

Module Title Web API Development	Ind/Group Individual	Cohort SEM2	Module Code 304CEM
Coursework Title REST Web API Development			Hand Out Date 15/01/22
Lecturer Mark J Tyers			Due Date: 11/04/22 18:00 resit/deferral: 04/04/22 18:00
Estimated Time 40 hours	Coursework Type Practical Project		Module Credits 20
<p>Submission Arrangement Online via Aula</p> <p>File Types: screencast demonstration and Codio project.</p> <p>Mark and Feedback Date: TBC</p> <p>Mark and Feedback Method: comments and rubric marks via HandIn.</p>			
<h2>Module Learning Outcomes Assessed</h2> <ol style="list-style-type: none">1. Develop a secure, open-standards-based API to support server-client communication.2. Create modern web content involving asynchronous data retrieval, client-side DOM manipulation, standards adherence and user-user interaction.3. Manage data persistence across both server and client web-based solutions.4. Design and implement an API and client based on given, non-trivial requirements using a range of appropriate developer tools.			

Do not start working on your assignment until you have [read this assignment brief](#) and fully understood all the requirements. If you have any questions make sure you ask the Module Leader.

Task Overview

You have been employed by a software engineering company to develop a modern **single-page application** backed up by a **REST Web API** to allow sharing of data. This needs to meet their business requirements. The topic can be found in the [Topic List](#) document. The previous developer has already [started this process](#) and produced a website with registration and login functionality. Due to some previous bad experiences working with third party frameworks, the company has stipulated that **they should be avoided** in this project.

Your task is to apply the skills you have learned in the module **to** add a robust set of features to the code that has already been developed.

You will be marked using the **Grading Rubric** (see the Useful Resources section below) so make sure you read this carefully to understand what evidence you need to present. You will be assessed on the the following criteria, with different weighting applied to each:

1. **API Design:** Does your API design meet the REST API guidelines? This will be measured against the Fremont scale. For the higher grades you will need to ensure your data structures comply with the JSON-API standards.
2. **Security:** Is your API protected from unauthorised access and do each type of user have access to the routes they need?
3. **API Calls:** Your Single-Page App (SPA) will need to make calls to your REST API. You are going to be assessed on how these are carried out securely. For the higher grades you will need to consider advanced API design features and security.
4. **DOM:** Your SPA will need to include code that implements navigation and changes the page content by manipulating the Document Object Model (DOM). You are being assessed on how much interaction you implement.
5. **Data:** is all the data needed by the site stored in a MySQL database? Have you managed to get this in the cloud for the live API? For the higher grades you need to design and build an interface between the database and the rest of your code.
6. **Functionality:** does the website do what it is supposed to? The more functions you complete and demonstrate the higher your grade.

Codio

You will be required to do all the assignment work in a Codio box. To get access to this you need to use the Codio invite URL (see the Useful Resources section below). If you are asked to register for an account you must use your university email without the **.uni** part. All accounts not using this form of email will be periodically **deleted**. Open the terminal window and run the following command to install the [template](#):

```
$ curl -sL https://bit.ly/3ngLmVo | bash
```

Submission

You are required to record two screencasts. Each must be encoded as an MP4 video file and be no longer than 5 min long. The two screencasts should be:

1. **API Demonstration** – a screencast where you demonstrate the functionality of your API using the [Talend](#) API testing tool. The screencast should be called **api.mp4**.
2. **SPA Demonstration** – a screencast where you demonstrate the functionality of your single-page application by showing the features you completed. This recording must start with some text that explains:
 - a. The name of your topic.
 - b. Which features you completed and will be demonstrating.

You must also ensure that the final version of your code is available in the Codio box and this has been **marked as completed** before the deadline. This code will be used to test your system.

The Codio box for this assignment is called **SEM2 (2021-2022)**.

Feedback

The assignment will be assessed using the grading rubric. When the marks are released you will be provided with:

1. A breakdown of marks you received for each part of the rubric.
2. Detailed feedback explaining this decision and indicating why you missed the higher grade.

