PM

AWS Mashup

Objectives

This is a group assignment where the group will create a cloud based application using various AWS services. The main objectives of this assignment are as follows:

- Gain hands-on experience on cloud-based solution development
- Gain hands-on experience on project management
- Gain experience on a collegial collaboration
- Gain experience on capacity planning and management

Marking Scheme

The marking scheme for this assignment will take into account the following criteria:

Presentation and demo	(30%)
Final report	(30%)
Security Implementation	(30%)
Individual contribution	(10%)

Task 1: Cloud based application development

Your task is to utilise one or more open source datasets and compose a cloud-based solution meeting the requirements stated below as a team. The solution should demonstrate potential business value or broader benefits for the society. You can develop any type of application as long as it uses cloud services, consumes the data from the datasets and meets the requirements listed below. For example, you can develop an application for data visualization, use the data to do certain useful computation, or even use the data to train a learning model for useful predictions or for object detection.

Requirements

- You must utilise one or more public datasets, such as the ones listed here. https://registry.opendata.aws/
- You must use a data storage service such as S3, DynamoDB or RDS
- You must use one or both of EC2 and Lambda
- You must use the Elastic Load Balancing, Cloudwatch and IAM services
- You must use two or more services from the following list:
    - CloudFront,
    - Elasticsearch Service,

    - SQS,
    - SNS,
    - Secrets Manager
- If you would like to use other services not listed here, you will need to obtain approval from the instructor.
- You must create Roles for your team members and assign appropriate permissions for those roles. Team members can be assigned multiple roles.
- Your application must allow end users to make accounts and you must take steps to secure user data appropriately.

Task 2: Live Demo and Presentation

- The presentation and demo will be made during the lecture hours in the week starting 27th Sep. 2021. You will present a short live demo of your solution in front of the class and invited panel.
- You will describe your application, its architecture and the services you used and comment on your security implementation.
- Time is limited to 15 min maximum (12 minutes for presentation + 3 for Q/A)

Task 3: Report

- You will provide a report describing your proposed solution.
- The report (one per group) is to be submitted to Moodle by Friday, Sep. 24, 2020 5:00 PM NZST.

- The report also needs to have a section describing what was done by each individual in the group.

Report Requirements

- The report must follow the two-column IEEE template for conference proceedings (https://www.ieee.org/conferences_events/conferences/publishing/templates.html)
- The report must not exceed 20 pages (excluding references).
- The report structure must include the following sections:
    - Solution Summary
    - Proposed solution
    - Security Considerations
    - Actual AWS expenditure
    - Team members and individual contribution within the team
    - References

Bonus

1. Reports written using LaTex will receive 5% bonus marks.
2. There is also 5% bonus for submitting instructions and script(s) for automating the deployment of your application.

Assignment submission

The submission in the form of a report and automation instructions needs to be submitted to moodle.

Extensions

No extensions will be given unless approved by the Department of Computer Science (https://www.cs.waikato.ac.nz/student-resources/application-for-an-extension-of-deadline) You can submit late. However, late submissions will be deducted **5 marks/ day.**

Plagiarism

Any group found plagiarising will be reported to the disciplinary committee. If you suspect your group members are plagiarising, inform the instructor and the TA.

You are expected to follow the University's guidelines here: https://www.waikato.ac.nz/students/academic-integrity/student-information/plagiarism. Assignments will be checked against anti-plagiarism checkers.