Project Details

Task: B1 - B4
Done by: Tan Wei Jie (A0202017B)
Repo Link: https://github.com/tanweijie123/CS3219_Sandbox/tree/main/Task_B
Backend Link: http://tanwj.link:8080/api/book
Frontend Link: http://tanwj.link:3000/
Autodeployment Link: https://asia-southeast1-cs3219b.cloudfunctions.net/api/api/book

Note: All of the links above uses the same database at tanwj.link:27017

Overview

This project is about creating a password manager using React App for frontend, REST API for backend CRUD operations, and MongoDB for data storage.
Each log contains a website, id and password used for the website.

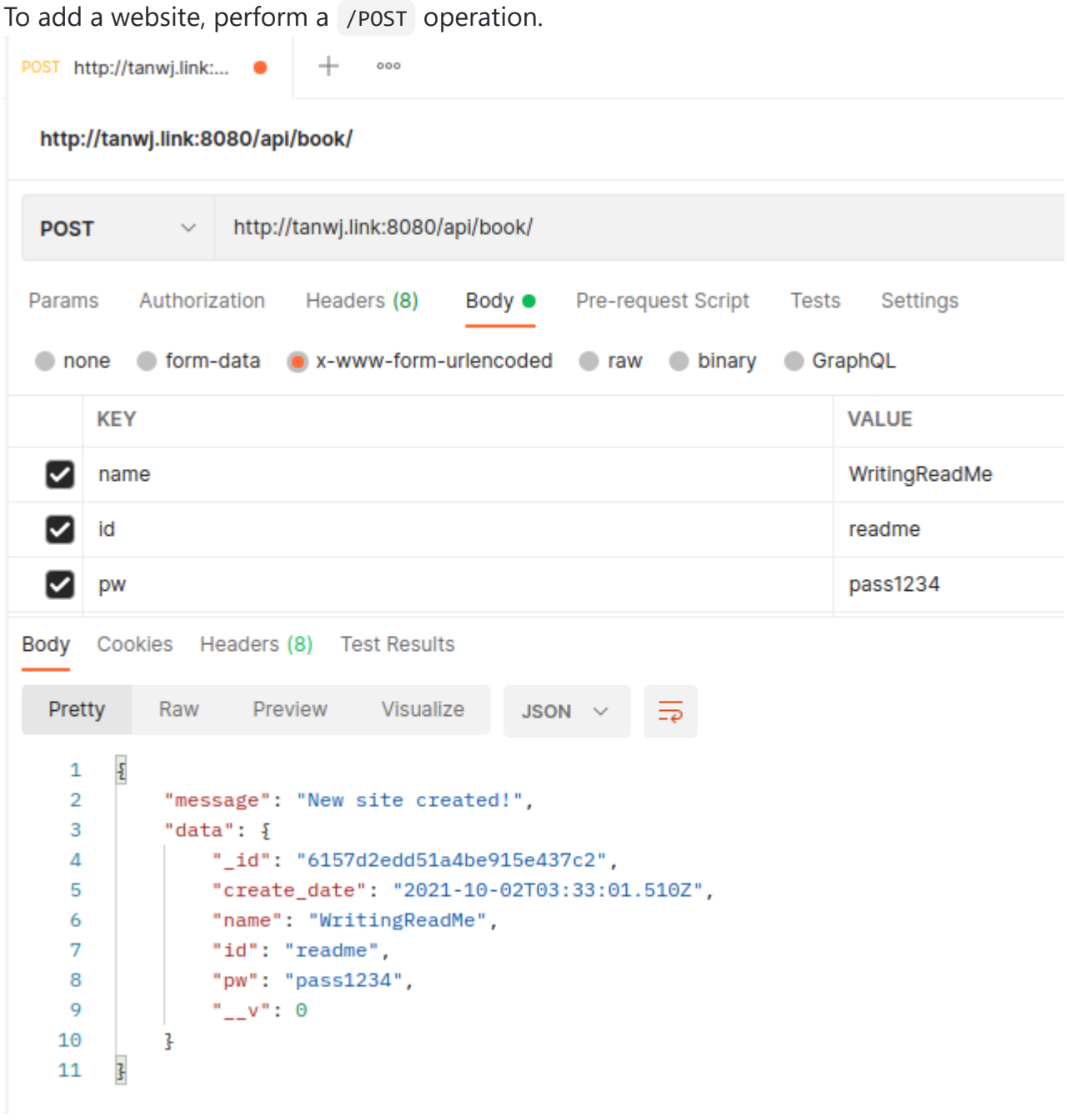
Task B1: A simple backend using REST API

/GET

When the backend is accessed, it will perform a `/GET` operation. This will list all the passwords currently stored in this application.

