

University of Vavuniya
Second Examination in Information Technology
Second Semester
IT 2234 Practical for Web Service and Server Technologies
Answer All Questions

Time Allowed: Three hours

You have planned to design a certificate verification system to authenticate certificates digitally, by replacing manual processes with digital ones. Nodejs and MongoDB were selected as the primary development tools. Initially, you have decided to build a REST web service as backed and later develop UI for web and mobile apps. The basic entities involved in the project are described in the below paragraph.

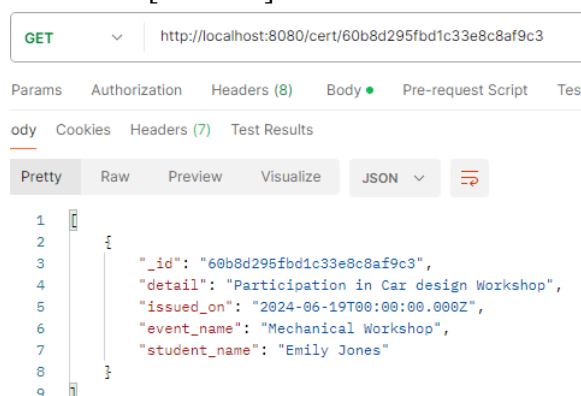
A Student has attributes like registration number, degree, faculty, first name, and last name. Each student, identified by their registration number, can participate in multiple events and receive certificates for their participation. An Event is defined by attributes such as id, date, description, name, and organizer. Each event can have many students participating and can issue multiple certificates to these students. A Certificate records the participation or achievements of students in events. It has attributes like id, detail, and issued date. Each certificate links a specific student to a specific event.

Note:

A sample data files are available in the data folder. Use the given project directory to answer the questions, and capture a screenshot of each question's output.

The system requirements are divided and assigned to the team to speed up the development. The following tasks are given to you. Complete the task with efficient coding practices, and return proper JSON responses.

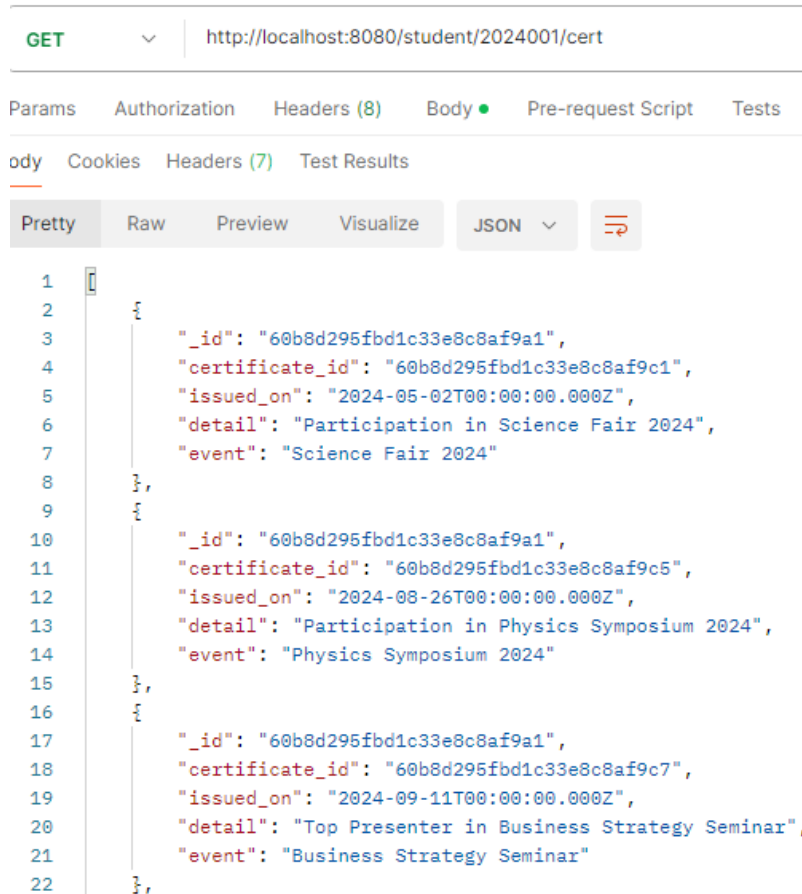
1. The initial task is "Model Building." Utilize the entity description to construct appropriate models and transfer them to a database [10 mark]
2. List all available students, events, and certificates. [10 mark]
3. Get the certificate for the specified ID, including the event name and the student's full name. [20 mark]



