FSD - Learner's Academy Project

By

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FSD PROJECT - Learner's Academy – Shraddha Singh

Problem Statement:

Learner's Academy is a school that has an online management system. The system keeps track of its classes, subjects, students, and teachers. It has a back-office application, The administrator can:

- Set up a master list of all the subjects for all the classes
- Set up a master list of all the teachers
- Set up a master list of all the classes
- Assign classes for subjects from the master list
- Assign teachers to a class for a subject (A teacher can be assigned to different classes for different subjects)
- Get a master list of students (Each student must be assigned to a single class)
  There will be an option to view a Class Report which will show all the information about the class, such as the list of students, subjects, and teachers

The goal of the company is to deliver a high-end quality product as early as possible.

Sprints and the User Stories:

Sprint-1: (One week)

- **User Story-1** : As an Administrator, I want to have an option to create Students, so that i can set up a master list of Students
- **User Story-2 :** As an Administrator, I want to have an option to create Subjects, so that i can set up a master list of Subjects
- **User Story-3** : As an Administrator, I want to have an option to create Classes, so that i can set up a master list of Classes
- **User Story-4** : As an Administrator, I want to have an option to create Teachers, so that i can set up a master list of Teachers
- **User Story-5** : As an Administrator, I want to have an option to view Students, so that i can view a Student by Id and also a list of Students.
- **User Story-6 :** As an Administrator, I want to have an option to view Subjects, so that i can view a Subject by Id and also a list of Subjects.
- **User Story-7** : As an Administrator, I want to have an option to view Classes, so that i can view a Class by Id and also a list of Classes.
- **User Story-8** : As an Administrator, I want to have an option to view Teachers, so that i can view a Teacher by Id and also a list of Teacher.
- **User Story-9** : As an Administrator, I want to have an option to update Students, so that i can modify a Student by Id.

- **User Story-10** : As an Administrator, I want to have an option to update Subjects, so that i can modify a Subject by Id.

- **User Story-11** : As an Administrator, I want to have an option to update Classes, so that i can modify a Class by Id.

- **User Story-12** : As an Administrator, I want to have an option to update Teachers, so that i can modify a Teacher by Id.

Sprint-2:(one week)

- **User Story-1** : As an Administrator, I want to have an option to delete Students, so that i can remove Students whenever they are off-boarded.

- **User Story-2** : As an Administrator, I want to have an option to delete Subjects, so that i can remove Subjects whenever they are not required.

- **User Story-3** : As an Administrator, I want to have an option to delete Classes, so that i can remove Classes whenever they are not required.

- **User Story-4** : As an Administrator, I want to have an option to delete Teachers, so that i can remove Teachers whenever they are off-boarded.

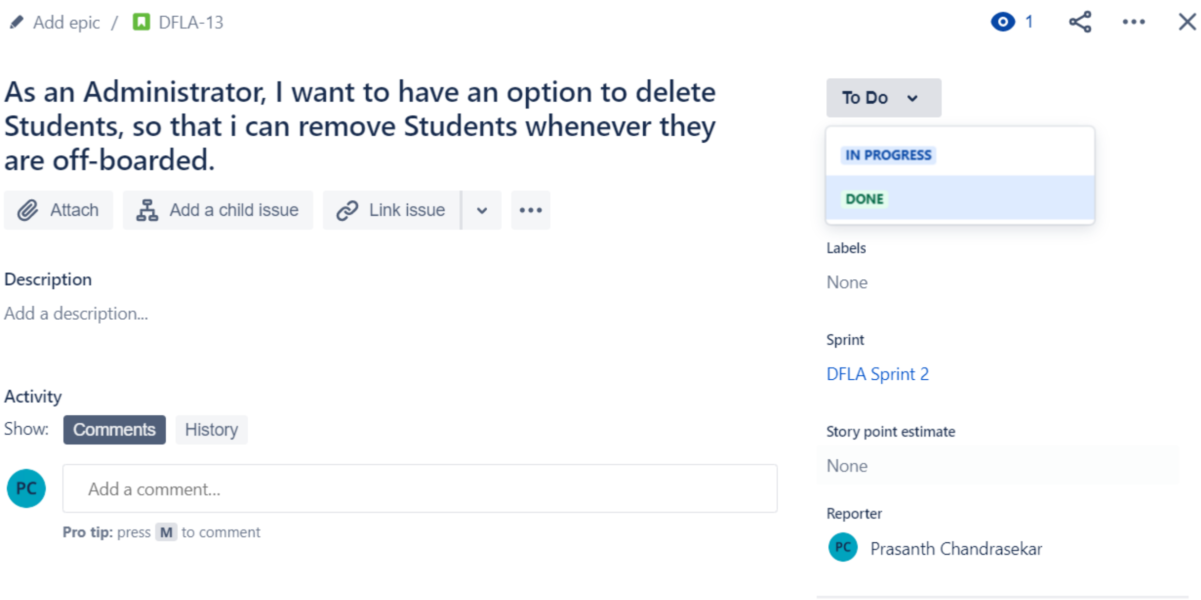
- **User Story-5** : As an Administrator, I want to have an option to assign Students to Classes, so that i can assign Students to Classes whenever the students are promoted or on-boarded.