Restrictions

You must adhere to the following restrictions. If you are not sure about any of these please contact your module leader for clarification.

Failure to comply with these restrictions may result in you **losing marks** and require you to attend a **Viva session** to demonstrate that the submission is your own work.

1. All the work must be carried out in the **SEM2 (2021-2022)** Codio box. You must not do any of the work directly on your computer.
2. The project must be implemented using only modern ES6 JavaScript and use the Deno runtime for the server-side code.
3. You must use the supplied template, maintaining its directory structure.
4. You may not use any third-party frameworks in your website.
5. You must not copy and paste code from other sources.
6. If you make use of code from other sources, this must be **clearly flagged** using block comments that include the website URL where you found the code.
7. You must commit your code locally **at the end of every day's work** (however there is no requirement to push your commits to GitHub).

Useful Resources

You will find the following resources useful when completing the assignment.

1. [Topic list](#) (page 2 relates to semester 2).
2. [Assignment descriptors](#).
3. [Grading rubric](#).
4. [Codio invite URL](#).
5. [Assignment template files](#).
6. [Frequently asked questions](#).
7. [Extensions and deferrals](#).

Extensions and Deferrals

The University has a process to follow if your personal circumstances have impacted your ability to do the assignment work. Further information can be found on the [Student Portal](#) together with an [online application form](#) which will ask you for any [mitigating circumstances](#) and evidence to support your application.

1. An extension normally grants you **additional days** to complete the assignment.
2. A deferral means you will need to complete a **new assignment** to be submitted at the next assessment point, typically the following semester. If you choose this option you may end up doing this assignment alongside other assignments from that semester.

If you feel that you need to take advantage of either of these options, it's really important that you **read the instructions on the student portal** carefully and complete the application process at least **two weeks before** the original assignment deadline.

Notes

1. You are expected to use the [APA 7th Edition](#) referencing style. For support and advice students can contact the Centre for Academic Writing (CAW).
2. Please notify your registry course support team and module leader for disability support.
3. Any student requiring an extension or deferral should follow the university process. As part of the University's No Detriment policy any request for a 2 week extension will receive automatic approval however you must complete the [online application](#).
4. The University cannot take responsibility for any coursework lost or corrupted on disks, laptops or personal computers. Students should therefore regularly back-up any work and are advised to save it on the University system.
5. If there are technical or performance issues that prevent students submitting coursework through the online coursework submission system on the day of a coursework deadline, an appropriate extension to the coursework submission deadline will be agreed. This extension will normally be 24 hours or the next working day if the deadline falls on a Friday or over the weekend period. This will be communicated via email and as a CUMoodle announcement.
6. Assignments must be uploaded in the file format specified in the assignment brief. Submissions that are not in this format will receive a zero mark.
7. Assignments that are more than 10% over the word limit will result in a deduction of 10% of the mark i.e. a mark of 60% will lead to a reduction of 6% to 54%. The word limit includes quotations, but excludes the bibliography, reference list and tables.
8. You are warned to check your work and the filename before uploading to the link. You have only one chance to submit which will be checked by Turnitin on your Moodle Web.
9. Collusion between students (where sections of your work are similar to the work submitted by other students in this or previous module cohorts) is taken extremely seriously and will be reported to the Academic Conduct Office. This applies to both courseworks and exam answers.
10. A marked difference between your writing style, knowledge and skill level demonstrated in class discussion, any test conditions and that demonstrated in a coursework assignment may result in you having to undertake a Viva Voce in order to prove the coursework assignment is entirely your own work.
11. If you make use of the services of a proof reader in your work you must keep your original version and make it available as a demonstration of your written efforts.
12. You must not submit work for assessment that you have already submitted (partially or in full), either for your current course or for another qualification of this university, unless this is specifically provided for in your assignment brief or specific course or module information. Where earlier work by you is citable, ie. it has already been published/submitted, you must reference it clearly. Identical pieces of work submitted concurrently will also be considered to be self- plagiarism.