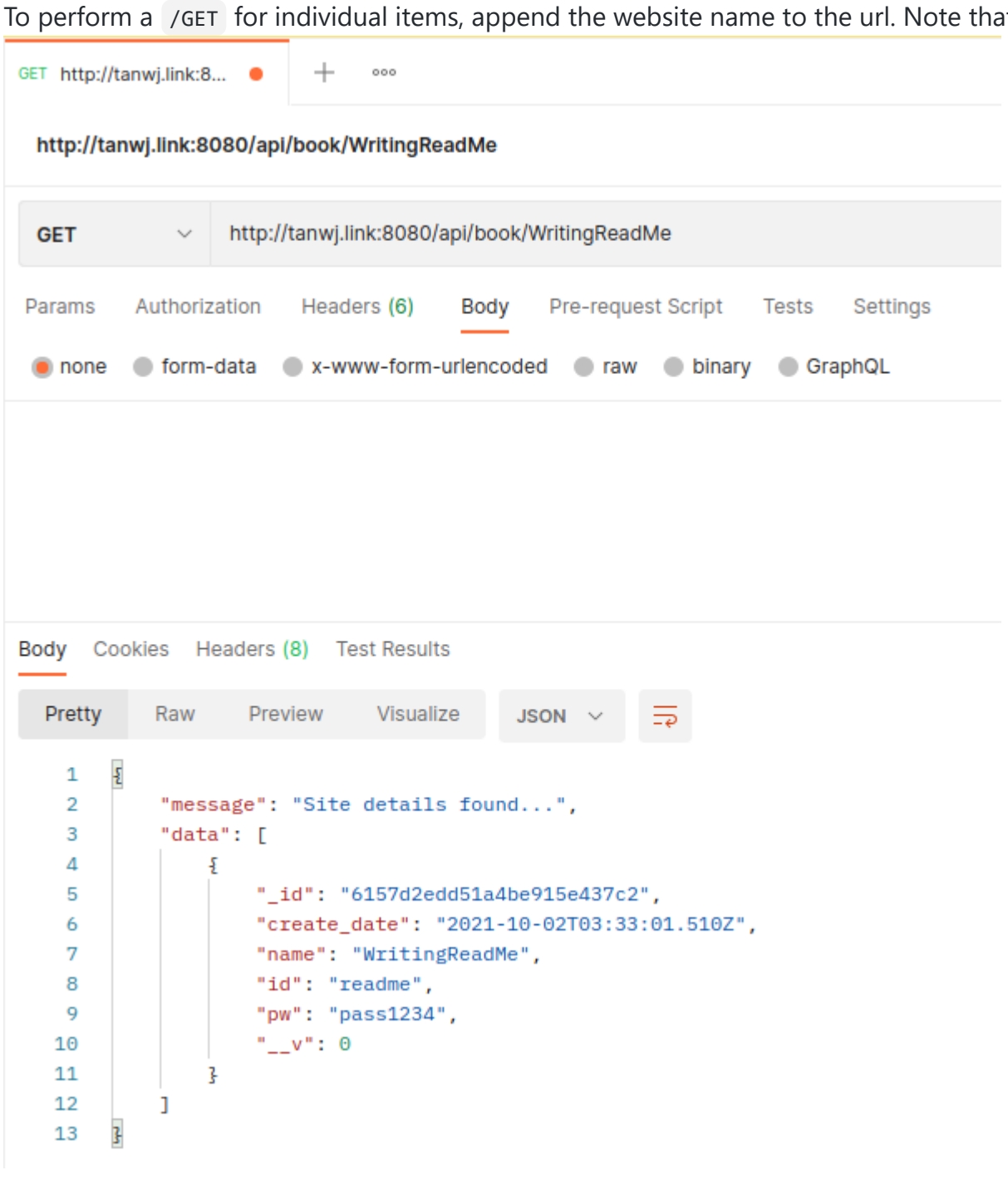
/POST to add website

To add a website, perform a `/POST` operation.



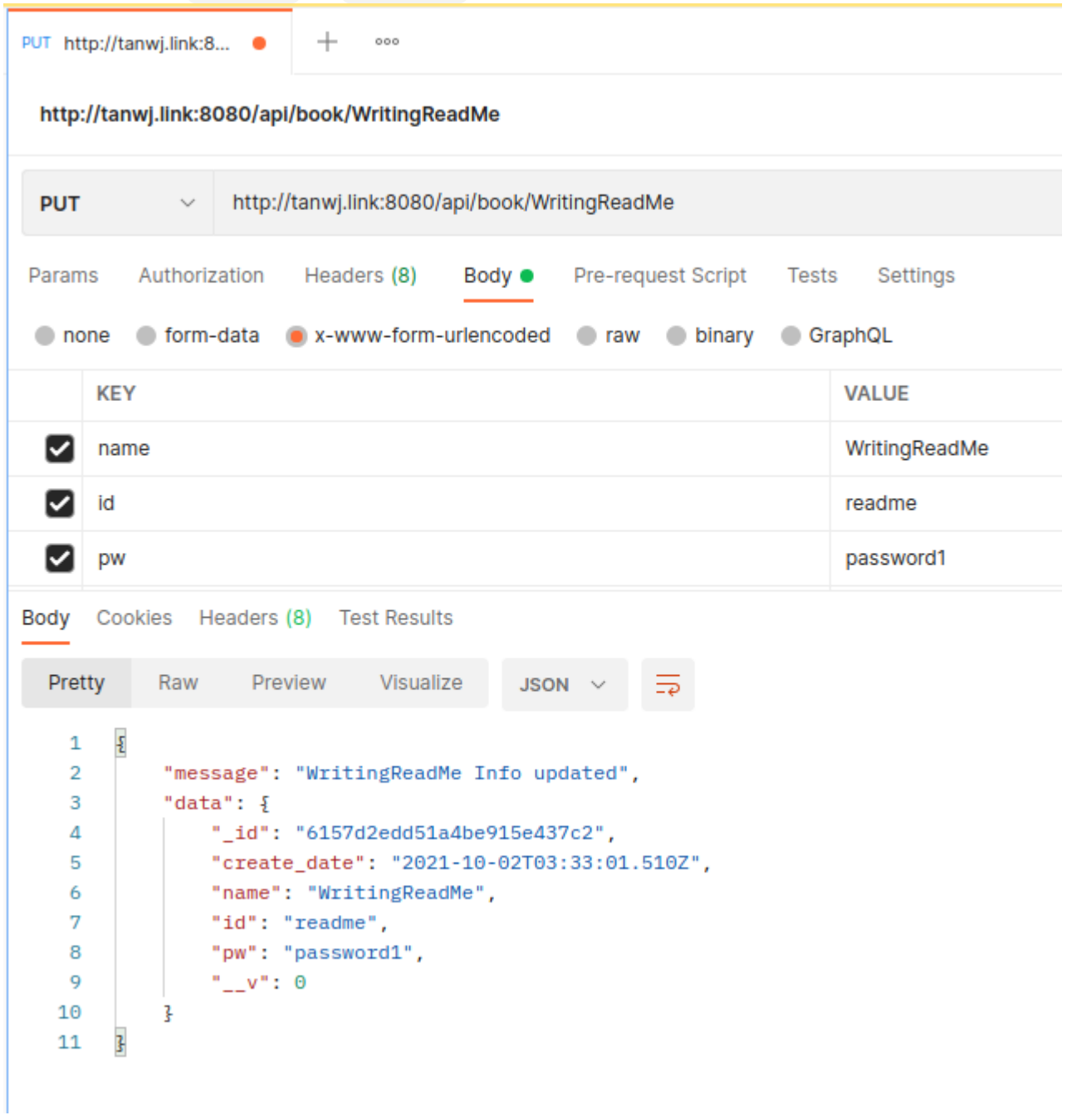
/GET for individual item

To perform a `/GET` for individual items, append the website name to the url. Note that each website name is unique.