- **User Story-6** : As an Administrator, I want to have an option to assign Subjects to Classes, so that i can have subjects assigned to Class.

- **User Story-7** : As an Administrator, I want to have an option to assign Subjects to Teachers, so that i can assign Teachers to Subjects.

- **User Story-8** : As an Administrator, I want to have an option to assign Teachers to Classes, so that i can assign Teachers to Classes.:

Jira User Story – Agile Scrum :



As an Administrator, I want to have an option to delete Students, so that i can remove Students whenever they are off-boarded.

Description
Add a description...

Activity
Show: Comments History

PC Add a comment...

Pro tip: press M to comment

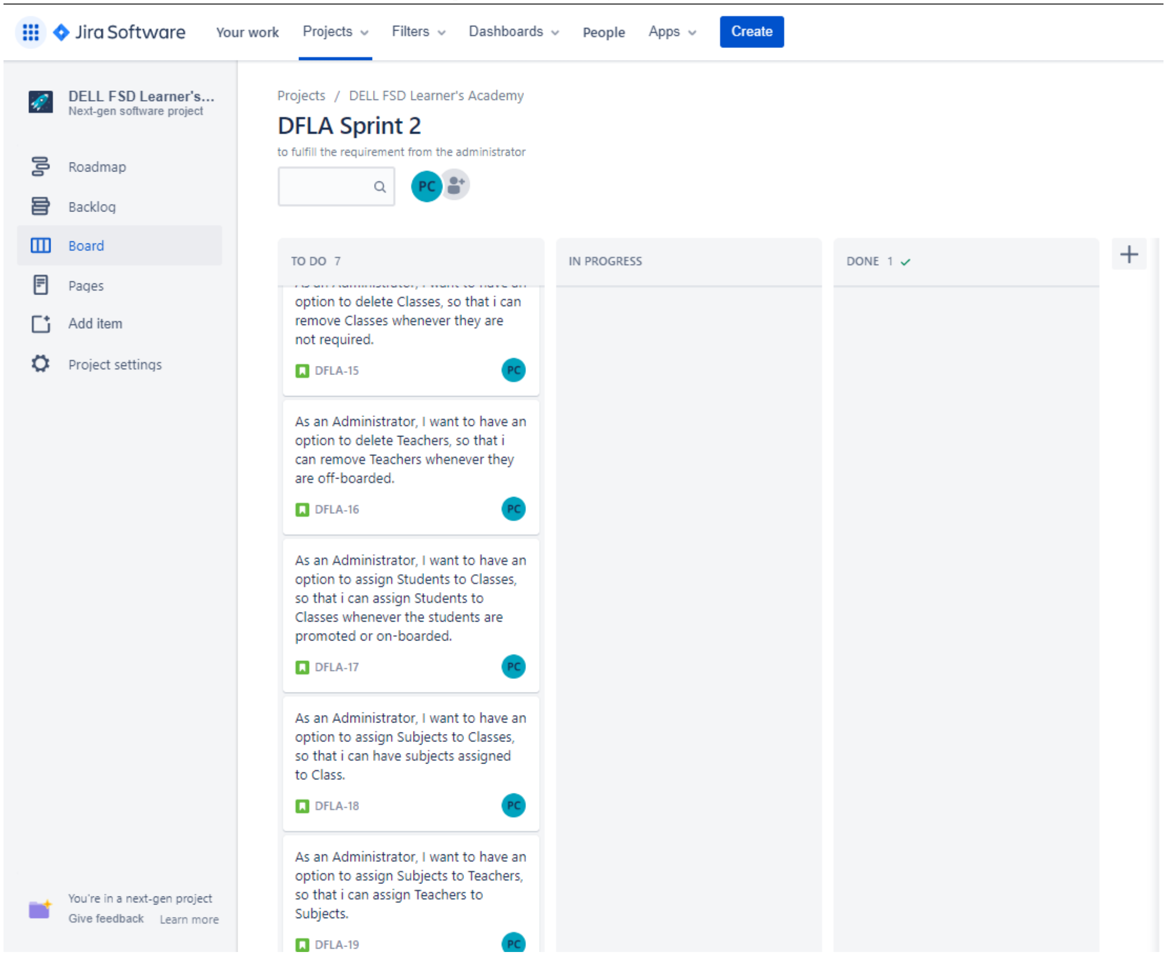
Labels
None

Sprint
DFLA Sprint 2

Story point estimate
None

Reporter
PC Prasanth Chandrasekar

Jira Sprint– Agile Scrum :



Projects / DELL FSD Learner's Academy

DFLA Sprint 2

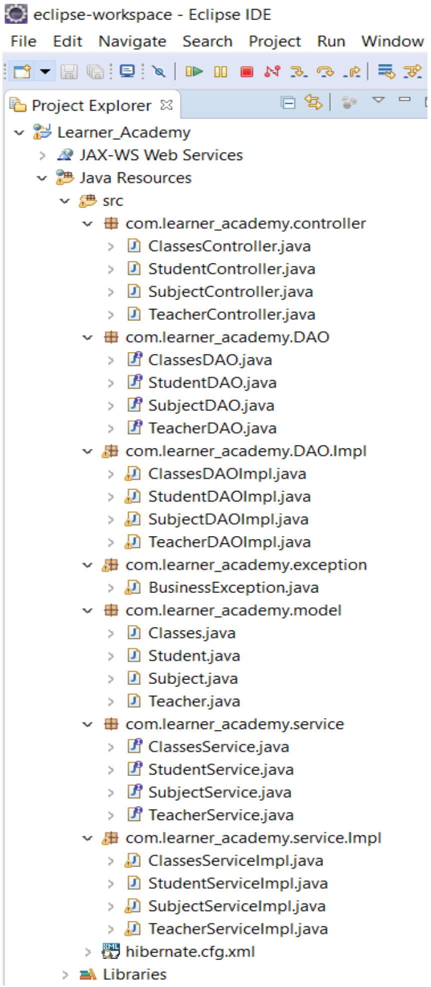
to fulfill the requirement from the administrator

TO DO 7	IN PROGRESS	DONE 1 ✓
option to delete Classes, so that i can remove Classes whenever they are not required. DFLA-15 PC		
As an Administrator, I want to have an option to delete Teachers, so that i can remove Teachers whenever they are off-boarded. DFLA-16 PC		
As an Administrator, I want to have an option to assign Students to Classes, so that i can assign Students to Classes whenever the students are promoted or on-boarded. DFLA-17 PC		
As an Administrator, I want to have an option to assign Subjects to Classes, so that i can have subjects assigned to Class. DFLA-18 PC		
As an Administrator, I want to have an option to assign Subjects to Teachers, so that i can assign Teachers to Subjects. DFLA-19 PC		

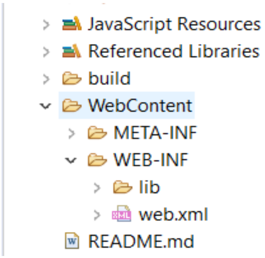
Tools used in the Project:

Programming Language and related	***Java, Hibernate, Jersey***
IDE	***Eclipse***
SQL	***MySQL***
Version Control System	***Git & GitHub***
Software Development Methodology	***Agile - Scrum - Jira***
API Client	***POSTMAN***

Hierarchy of codes developed:

