Guideline for Assignment 2 (project)

Assignment 2 will contain 35% of total assessment for this course. It should be a project by using cloud platforms and technologies.

You can form a group of two. You also have the option to work alone if you like to do so. You must submit a small description of your project in this Google form:

https://goo.gl/forms/uvjw0Dtfsf48gLuJ3

(You need to sign in with your rmit student id to submit this form).

Criteria/Project requirement

1. It is recommended to have a distributed model for your application (e.g. separate component for processing and storage/ Multinode cluster/ multiple processing servers/ Integration of multiple APIs), if it is suitable for your application.

2. The use of tools/techniques such as Hadoop MapReduce, BigQuery, Go Concurrency, APIs, SQS, Lambda, Endpoints, Real-time data analysis, IoT-Sensors or complex mathematical formulas will make your project interesting. You may not learn all of the tools but if you learn them by yourself, it will be highly appreciated as well as helpful for your projects

3. You may take advantage of Cloud storage (e.g. S3, Google Cloud Storage) and Cloud Datasotre (e.g. Google datastore, Amazon DynamoDB, MongoDB, Relational Database Service) in your project.

4. You should have a nice client side visualization (e.g. a webpage/website or a mobile app). If you have any kind of data analysis you should interpret your result nicely using tabular and/or graphical format. For web application you may consider to deploy your application either in Google cloud/AWS Elastic Beanstalk.

5. In group project all students should have equal contributions. You will be asked for peer review. If fewer contributions are identified by one student then he/she will receive less mark than his/her group-mate.

Project Options

Option 1

Development of a cloud application using your own idea and strength.

Option 2

Development of a cloud application using idea suggested by Tutor/Lecturer based on your interest and strength.

Option 3

You may refer to **Lecture-4_Cloud_Applications**, where several applications were discussed (the projects are from previous years). You may choose one of them as your project or somewhat similar (discuss with tutors before selecting from these projects). For example: VicRoad Data Analysis, EEG Brainwave Analysis, Weather Recommendation System etc.

*If you are interested in doing any kind of **Recommendation System**, please contact head tutor Shahriar Badsha at shahriar.badsha@rmit.edu.au. He will be able to help you in-terms of providing datasets, guidance, ideas, problem statements etc.*

Demonstration, Submission, and Report

You must demo your project to your assigned tutors according to our scheduled demonstration time. For group project all team members must present during demo time and explain individual contributions. The demo can be from 10 to 20 minutes for each team. Keep everything ready and make your application live during your demo.

You need to submit a report and all materials related to your project. The deadline of submission your project in Blackboard is **29th September Friday 11:59 PM**. If you submit after that it will be considered as late submission. You will be penalised 10% of your total mark per day for late submission. We will not able to mark you and release your mark if you do not submit your project materials and report.

During submission you will need to provide the following content in a **.zip** file.

1. Your project report both in (.doc/.docx/.latex) format **and** .pdf format. We uploaded some .latex templates and .pdf file as samples in Blackboard. You may consider to follow that format or you can make your own format.

The report should contain the following materials

a. **Contribution:** of individual team members (In case of group project only)
b. **Links:** Live url of your project (if any), repository url (github/bitbucket) of your source code (if any), public dataset links of your project (if any).

c. **Summary:** The objective/purpose of your project.
d. **Introduction:** Say something about your project such as:
    i. What are the motivations behind your idea?
    ii. What it does?
    iii. Why it is required?
    iv. How it can be used as real-life application?
    v. The advantages/positive/new things of your application.
e. **Related work:** Refer some related works similar to your application.
f. **Software Design/Architecture**
    i. A high level architectural diagram that shows the communication between different cloud components used in your project and purpose of using those components.
    ii. Description of your dataset/data structure/APIs/sensors you used for your project (if any) [use figure if required]
g. **Implementation** - Developer Manual: A step-by-step guideline to reproduce your project [use figure if required] and make it live. This is like our tutorial sheet. For known/general description (e.g. creating and MySQL RDS instance in AWS, deploying project in Elastic Beanstalk) you can refer to any web link directly. You can also refer to tutorial sheet if you have similar steps in your description (e.g. deploy application in google cloud).
h. **A small user manual**: A quick overview of how to use your application.
i. **Video**: A video demonstration/presentation of your application.

2. Put all the images you have used in your report in a folder name **doc_images**.
3. Put all the source code of your project in a folder named **code**. If source code is greater than 20 MB then provide a google_drive/dropbox/github share link to download your source code in a text file (name it code.txt).
4. Put runnable/deployable files (if any e.g. .war, .zip, .jar) in a folder named **deploy**
5. Put all the data/sql tables/sql script (if any) in a folder named **data.** If data files are too large then provide a link to download your data in a text file (name it data.txt)
5. A readme.txt with name and student number of team members, a short description of your project and the public link to access your project (if any).

Also we would like to have a small video (this is optional) about your project that demonstrate your system. We will keep these videos for future references and will put in a private youtube channel. We will provide a link of channel later.

Project marking guideline

The following table is an estimated marking guide for the project. Please note this is a just an estimation. Based on all projects, project reports and complexity your project marking standard will be set.

Project Marking Guide		
Project Title		
Task	**Description**	**Total Mark**
Project Formulation (7 marks)		
Idea	A creative and unique idea for your project	2
Objectives	A clear and meaningful objectives/purpose project	2
Problem solving	How your application solves or improves real life problems using cloud computing technique?	1
Cloud tools	Your investigations and understanding to use cloud computing technologies, tools or techniques. You must have proper logic of using cloud components	2
Project Design (8 marks)		
Design models	Your project design should be divided into modules. The choice of programming language for your implementation	3
Data set design	Any data set you use for your application should have clear description.	2
Cloud platforms, tools	The use of cloud platforms (such as: Google, Amazon) APIs and techniques (e.g. concurrency, MapReduce, BigQuery)	2
Cloud resources	The proper use of cloud Service such as virtual machine, EBS, Scaling and others	1
Project Implementation (12 Marks)		
Running	Is your system working according to the requirement?	7
Outcome/UI	A well formatted output/UI	2
Demonstration	Your understanding about your implementation	3
Project Documentation (8 Marks)		
Structure	Your documentation is structured in a clear order	3
Architecture	A brief explanation of your model with diagrams	2
Practical Steps	Your documentation should provide step by step explanation, such as how to use your system and how to reproduce your project.	3