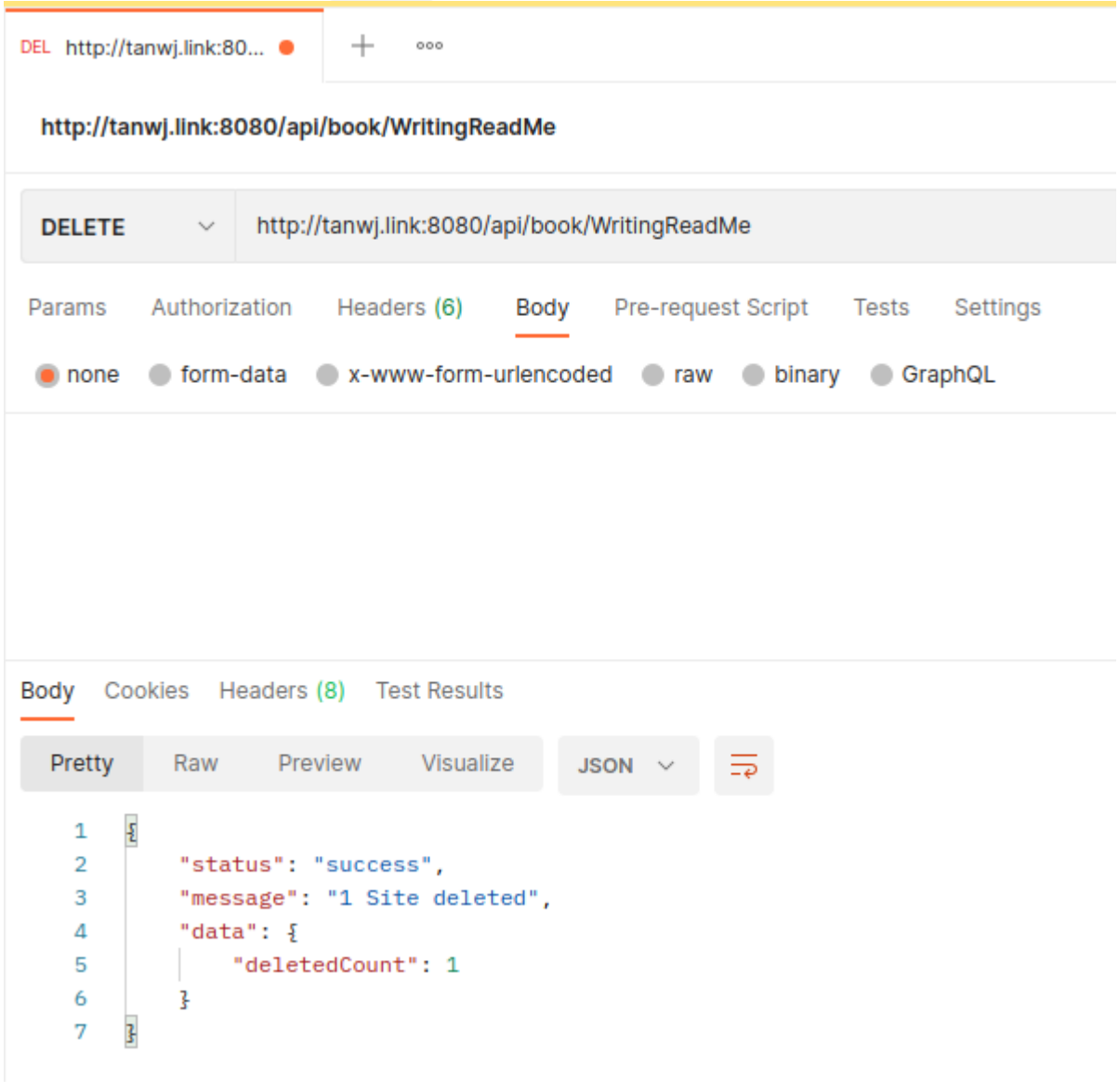
/PUT to edit a website

To edit a website, use `/PUT` with the website name appended to the url. For example, in this case, we changed the password from `pass1234` to `password1`.



/DELETE to delete a website

To delete a website, use `/DELETE` with the website name.

