

# Week Six Assignment Problem Statement

1.0.0 OAS3

openapi week6.yaml

In this assignment, you have to create a RESTful API, database models using Flask-RESTful and flask-SQLAlchemy. We list below instructions to be followed in preparing and submitting the solution.

# **General instructions:**

- 1. Submit a single .zip file containing all your submission files and folders, the name of which should be "roll number.zip". E.g.: 21f1000000.zip
- 2. The folder structure inside the zip file should be as follows:
  - I. The Python program must be written inside a file named "app.py". This file must reside inside the root folder.
  - II. The database file named "api\_database.sqlite3". You are not required to submit this database file with your submission.
- 3. You should not keep any code inside the scope of the condition " if \_\_name\_\_ == '\_\_main\_\_' " except run() call.
- 4. Allowed Python packages: flask, flask-sqlalchemy, flask-restful, and any standard Python3 package.
- 5. The database URI must be the same as: app.config['SQLALCHEMY\_DATABASE\_URI'] = 'sqlite:///api\_database.sqlite3'.
- 6. You should not use create\_all() call in your program to create a database.

### **Course Table Schema**

Column Name	Column Type	Constraints	
course_id	Integer	Primary Key, Auto Increment	
course_name	String	Not Null	
course_code	String	Unique, Not Null	
course_description	String		

# **Student Table Schema**

Column Name	Column Type	Constraints
student_id	Integer	Primary Key, Auto Increment
roll_number	String	Unique, Not Null
first_name	String	Not Null
last_name	String	

#### **Enrollment Table Schema**

Column Name	Column Type	Constraints
enrollment_id	Integer	Primary Key, Auto Increment

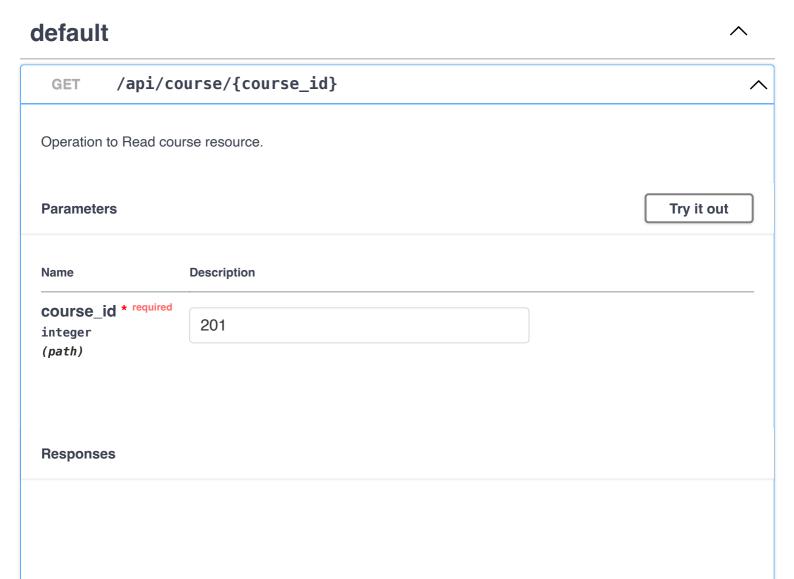
Column Name	Column Type	Constraints
student_id	Integer	Foreign Key (student.student_id), Not Null
course_id	Integer	Foreign Key (course.course_id), Not Null

