TEMASEK POLYTECHNIC

SCHOOL OF INFORMATICS & IT

Diploma in Applied Artificial Intelligence

Cloud Technologies (CAI2C04)

AY2022/2023 APR Semester

Project Specifications

Introduction

The purpose of this project is to understand and apply the knowledge of Cloud Technologies.

By the end of this project, you should be able to design, assemble, evaluate and deploy a web application onto a cloud platform.

The project consists of three parts:

1. Project Proposal (20%)
2. Project Deliverable (60%)
   a. Application (40%)
   b. Report (20%)
3. Presentation (20%)

Note that this is an **individual** project.

You should discuss the topic that you propose with your tutor and obtain prior approval.

This project weightage is **100%**.

Project Scope

You are to propose, design, build and test a web application that will be deployed onto the cloud. There is no restriction to the nature of the website. It can be for any use case. E.g. music repository, movie review website. Your website should potentially have good market value, and able to solve a real-life problem.

You are to be as creative as you can, but do be realistic and ensure you can complete within the specified timeframe.

However, as a minimum requirement, your website must apply the following knowledge that you have learnt:

1. Basic cloud security
2. Web client development knowledge
3. Deployment of website to EC2 or S3
4. Setting up cloud data storage E.g. DynamoDB or MySQL
5. Consumption of Restful APIs that you have setup on the cloud

Project Proposal (20%)

Submit a project proposal, in MS Word format, by **1 July 2022, 17:00hrs** via TP-LMS under Assessment section.

There is no page limit to your proposal report, but it should include the following sections in detail:

Name of Website	Give a name for your website
Description	A brief description of your website and the utilized cloud resources
Business Function	Target business function
Website Architecture	Include the architecture diagram of your website. Utilise the tools available on the AWS website: https://aws.amazon.com/architecture/icons/
Database ER Diagram	The proposed entity-relationship diagram of your database
Target Audience	Market Segment
Justification	Reasons for selecting the particular cloud service(s)
References	Web URL/Books/Research Papers

Project Deliverables (60%)

Submit the website codes and relevant files by **12 Aug, 17:00hrs** via One-Drive link provided by your tutor.

You are to do a video recording of your demonstration, of no more than 5 minutes. In the video, you are to explain the services that you have utilised and how they are being used. It is highly recommended that you use MS Teams for the recording, using the Presenter mode so that your face is also included in the video.

Upload the video to YouTube. Include YouTube link in your presentation slides.

You are to upload the following files to the One-Drive link:

1. Website code (Lambda codes, copy & paste into .txt file and embed the files into your presentation slides)
2. Presentation slides (in PowerPoint format)
3. Video file of your recording in MP4 format

Your presentation slides will serve as your report. You are to include the details of your work (focusing on the AWS services) and should not exceed 15 slides.

Please ensure you have a backup copy of your project in case there is a problem with the online submission.

Project Presentation & Demonstration (20%)

Demonstrate and present your deliverable with appropriate presentation slides on **Week 18** (week of 15 Aug). Keep your presentation and demonstration to 10 minutes.

You will use the same set of presentation slides that is submitted as part of the Project Deliverables.

You are reminded to test all the services for the final presentation and demonstration.

Penalty for Late Submission

late and <1 day	: 10% deduction from absolute mark given for the assignment
late >=1 and <2 days	: 20% deduction from absolute mark
late >=2 days	: No marks awarded

Note that “day” includes non-working days (Sat, Sun and public holidays).

General MC/LOA is NOT considered as valid reason for extended assignment submission.