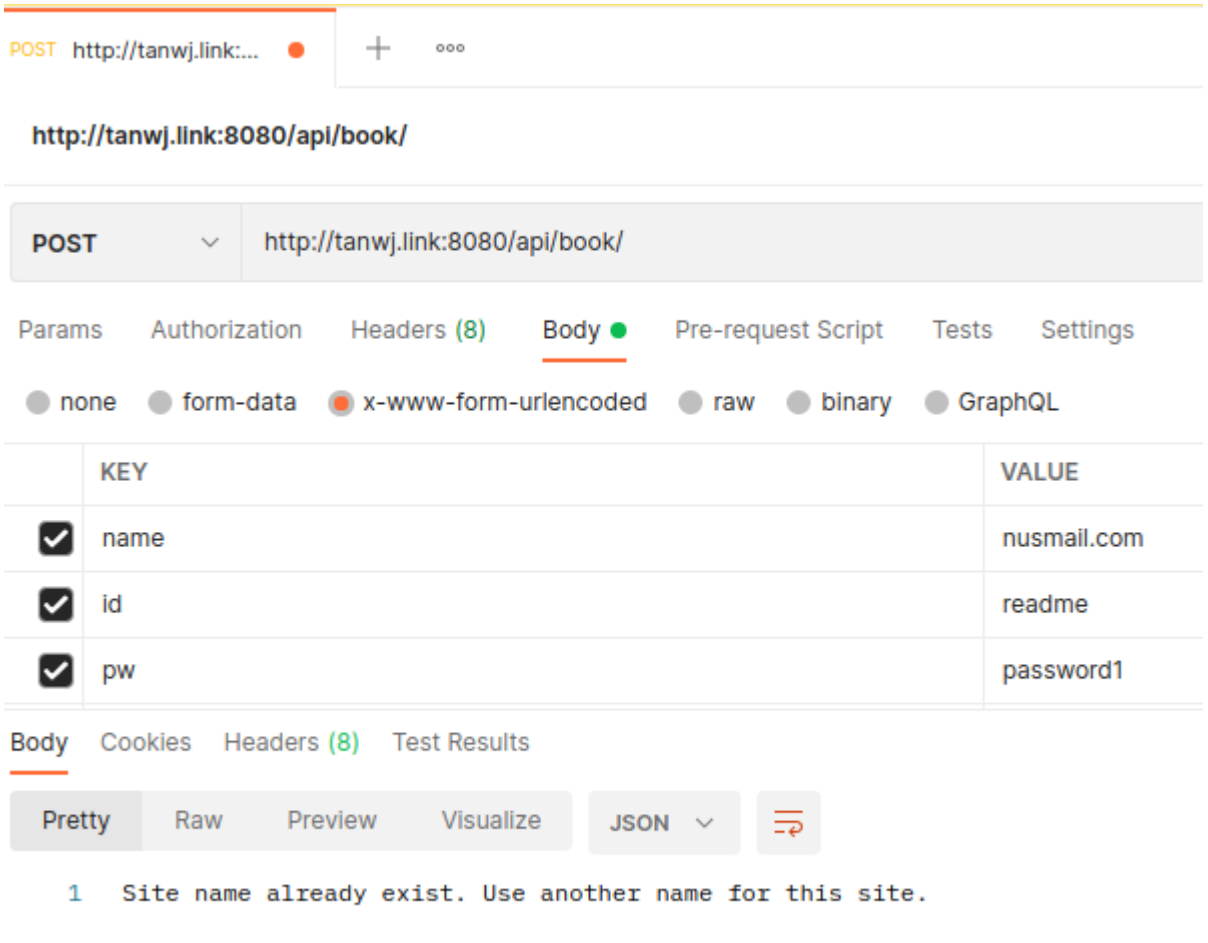


Some edge cases

1. Trying to insert same website name.

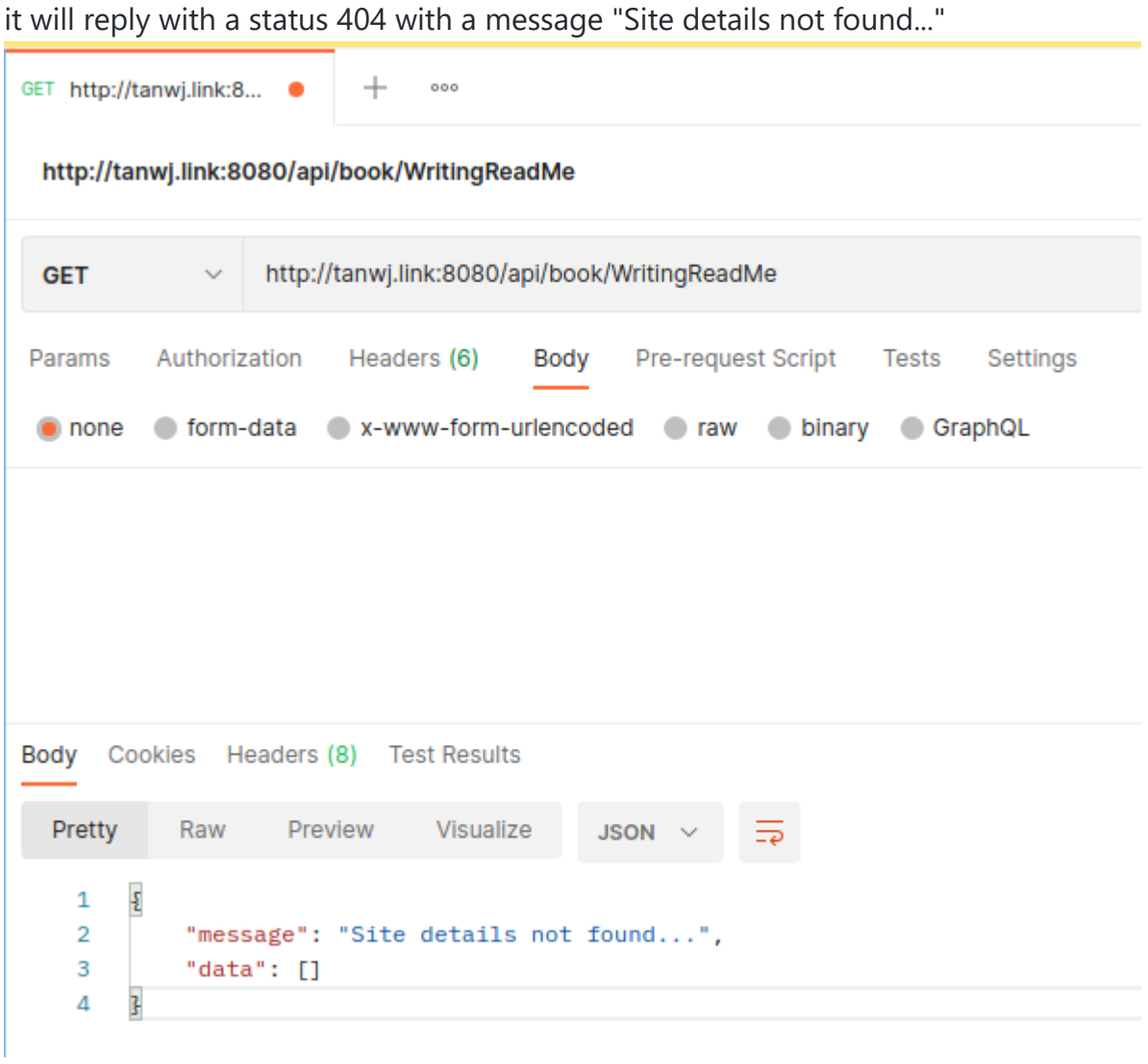
In this system, website names are the "primary key". In this example, we try to insert another `nusmail.com` website, but

since the website already exist, it will reply with a message, "Site name already exist. Use another name for this site."



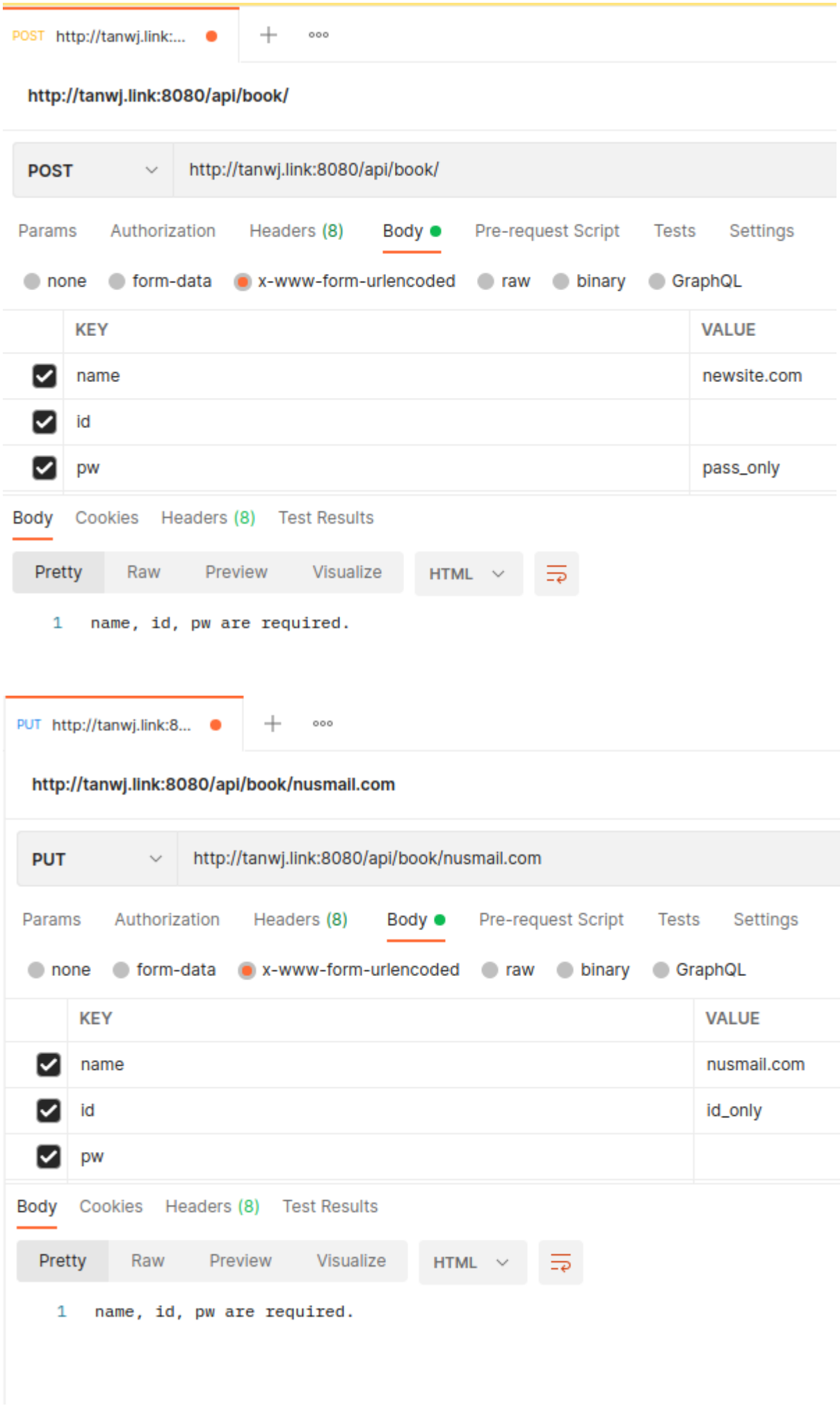
2. Trying to access unavailable website.