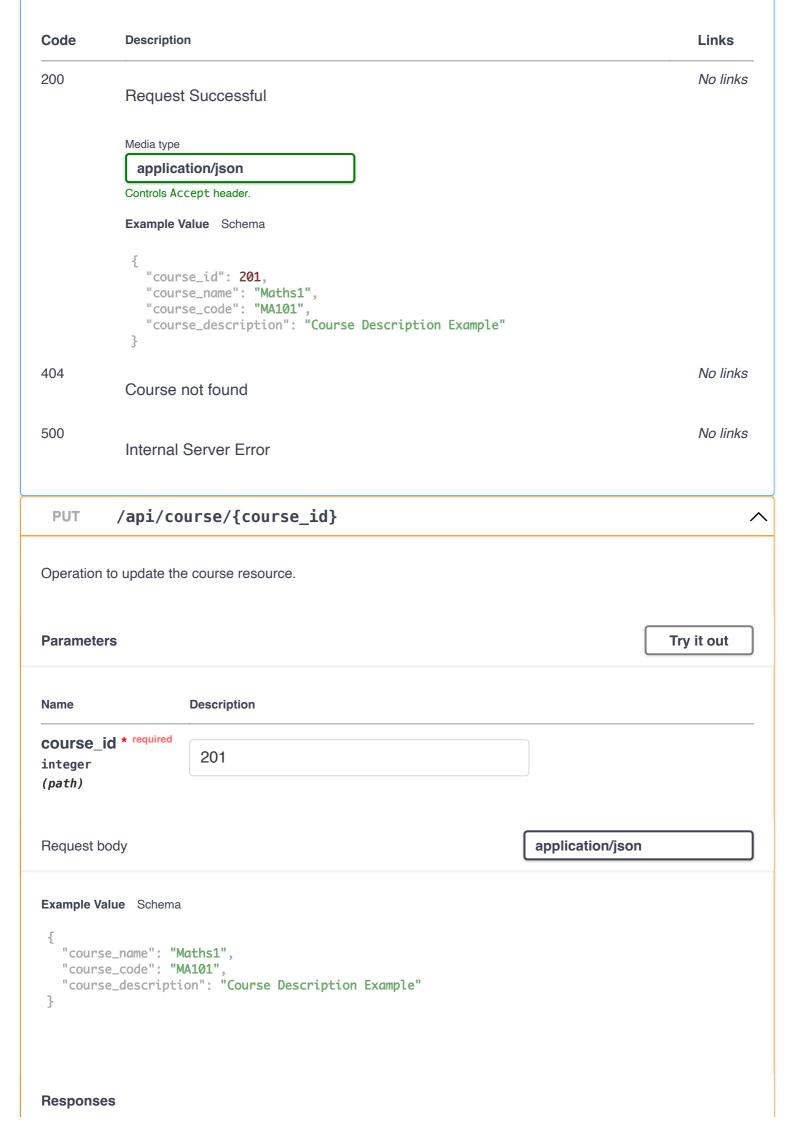
# **Error Codes**

Resource	Error Code	Message
Course	COURSE001	Course Name is required
Course	COURSE002	Course Code is required
Student	STUDENT001	Roll Number required
Student	STUDENT002	First Name is required
Enrollment	ENROLLMENT001	Course does not exist
Enrollment	ENROLLMENT002	Student does not exist.

#### Servers

http://127.0.0.1:5000/





```
Code
            Description
                                                                                                 Links
200
                                                                                                 No links
            Successfuly updated
            Media type
              application/json
            Controls Accept header.
            Example Value Schema
               "course_id": 201,
               "course_name": "Maths1",
               "course_code": "MA101",
               "course_description": "Course Description Example"
             7
                                                                                                 No links
400
            Bad request
            Media type
              application/json
            Example Value Schema
               "error_code": "string",
               "error_message": "string"
404
                                                                                                 No links
            Course not found
                                                                                                 No links
500
            Internal Server Error
           /api/course/{course_id}
DELETE
Operation to delete the course resource
                                                                                             Try it out
Parameters
                      Description
Name
course_id * required
                       201
integer
(path)
```

# Responses

Code	Description	Links
200	Successfully Deleted	No links
404	Course not found	No links
500	Intenal Server Error	No links

# POST /api/course

^

Operation to create the course resource

# **Parameters**

Try it out

No parameters

Request body

application/json

### Example Value Schema

```
{
  "course_name": "Maths1",
  "course_code": "MA101",
  "course_description": "Course Description Example"
}
```

### Responses

Code	Description	Links
201	Successfully Created	No links

Media type

application/json

Controls Accept header.

Example Value Schema

"course\_id": **201**,

```
Code
             Description
                                                                                                     Links
                "course_name": "Maths1",
                "course_code": "MA101",
"course_description": "Course Description Example"
                                                                                                     No links
400
             Bad request
             Media type
              application/json
             Example Value Schema
                "error_code": "string",
                "error_message": "string"
                                                                                                     No links
409
             course_code already exist
                                                                                                     No links
500
             Internal Server Error
           /api/student/{student_id}
 GET
Operation to read student resource
Parameters
                                                                                                 Try it out
Name
                       Description
student_id * required
                         201
integer
(path)
Responses
             Description
                                                                                                     Links
Code
200
                                                                                                     No links
             Request Successful
             Media type
              application/json
             Controls Accept header.
```

```
Code
            Description
                                                                                               Links
            Example Value Schema
               "student_id": 101,
               "first_name": "Narendra",
               "last_name": "Mishra",
               "roll_number": "MA19M010"
             }
404
                                                                                               No links
            Student not found
500
                                                                                                No links
            Internal server error
           /api/student/{student_id}
 PUT
Operation to update the student resource
                                                                                           Try it out
Parameters
Name
                      Description
student_id * required
                        101
integer
(path)
Request body
                                                                        application/json
Example Value Schema
   "first_name": "Narendra",
   "last_name": "Mishra",
   "roll_number": "MA19M010"
}
Responses
                                                                                               Links
Code
            Description
200
                                                                                                No links
            Successfully updated
            Media type
```

```
application/json
            Controls Accept header.
            Example Value Schema
               "student_id": 101,
               "first_name": "Narendra",
               "last_name": "Mishra",
               "roll_number": "MA19M010"
             7
400
                                                                                                No links
            Bad request
            Media type
              application/json
            Example Value Schema
               "error_code": "string",
               "error_message": "string"
404
                                                                                                No links
            Student not found
                                                                                                No links
500
            Internal Server Error
           /api/student/{student_id}
DELETE
Operation to delete the course resource
Parameters
                                                                                            Try it out
Name
                      Description
student_id * required
                        101
integer
(path)
Responses
```

Links

Code

**Description** 

Code	Description	Links
200	Successfully Deleted	No links
404	Student not found	No links
500	Internal Server Error	No links
POST	/api/student	^