The screenshot shows a REST client interface with a GET request to `http://localhost:8080/cert/60b8d295fbd1c33e8c8af9c3`. The response is a JSON object with the following structure:

```
1 {
2   "_id": "60b8d295fbd1c33e8c8af9c3",
3   "detail": "Participation in Car design Workshop",
4   "issued_on": "2024-06-19T00:00:00.000Z",
5   "event_name": "Mechanical Workshop",
6   "student_name": "Emily Jones"
7 }
8
9
```

4. Show event name and certificate details for a student's certificates based on their registration number. [20 mark]

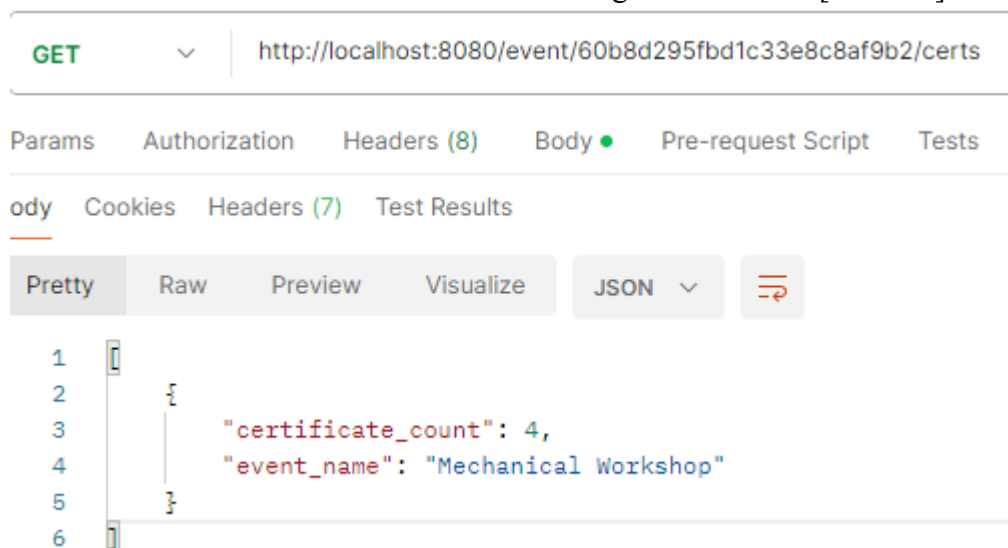


```
GET http://localhost:8080/student/2024001/cert

Params Authorization Headers (8) Body ● Pre-request Script Tests
ody Cookies Headers (7) Test Results
Pretty Raw Preview Visualize JSON ↕

1 [
2   {
3     "_id": "60b8d295fbd1c33e8c8af9a1",
4     "certificate_id": "60b8d295fbd1c33e8c8af9c1",
5     "issued_on": "2024-05-02T00:00:00.000Z",
6     "detail": "Participation in Science Fair 2024",
7     "event": "Science Fair 2024"
8   },
9   {
10    "_id": "60b8d295fbd1c33e8c8af9a1",
11    "certificate_id": "60b8d295fbd1c33e8c8af9c5",
12    "issued_on": "2024-08-26T00:00:00.000Z",
13    "detail": "Participation in Physics Symposium 2024",
14    "event": "Physics Symposium 2024"
15  },
16  {
17    "_id": "60b8d295fbd1c33e8c8af9a1",
18    "certificate_id": "60b8d295fbd1c33e8c8af9c7",
19    "issued_on": "2024-09-11T00:00:00.000Z",
20    "detail": "Top Presenter in Business Strategy Seminar",
21    "event": "Business Strategy Seminar"
22  },
23 ]
```

5. Count the number of certificates issued for the given event ID. [20 mark]



```
GET http://localhost:8080/event/60b8d295fbd1c33e8c8af9b2/certs

Params Authorization Headers (8) Body ● Pre-request Script Tests
ody Cookies Headers (7) Test Results
Pretty Raw Preview Visualize JSON ↕

1 [
2   {
3     "certificate_count": 4,
4     "event_name": "Mechanical Workshop"
5   }
6 ]
```

6. Ensure that both student ID and event ID are already present in the system before adding a certificate, and implement proper validations. Once the validation process confirms the existence of both the student ID and event ID in the system, proceed with adding the certificate. [20 mark]

POST

http://localhost:8080/cert

ParamsAuthorizationHeaders (8)Body●Pre-request Script

● none

● form-data

● x-www-form-urlencoded

● raw

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bodyCookiesHeaders (7)Test Results

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http://localhost:8080/cert

ParamsAuthorizationHeaders (8)Body●Pre-request Script

● none

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● raw

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