In the `/DELETE to delete a website` section, we had deleted `WritingReadMe` website, so if we were to access it again, it will reply with a status 404 with a message "Site details not found..."



3. Trying to insert / update without full details.

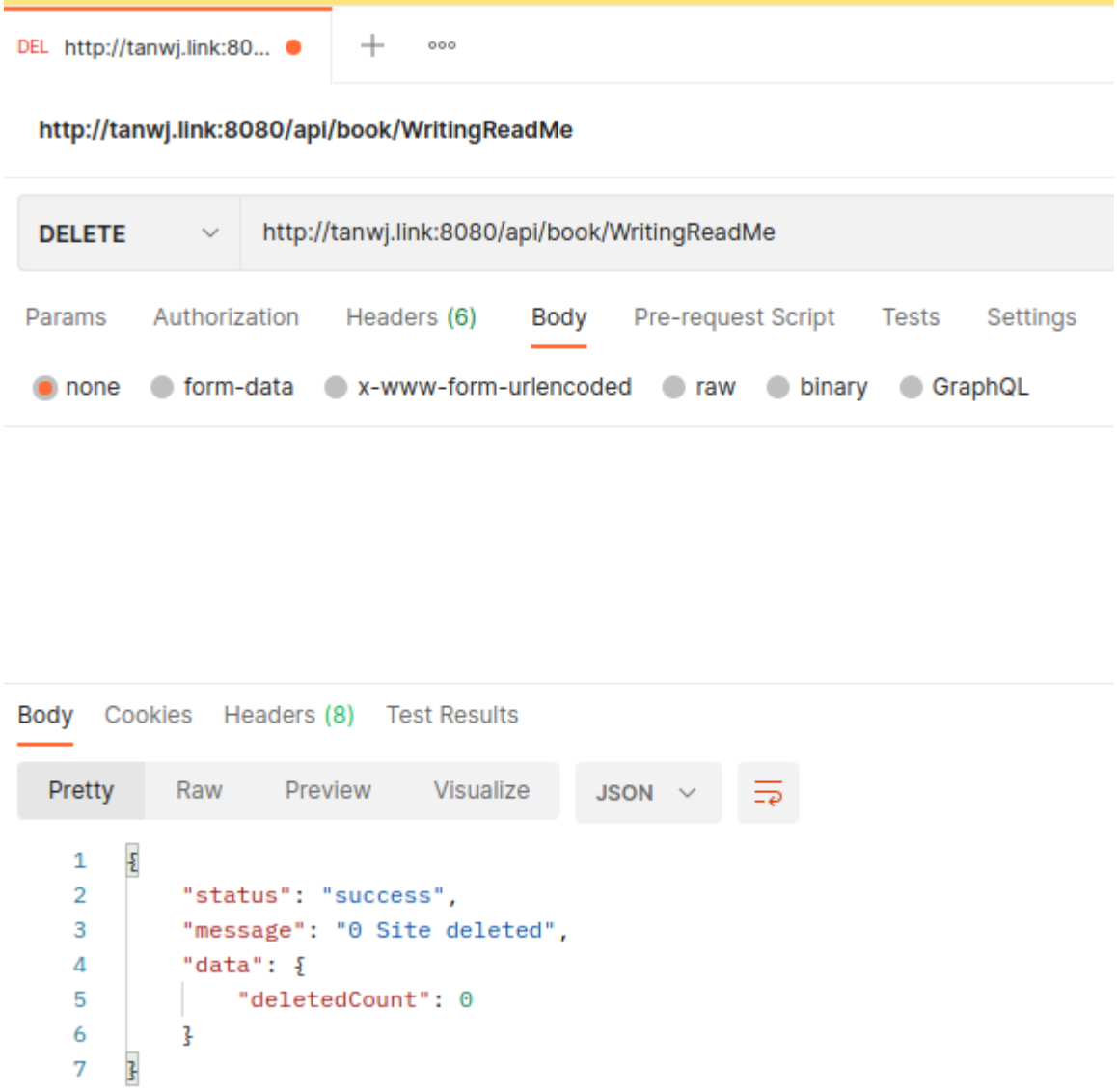
In this system, we require website name, id and password to be filled. If there are empty fields, it will return a error message "name, id, pw are required."