Operation to create the student resource

### **Parameters**

Try it out

No parameters

Request body

application/json

### Example Value Schema

```
"first_name": "Narendra",
"last_name": "Mishra",
"roll_number": "MA19M010"
```

### Responses

Code	Description	Links
201		No links

Successfully Created

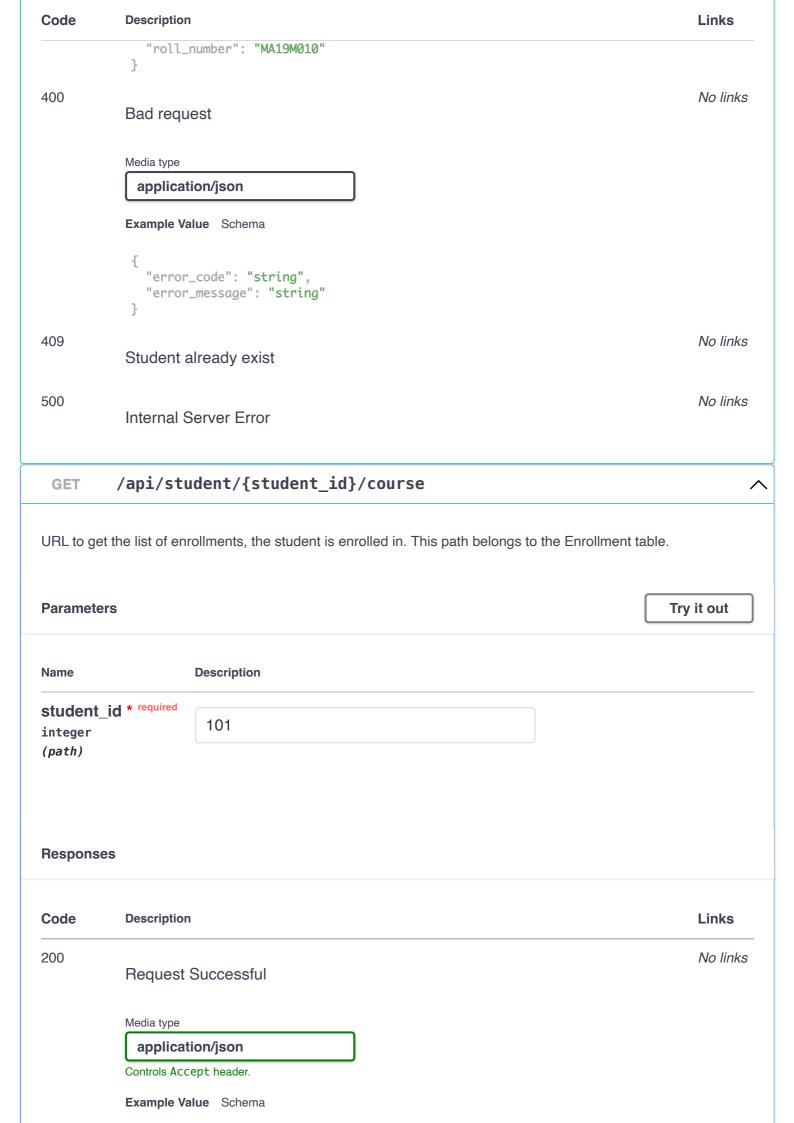
Media type

application/json

Controls Accept header.

Example Value Schema

```
"student_id": 101,
"first_name": "Narendra",
"last_name": "Mishra",
```



```
Code
            Description
                 "enrollment_id": 10,
                 "student_id": 101,
                 "course_id": 201
             ]
                                                                                                 No links
400
            Invalid Student Id
            Media type
              application/json
            Example Value Schema
               "error_code": "string",
               "error_message": "string"
404
                                                                                                 No links
            Student is not enrolled in any course
                                                                                                 No links
500
            Internal Server Error
           /api/student/{student_id}/course
 POST
Add student enrollment aka enroll the student to the course. This path belongs to the Enrollment table.
Parameters
                                                                                             Try it out
Name
                      Description
student_id * required
                        101
integer
(path)
                                                                         application/json
Request body
Example Value Schema
   "course_id": 12345
```

Links

Code	Description	Links
201	Enrollment successful	No links
	Media type	
	application/json	
	Controls Accept header.	
	Example Value Schema	
	<pre>[</pre>	
400	Bad request	No link
	Media type	
	application/json	
	Example Value Schema	
	{     "error_code": "string",     "error_message": "string" }	
104	Student not found	No link
500	Internal Server Error	No link
DELETE	<pre>/api/student/{student_id}/course /{course_id}</pre>	
JRL to del	ete enrollment of the student in the course. This path belongs to the Enrollme	ent table.
Parametei	's	Try it out

Name	Description	
<pre>course_id * required integer (path)</pre>	10	
(path)		

# Responses

Code	Description	Links
200	Successfully deleted	No links
400	Invalid Student Id or Course Id.	No links
	Media type	
	application/json	
	Example Value Schema	
	<pre>{    "error_code": "string",    "error_message": "string" }</pre>	
404	Enrollment for the student not found	No links
500	Internal Server Error	No links



