# CS3219 OTOT Assignment

#### Task B: CRUD Application Task

## (a) Student Name and Matriculation Number

Oong Jie Xiang (A0242581H)

### (b) Link to the GitHub repository

https://github.com/oongjiexiang/CS3219-OTOT-Tasks

### (c) Instructions on how to

#### Run the API locally, including Postman calls used to demonstrate a working API

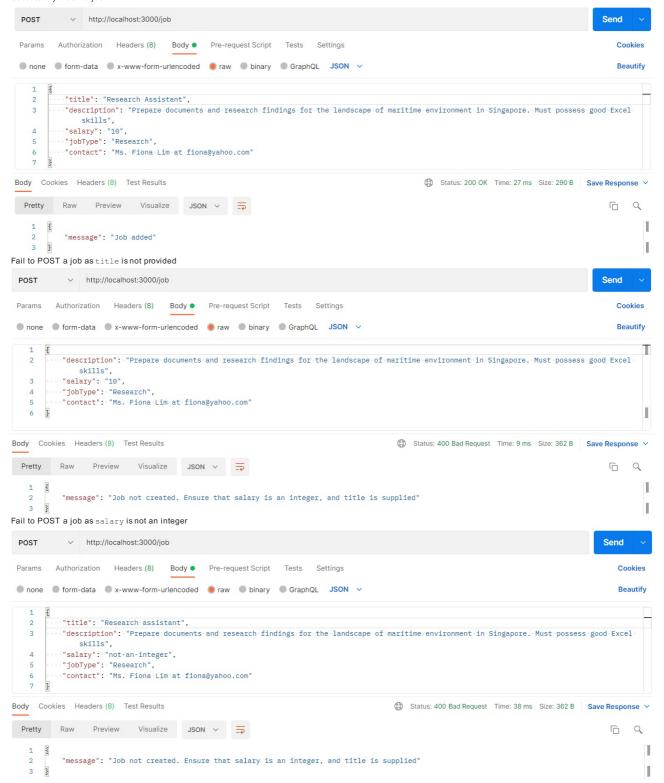
After cloning by using git clone https://github.com/oongjiexiang/CS3219-OTOT-Tasks.git, proceed with the tasks below.

- 1. At the root folder, run  ${\tt npm}\ {\tt install}$  in the terminal to install the node modules
- 2.  ${\tt npm}$  start to start the server (Backend server as this task is for B1). The server listens at port 3000
- 3. In Postman, the configurations are as follows:

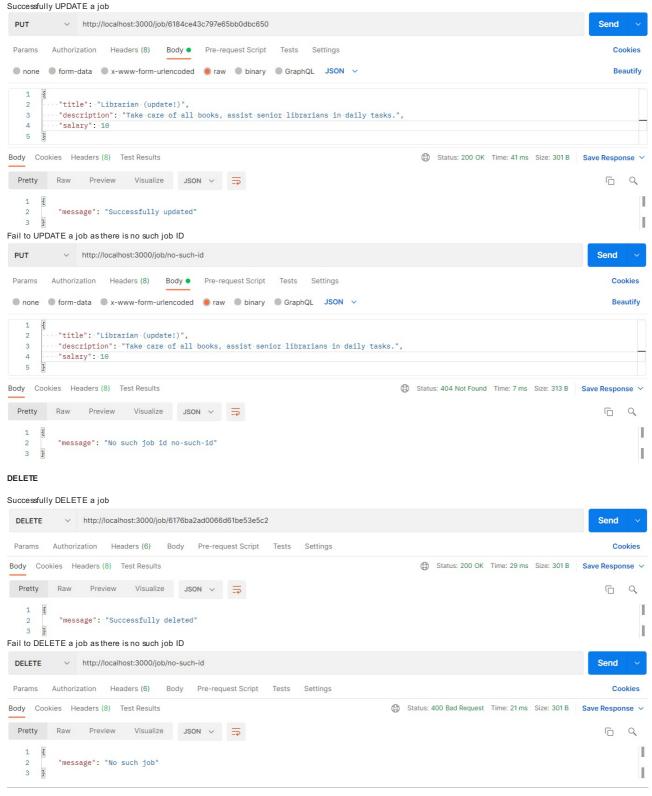
#### GET

#### Successful GET all jobs http://localhost:3000/job Send GET Params Authorization Headers (6) Body Pre-request Script Tests Settings Cookies Body Cookies Headers (8) Test Results Status: 200 OK Time: 24 ms Size: 1.47 KB Save Response > Pretty Preview Visualize 1 2 "\_id": "6184ce17c797e65bb0dbc64d", 4 "title": "Research Assistant", 5 "description": "Prepare documents and research findings for the landscape of maritime environment in Singapore. Must possess good Excel skills.", 6 "salary": 8, "\_\_v": 0 8 "\_id": "6184ce43c797e65bb0dbc650", 10 Successfully GET one job http://localhost:3000/job/6184ce17c797e65bb0dbc64d Send Params Authorization Headers (6) Body Pre-request Script Tests Settings Cookies Body Cookies Headers (8) Test Results Status: 200 OK Time: 20 ms Size: 505 B Save Response V Pretty Raw Preview Visualize JSON V Q 1 "result": 5 2 "\_id": "6184ce17c797e65bb0dbc64d", "title": "Research Assistant", "description": "Prepare documents and research findings for the landscape of maritime environment in Singapore. Must possess good Excel skills.", "salary": 8, \_\_v": 0 Fail to GET a job as there is no such job ID http://localhost:3000/job/no-such-id Send GET Params Authorization Headers (6) Body Pre-request Script Tests Settings Cookies Body Cookies Headers (8) Test Results Status: 404 Not Found Time: 16 ms Size: 297 B Save Response > Preview Visualize JSON V Pretty Q I "message": "Not found"