4. Trying to delete non-existent website.

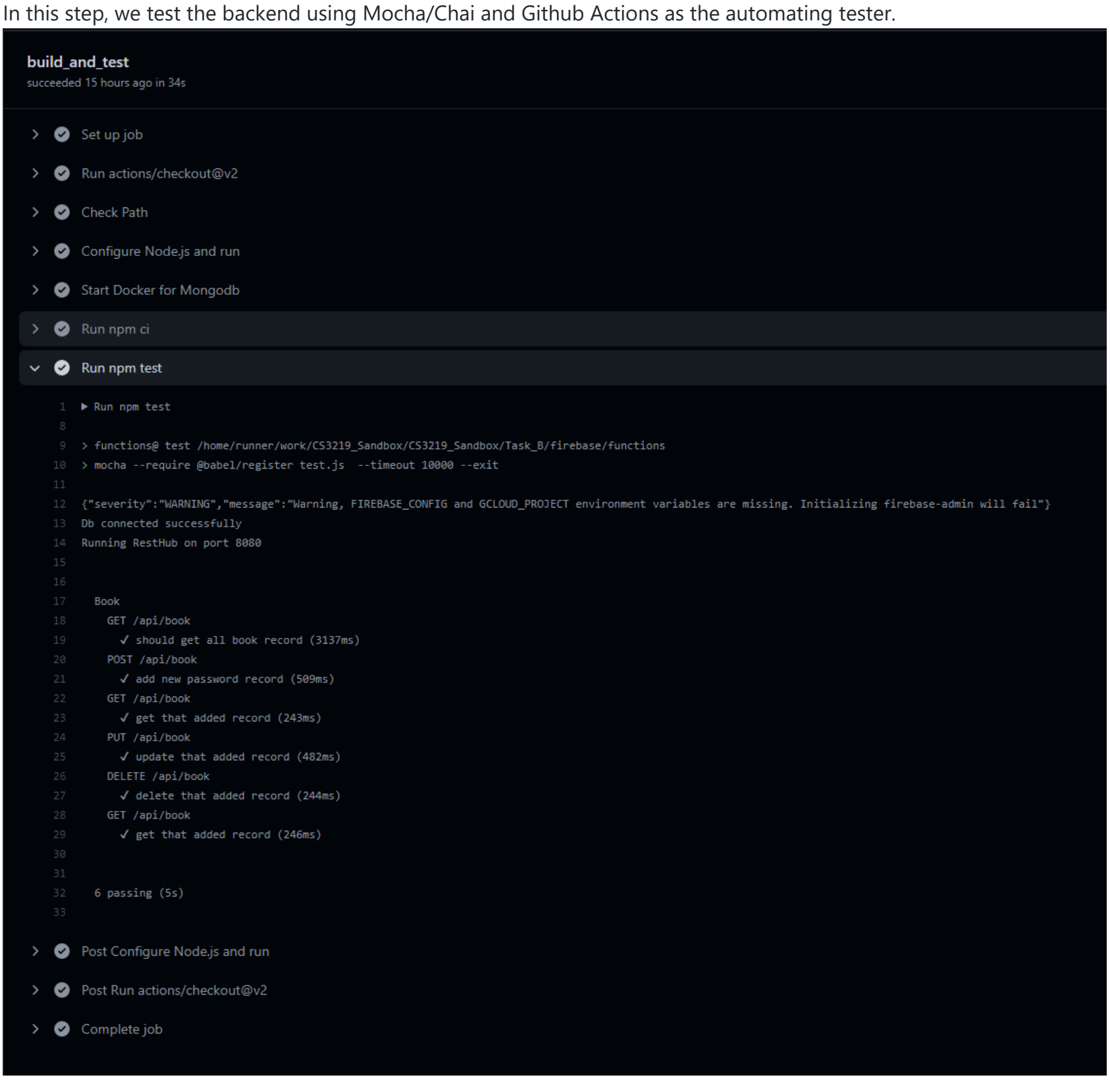
Since website name are unique, there are only 1 or 0 entry with such website name. As such, when trying to delete a non-existent website, it will return success with deleteCount: 0. Note that this message is different from the `/DELETE to`

`delete a website` section.