Grading Criteria – Project Proposal

The grading criteria for **Project Proposal** will be based on the following:

Grades	Criteria
F	1. Non submission of all required items 2. Clear evidence of plagiarism detected (disciplinable offence)
D / D+	1. Few required items are included, and/or 2. Proposal is largely unclear and unsupported by reason, evidences or visual aids
C / C+	1. Some required items are included, and/or 2. Proposal is clear but largely unsupported by reason, evidences or visual aids
B / B+	1. All required items are included 2. Purpose of selecting the various cloud service is supported by strong and valid reasons 3. Description on the main functions of the solution and is clear 4. Visual aids are well prepared for effective communication of proposal
A / Z	1. All required items are included with additional items that provides clarity and meaning to the proposal 2. Purpose of selecting the various cloud service is supported by strong and valid reasons 3. Description on the main functions of the website and the cloud services is meaningful and comprehensive 4. Visual aids are well prepared for effective communication of proposal 5. The proposed solution has good market value/potential 6. The proposed solution is novel and solve a real-life problem efficiently

Grading Criteria – Project Deliverables

The grading criteria for **Project Deliverables** will be based on the following:

Grades	Criteria
F	1. Program failed to compile or run successfully 2. Student submission of the project files are incomplete 3. Clear evidence of plagiarism detected (disciplinable offence)

D / D+	1. Able to apply at least 3 the following: • Basic cloud security • Web client development knowledge • Deployment of website to EC2 or S3 • Setting up cloud data storage E.g. DynamoDB or MySQL • Consumption of Restful APIs that you have setup on the cloud 2. All project files are submitted accordingly 3. Not so user friendly but working minimally 4. Program lack testing and robustness. 5. Some errors discovered that result in few functionalities working.
C / C+	1. Able to apply at least 4 the following: • Basic cloud security • Web client development knowledge • Deployment of website to EC2 or S3 • Setting up cloud data storage E.g. DynamoDB or MySQL • Consumption of Restful APIs that you have setup on the cloud 2. All project files are submitted accordingly. 3. Easy to use 4. Some evidence of testing and robustness observed. 5. Few errors discovered but most functionalities are working.
B / B+	1. Able to apply all of the following: • Basic cloud security • Web client development knowledge • Deployment of website to EC2 or S3 • Setting up cloud data storage E.g. DynamoDB or MySQL • Consumption of Restful APIs that you have setup on the cloud 2. Able to incorporate one **additional** AWS service/feature not covered in class 3. Interactive and easy to use 4. Program is well tested and robust with no errors discovered.
A / Z	1. Able to apply all of the following: • Basic cloud security • Web client development knowledge • Deployment of website to EC2 or S3 • Setting up cloud data storage E.g. DynamoDB or MySQL • Consumption of Restful APIs that you have setup on the cloud 2. Able to incorporate an **additional** of 2 or more AWS services/features that were not covered in class 3. Able to apply new knowledge/advanced features not taught in class 4. Interactive and easy to use 5. Program is well tested and robust, no errors discovered.

Grading Criteria – Project Presentation & Demonstration

The grading criteria for **Project Presentation & Demonstration** will be based on the following:

Grades	Criteria
F	1. Program failed to compile or run successfully 2. Student was absent for project presentation and demonstration without a valid reason 3. Clear evidence of plagiarism detected (disciplinable offence)
D / D+	1. Show minimal initiative in managing the tasks on hand and able to deliver valuable work on time throughout. 2. Presentation shows little organisation and includes few required items 3. Very little or poor use of visual aids 4. Delivery is somewhat fluent and well-paced 5. Unable to respond to most of the questions asked
C / C+	1. Shows some initiative in managing the tasks on hand and able to deliver valuable work on time throughout. 2. Presentation shows some organisation and includes some required items 3. Visual aids are adequate but not well used 4. Delivery is somewhat fluent and well-paced 5. Some questions are answered with difficulty and minimal elaboration is given
B / B+	1. Shows great initiative in managing the tasks on hand and able to deliver valuable work on time throughout. 2. Presentation is well organised and includes all required items 3. Visual aids are adequate and appropriately used 4. Delivery is mostly fluent and well-paced 5. Most questions are answered confidently with some elaboration
A / Z	1. Good competition and commercial viability. 2. Shows great initiative in managing the tasks on hand and able to deliver valuable work on time throughout. 3. Presentation is well organised and includes all required items with additional items that provides clarity and meaning to the presentation 4. Visual aids are well prepared and are used to make presentation more effective 5. Delivery is very fluent and well-paced 6. All questions are answered confidently with further elaboration

End of Project Specifications