



College of Engineering, Construction & Living Sciences
Bachelor of Information Technology
ID607001: Introductory Application Development Concepts
Level 6, Credits 15
Practical: Node.js REST API Testing Research

Assessment Overview

In this **individual** assessment, you will be given a **Node.js REST API** to **API test**. You will be required to independently research & write at least **50 API tests** using **Chai & Mocha**. You will use these dependencies to verify the correctness of the given **Node.js REST API**. It includes **CRUD** operations, authentication, query parameters, status codes & the shape of response data. In addition, marks will be allocated for code elegance, documentation & **Git** usage.

Learning Outcome

At the successful completion of this course, learners will be able to:

1. Design & build secure applications with dynamic database functionality following an appropriate software development methodology.

Assessment Table

Assessment Activity	Weighting	Learning Outcome	Assessment Grading Scheme	Completion Requirements
Practical: Node.js REST API Testing Research	20%	1	CRA	Cumulative
Project 1: Node.js REST API	30%	1	CRA	Cumulative
Project 2: React CRUD	50%	1	CRA	Cumulative

Conditions of Assessment

You will complete this assessment during your learner-managed time. However, there will be time to discuss the requirements & your assessment progress during the teaching sessions. This assessment will need to be completed by **Friday, 13 May 2022 at 4.59 PM**.

Pass Criteria

This assessment is criterion-referenced (CRA) with a cumulative pass mark of **50%** across all assessments in **ID607001: Introductory Application Development Concepts**.

Submission

You must submit all program files via **GitHub Classroom**. Here is the URL to the repository you will use for your submission – https://classroom.github.com/a/Anc_bYhn. Create a **.gitignore** and add the ignored files in this resource - <https://raw.githubusercontent.com/github/gitignore/main/Node.gitignore>. The latest program files in the **master** or **main** branch will be used to mark against the **Functionality** criterion. Please test your **master** or **main** branch application before you submit. Partial marks **will not** be given for incomplete functionality. Late submissions will incur a **10% penalty per day**, rolling over at **5:00 PM**.

Authenticity

All parts of your submitted assessment must be completely your work. If you use code snippets from **GitHub**, **StackOverflow** or other online resource, you **must** reference it appropriately using **APA 7th edition**. Provide your references in the **README.md** file in your repository. Failure to do this will result in a mark of **zero** for this assessment.

Policy on Submissions, Extensions, Resubmissions & Resits

The school's process concerning submissions, extensions, resubmissions & resits complies with **Otago Polytechnic** policies. Learners can view policies on the **Otago Polytechnic** website located at <https://www.op.ac.nz/about-us/governance-and-management/policies>.

Extensions

Familiarise yourself with the assessment due date. If you need an extension, contact the course lecturer before the due date. If you require more than a **seven days** extension, a medical certificate or support letter from your manager may be needed.

Resubmissions

Learners may be requested to resubmit an assessment following a rework of part/s of the original assessment. Resubmissions are to be completed within a negotiable short time frame & usually must be completed within the timing of the course to which the assessment relates. Resubmissions will be available to learners who have made a genuine attempt at the first assessment opportunity & achieved a **D grade (40-49%)**. The maximum grade awarded for resubmission will be **C-**.

Resits

Resits & reassessments are not applicable in **ID607001: Introductory Application Development Concepts**.

Instructions

You will need to submit a **suite of API tests** & documentation that meet the following requirements:

Note: The given **Node.js REST API** application is located in the **course materials repository > assessments**.

application called **practical-node-js-rest-api-example** in the **assessments** directory in the course materials repository.

Functionality - Learning Outcome 1 (60%)

- **API tests** are written using **Mocha & Chai**.
- At least **50 API tests** verifying the correctness of the following:
 - CRUD (create, read, update & delete) operations.
 - Authentication (register, login & logout).
 - Validation rules, i.e., checking if field is required, etc.
 - Query parameters, i.e., filtering, sorting & paging data.
 - Status codes, i.e., checking if a response returns 200, 404, etc.
 - Shape of the data, i.e., does the response data contain a specific column?

Note: Test case examples are provided at the end of this document.

Code Elegance - Learning Outcome 1 (30%)

- Use of intermediate variables. No method calls as arguments.
- Idiomatic use of control flow, data structures & in-built functions.
- Sufficient modularity, i.e., **beforeTest()** & **afterTest()** functions.
- Functions & variables are named appropriately.
- File header comments using **JSDoc**. You **need** to explain the purpose of each **API test** file.
- In-line comments using **JSDoc**. You **need** to explain complex logic that is not obvious.
- **API test files** are stored in a directory called **test** located in the root directory. Each file has the file extension - **.test.js**
- Code files are formatted using **Prettier** & a **.prettierrc** file. You **need** to declare a **npm** script in your application's **package.json** file which automates this process. Rules **should** include:
 - Single quote is set to **true**.
 - Semi-colon is set to **false**.
 - Tab-width is set to **2**.
- Declare a **npm** script in your application's **package.json** file that runs the **API tests** in the test environment.
- **Prettier, Chai, Chai HTTP & Mocha** are installed as development dependencies.
- No dead or unused code.
- Database configured for the testing environment.
 - Create a new database in **MongoDB Atlas** specifically for the testing environment.
 - Do **not** use the database from **Project 1: Node.js REST API**.

- Application's environment variables are stored in a **.env.testing** file.
 - Create a **example.env.testing** file containing all of the application's environment variables' key. It is for the testing environment.
 - Do not include the environment variables' value.

Documentation & Git Usage - Learning Outcome 1 (10%)

- Provide the following in your repository **README.md** file:
 - What is API testing & why is it important?
 - How do you setup the testing environment, i.e., after the repository is cloned, what do you need to do **before** you run the **API tests**?
 - How do you run the **API tests**?
 - How do you format the code using **Prettier**?
- Use of **Markdown**, i.e., bold text, code blocks, etc.
- Correct spelling & grammar.
- Your **Git commit messages** should:
 - Reflect the context of each functional requirement change.
 - Be formatted using the naming conventions outlined in the following:
 - * **Resource:** <https://dev.to/i5han3/git-commit-message-convention-that-you-can-follow-1709>

Additional Information

- Attempt to commit at least **10** times per week.
- **Do not** rewrite your **Git** history. It is important that the course lecturer can see how you worked on your assessment over time.

Example Test Cases

- Reading a resource => three tests
- Invalid inputs when creating or updating a resource => nine tests
- Deleting a resource => three tests
- Valid & invalid inputs when registering & logging in a user => four tests
- Logging out a user => one test
- Endpoint not found => one test
- The number of available base endpoints => three tests
- Query parameters for each resource => 15 tests
- Status codes for each resource => six tests
- Shape of the data => five tests