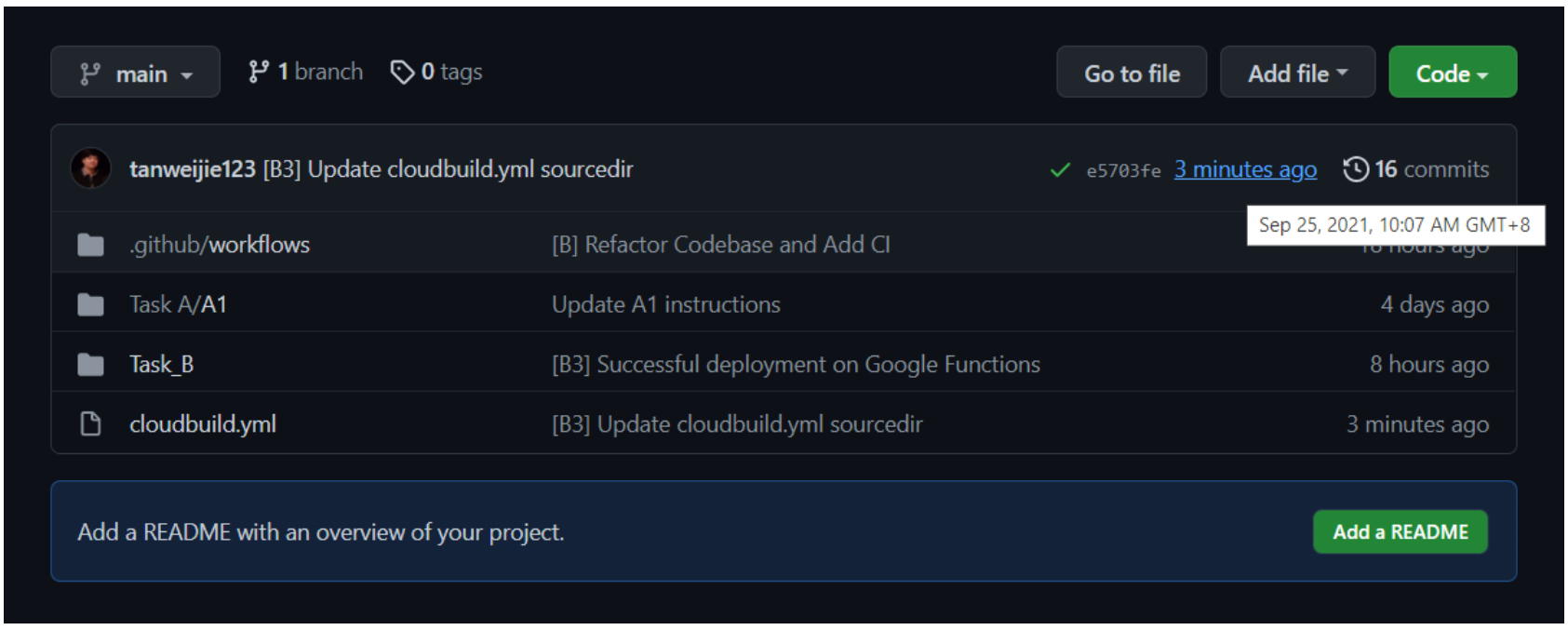
Task B2: Testing using CI

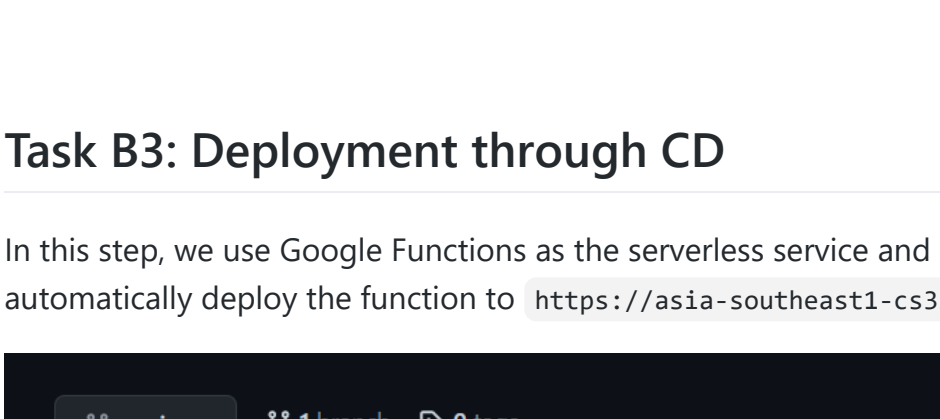
In this step, we test the backend using Mocha/Chai and Github Actions as the automating tester.

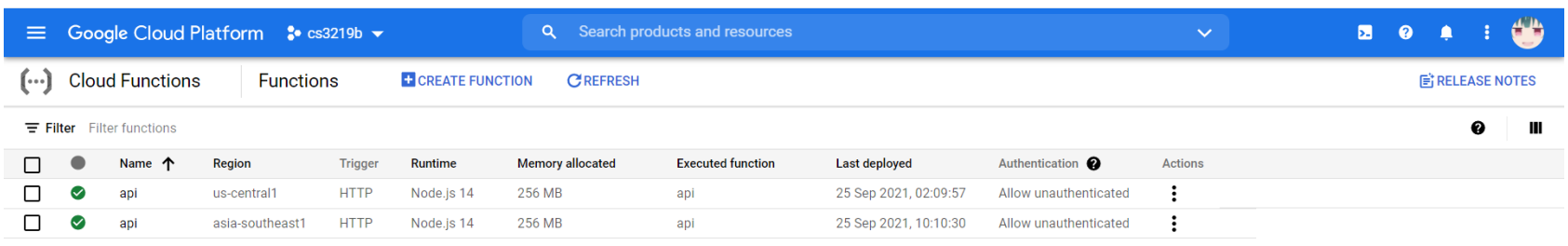


Task B3: Deployment through CD

In this step, we use Google Functions as the serverless service and autodeploy our functions when commit. It will automatically deploy the function to `https://asia-southeast1-cs3219b.cloudfunctions.net/api/api/book`

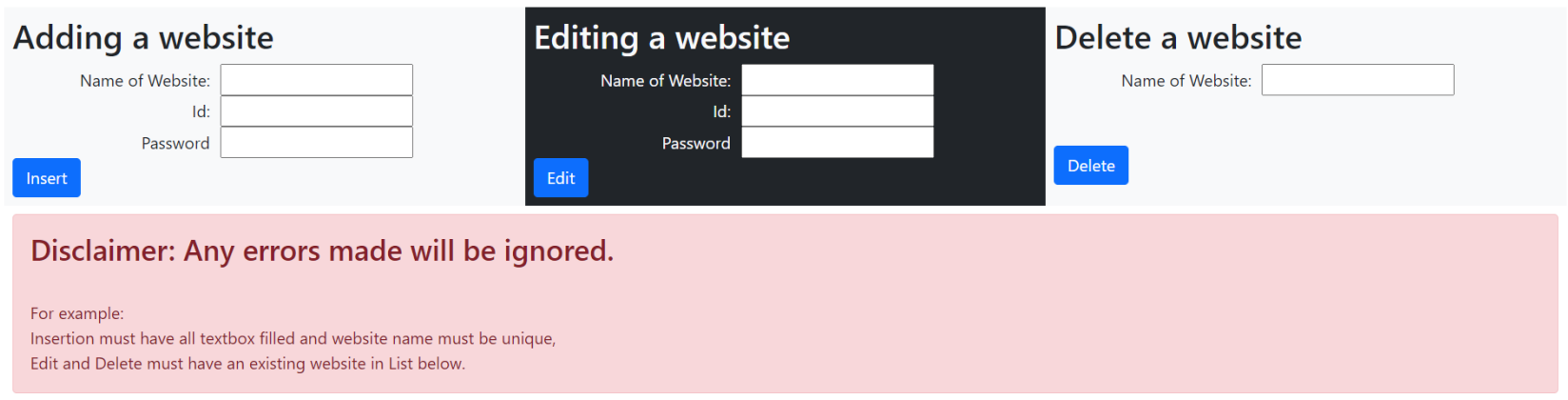






Task B4: Frontend

In this step, we use React with Bootstrap to create a simple frontend to handle the request.

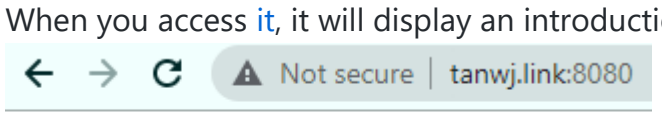


Instructions on how to run

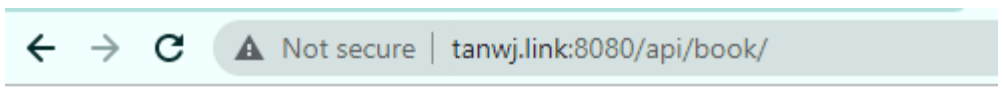
In this section, we will go through through how to run the application given that you have downloaded from the repo link

Task B1

1. Run `npm install` to download the dependencies
2. Run `node index2` to start the server. *Note: index is used for Google Functions (serverless deployment), and index2 is used for local deployment.*
3. When you access it, it will display an introduction message, and the main backend is at `/api/book`.