#### Successfully POST a job



PUT



- 1. To try out the deployed endpoints, simply replace http://localhost:3000 with https://cs3219-otot-b1.herokuapp.com/ or https://cs3219-otot-b3-ojx-mv57od22ua-uc.a.run.app/
- 2. Assumption made: Valid JSON string is always passed

#### Access the deployed API (B1/B3)

- $1. \ \ When attempting \ B1\ initially, \ backend\ was\ deployed\ on\ \underline{Heroku\ (https://cs3219-otot-b1.herokuapp.com/)}\ as\ well$
- 2. Cloud Run (https://cs3219-otot-b3-ojx-mv57od22ua-uc.a.run.app/) is then the serverless service (for B3) used to deploy the backend
  - To have Continuous Deployment, I wrote a Dockerfile (found in root folder) and added additional workflow actions in .github/workflows/node.js.yml. The code for B3 is shown in the screenshot below. Essentially, it checks out the branch, builds and image, and then deploy this image. gcloud image is used to execute these actions.
  - Note: The code is referred from <u>Towards Data Science article (https://towardsdatascience.com/deploy-to-google-cloud-run-using-github-actions-590ecf957af0)</u>



The following screenshot shows the build logs



#### Run tests locally and via GitHub (B2)

To test locally, run  $\mathtt{npm}\ \mathtt{test}$  in the terminal

To test on GitHub, I wrote .github/workflows/node.js.yml to trigger testing on every push or pull request from main branch, where GitHub will run npm test itself. The code for B2 is shown in the screenshot below. Essentially, for every combination of (node version, mongoDB version) combination specified, GitHub Action will

- 1. Check out the branch
- 2. Set up Node.js environment
- 3. Set up MongoDB environment
- 4. Run the build
- 5. Run tests (npm test)

```
name: Node.js CI
     branches: [ main ]
     pull request:
    branches: [ main ]
11
     build:
        runs-on: ubuntu-latest
       strategy:
        matrix:
        node-version: [14.x, 16.x]
       mongodb-version: ['4.2', '4.4']
      steps:
       - uses: actions/checkout@v2
        - name: Use Node.js ${{ matrix.node-version }}
        uses: actions/setup-node@v2
        with:
        node-version: ${{ matrix.node-version }}
       cache: 'npm'
      - name: Start MongoDB
       uses: supercharge/mongodb-github-action@1.6.0
       mongodb-version: ${{ matrix.mongodb-version }}
       -- run: npm ci
       - run: npm run build --if-present
       -- run: npm test
```

• The two screenshots below illustrate how GitHub Action (Cl tool used in this task) reports the test results

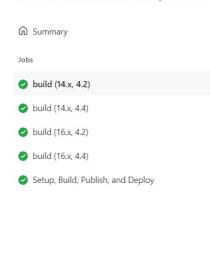
#### All workflows

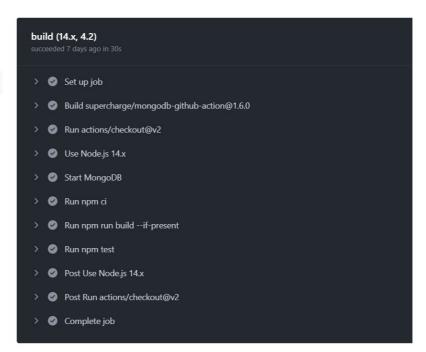
Showing runs from all workflows

Q Filter workflow runs 18 workflow runs Event ▼ Status ▼ Branch ▼ Actor ▼ 7 days ago main Node.js CI #12: Commit a870548 pushed by oongjiexiang **⊘** 2m 11s successfully combined workflow 🛱 7 days ago main Node.js CI #11: Commit eda8c2f pushed by oongjiexiang ₫ 2m 11s

Detailed build logs when clicking into one triggered action

# finished B1,2,3,4 Node.js CI #12





## Set up frontend (B4)

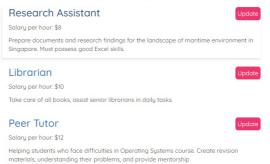
- 1. cd frontend
- 2. npm start to begin the frontend server. Note that all frontend communicates with the deployed backend by Cloud Run
- 3. Bootstrap is used (index.html) to quick-start styling

When the server starts, it will direct the browser to the home page. GET request is launched

Jobs Available

Home Create Job

# Opportunities



Clicking on a job card leads to the Job Detail Page. This launches a request to GET only one job. Click on the 'Delete' button to launch a DELETE request

Jobs Available

Home Create Job



From the Home Page, click on 'Update' button to proceed to Update Page. In the Job Update Page as shown in the screenshot below, click 'Update' to update the job details.

Jobs Available

Home Create Job

| ob Title   |
|--|
| Librarian  |
| escription   |
| Take care of all books, assist senior librarians in daily tasks. |
| alary per hour   |
| 10   |
| оь Туре  |
| Technology ·   |
| Update   |

To create a job, click 'Create Job' at the navigation bar atop the website, fill up the form and click 'Submit' to launch a POST request

Jobs Available

Home Create Job

| Job Title       |          |
|-----------------|----------|
| Description     |          |
|                 | <i>)</i> |
| Salary per hour |          |
| Job Type        |          |
| Technology      | ~        |
| Create Jo       | h        |