**ASSIGNMENT 2 FRONT SHEET**

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| **Qualification** | **BTEC Level 5 HND Diploma in Computing** | | |
| **Unit number and title** | Unit 9: Cloud Computing | | |
| **Submission date** |  | **Date Received 1st submission** |  |
| **Re-submission Date** |  | **Date Received 2nd submission** |  |
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| **Class** | GCH0718 | **Assessor name** |  |
| **Student declaration**  I certify that the assignment submission is entirely my own work and I fully understand the consequences of plagiarism. I understand that making a false declaration is a form of malpractice. | | | |
|  |  | **Student’s signature** |  |

**Grading grid**

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| P5 | P6 | P7 | P8 | M3 | M4 | D2 | D3 |
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| **❒ Summative Feedback: ❒ Resubmission Feedback:** | | |
| **Grade:** | **Assessor Signature:** | **Date:** |
| **Internal Verifier’s Comments:** | | |
| **Signature & Date:** | | |

A. INTRODUCTION

B) DESIGN

I. Overview Function

1. Solution

2. Use-case diagram

3. Website Screen Shots

II. Code implement and deploy process

1. Tools and framework

1.1 IDE

1.2 Framework

1.3 Source Code Manager

1.4 Database server

1.5 Cloud computing module

2. Deploy

2.1 Config framework express on the env

2.2 Config and connect with mongodb

2.3 Config git and upload file to github

2.4 Deploy code on Heroku server

3. Code implement

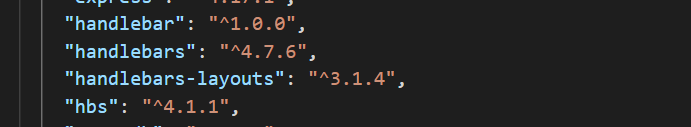
4. Source code and website

III. Difficulties

There are many difficulties when i develop and implement this project. But i did research and learn how to fix it. In this part, i will list some difficulties which i have to encountered and how i can overcome them.

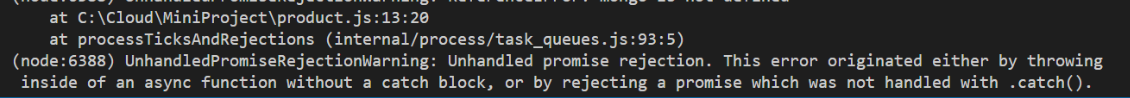
1. Programming

a) Difficulties

Other than that this is my first time using it, I made quite a few mistakes during development. Nodejs has too many different frameworks like Express, NestJs, SailJs, KoaJs. Each framework has some different pros and cons. This makes me very confused in choosing the right framework for the project. After choosing a suitable framework, we have to choose the suitable view engine ... Because Nodejs is an open source platform, so it has the advantage of abundant community-resources not like other closed platform like asp, javaspring, ... This leads to inconsistency in naming libraries. These libraries all have similarities and differences, so it can be difficult to distinguish when searching for tutorial articles. During the first use, when i dont remember the exactly name of handlebars and only install handlebar library but it's still work till i have some bugs and need to uninstall and reinstall handlebars. Each library has its own specific syntax, so I confused a lot when looking up their functions.

Next, I ran into a problem working with the view engine. Different from writing server side and client-side code together in one file. Source Code is structured in a model that is almost equivalent to MVC. Hence transferring the data between my view and routes in the early stages encountered some difficulties.

Beside, when working with data, I had many errors about asynchronous processing. Unlike some other server-side languages, javascript strictly handles asynchronous handling. It is easy to make an error if we use the inappropriate callback or async functions.



b) Solution

Faced with the above problems, the first thing I did was to thoroughly re-learn how nodejs works. By understanding the basic keywords as well as operating principles, I analyzed pros, cons and chose express as the framework I will use in the project.

C. SECURITY

I. Some issue of Cloud computing platform

1. Public Cloud

2. Private Cloud

3. Hybrid Cloud

II. Security issues and solution in cloud computing enviroment.