Index2 - Using Server Port 8080




```
{
    "status": "success",
    "message": "Book retrieved successfully",
    "data": [
        {
            "_id": "614c9eca6d5ed7b8b83d2f89",
            "create_date": "2021-09-23T15:35:38.011Z",
            "name": "nusmail.com",
            "id": "e0415826@u.nus.edu",
            "pw": "BestPassw0rd",
            "__v": 0
        },
        {
            "_id": "614ea21a1189c357d45b277a",
            "create_date": "2021-09-25T04:14:18.902Z",
            "name": "google.com",
            "id": "tanwj",
            "pw": "GoodPassworD",
            "__v": 0
        },
        {
            "_id": "614ea2401189c357d45b277f",
            "create_date": "2021-09-25T04:14:56.593Z",
            "name": "google2.com",
            "id": "tanwj2",
            "pw": "GoodPassworD",
            "__v": 0
        },
        {
            "_id": "6156e3b71115c406f26e4ef3",
            "create_date": "2021-10-01T10:32:23.147Z",
            "name": "tester",
            "id": "bb",
            "pw": "cc",
            "__v": 0
        },
        {
            "_id": "6156f85a1115c406f26e4f28",
            "create_date": "2021-10-01T12:00:26.686Z",
            "name": "test1",
            "id": "aa",
            "pw": "bb",
            "__v": 0
        },
        {
            "_id": "6157057e1115c406f26e4f4c",
            "create_date": "2021-10-01T12:56:30.594Z",
            "name": "FrontEndTester.sku.com.sg",
            "id": "a0202017b",
            "pw": "passw0rd~!@#",
            "__v": 0
        }
    ]
}
```


4. For demo of GET, POST, PUT, DELETE functions using Postman, refer to the overview section here.

Task B2

1. To run the test locally, run `npm test` in the working directory. You should see this screen.

```
tanwj@tanwj-VirtualBox:~/Desktop/Git/CS3219_Sandbox/Task_B/firebase/functions$ npm test

> functions@ test /home/tanwj/Desktop/Git/CS3219_Sandbox/Task_B/firebase/functions
> mocha --require @babel/register test.js  --timeout 10000 --exit

{"severity":"WARNING","message":"Warning, FIREBASE_CONFIG and GCLOUD_PROJECT environmen
t variables are missing. Initializing firebase-admin will fail"}
Db connected successfully
Running RestHub on port 8080


  Book
    GET /api/book
      ✔ should get all book record (197ms)
    POST /api/book
      ✔ add new password record (96ms)
    GET /api/book
      ✔ get that added record
    PUT /api/book
      ✔ update that added record
    DELETE /api/book
      ✔ delete that added record
    GET /api/book
      ✔ get that added record


  6 passing (376ms)

tanwj@tanwj-VirtualBox:~/Desktop/Git/CS3219_Sandbox/Task_B/firebase/functions$
```

2. If you insert this `.yml` file into the `.github/workflows/` directory, Github Actions will automate the testing for you. The `.yml` used can be found here.

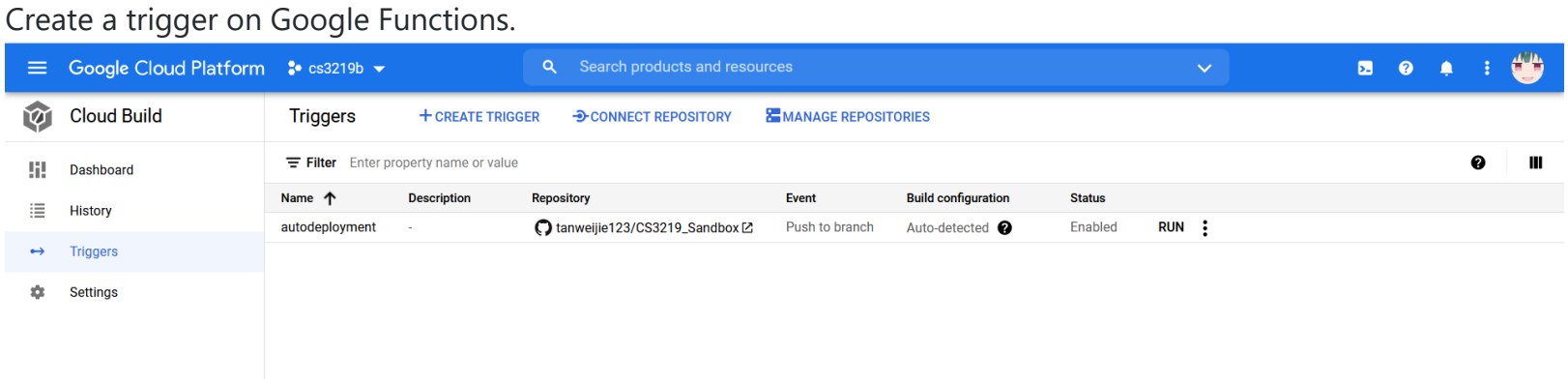
35 lines (26 sloc) | 742 Bytes

```yaml
name: b_testing

on:
  push:
    branches: [ main ]
  pull_request:
    branches: [ main ]

env:
  working-directory: ${{github.workspace}}/Task_B/firebase/functions

jobs:
  build_and_test:
    runs-on: ubuntu-latest

    steps:
    - uses: actions/checkout@v2

    - name: Check Path
      run: echo ${{env.working-directory}}

    - name: Configure Node.js and run
      uses: actions/setup-node@v2

    - name: Start Docker for Mongodb
      run: docker run -d -p 27017:27017 mongo

    - run: npm ci
      working-directory:  ${{env.working-directory}}/

    - run: npm test
      working-directory:  ${{env.working-directory}}/
      env:
        MONGODB_HOST: mongo
        MONGODB_PORT: 27017
```

Task B3

For this step, it is simple to setup a continuous deployment to Google Functions.

1. Create a trigger on Google Functions.



2. Add the `.yml` file into your repo root so it will automatically trigger the deployment. The `.yml` used can be found here.

11 lines (11 sloc) | 223 Bytes

```yaml
steps:
- name: 'gcr.io/google.com/cloudsdktool/cloud-sdk'
  args:
  - gcloud
  - functions
  - deploy
  - api
  - --region=asia-southeast1
  - --source=./Task_B/firebase/functions/
  - --trigger-http
  - --runtime=nodejs14
```

For both steps above, you can refer to the one-time setup instructions here.

Task B4

1. Run `npm install` to download the dependencies
2. Run `npm start` to start the webpage.

Conclusion

You can test the project live using the links given in the Project Details.

Resources

Resources that are used and referred to during the creation of this project.

Desc	Link
Guide on how to create a simple REST API with express	https://medium.com/@dinyangetoh/how-to-build-simple-restful-api-with-nodejs-expressjs-and-mongodb-99348012925d
Google Function's Continuous Deployment Guide	https://cloud.google.com/build/docs/deploying-builds/deploy-functions
Creating a basic React App	https://www.datarmatics.com/reactjs/
Video on React with REST API	https://youtu.be/qXvFaEkkZH8
Making API calls in React App	https://www.kindsonthegenius.com/how-to-make-rest-api-calls-in-react-get-post-put-delete/
React with Bootstrap	https://react-bootstrap.github.io/getting-started/introduction/