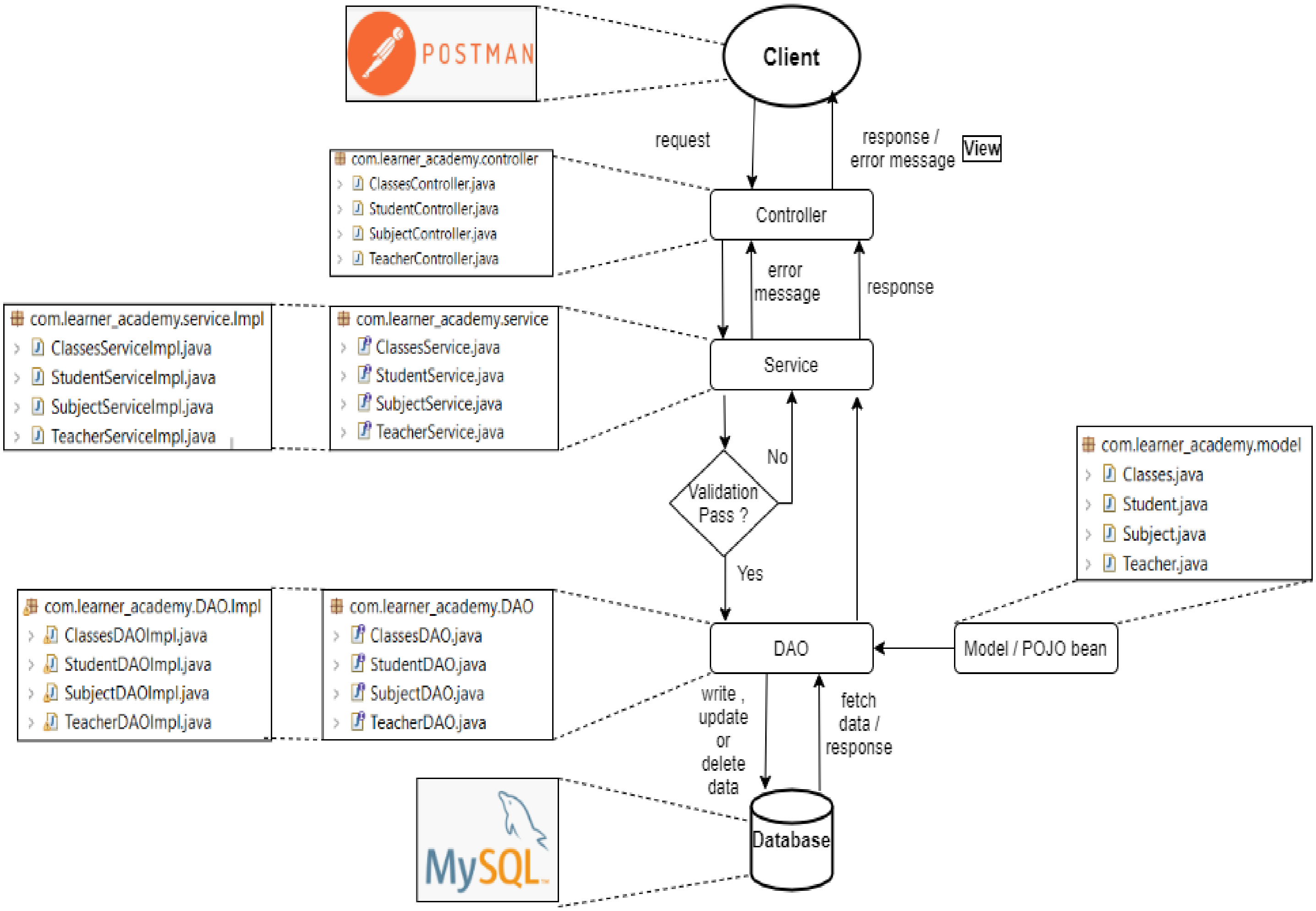

eclipse-workspace - Eclipse IDE
File Edit Navigate Search Project Run Window
Project Explorer

```
Learner_Academy
  JAX-WS Web Services
  Java Resources
    src
      com.learner_academy.controller
        ClassesController.java
        StudentController.java
        SubjectController.java
        TeacherController.java
      com.learner_academy.DAO
        ClassesDAO.java
        StudentDAO.java
        SubjectDAO.java
        TeacherDAO.java
      com.learner_academy.DAO.Impl
        ClassesDAOImpl.java
        StudentDAOImpl.java
        SubjectDAOImpl.java
        TeacherDAOImpl.java
      com.learner_academy.exception
        BusinessException.java
      com.learner_academy.model
        Classes.java
        Student.java
        Subject.java
        Teacher.java
      com.learner_academy.service
        ClassesService.java
        StudentService.java
        SubjectService.java
        TeacherService.java
      com.learner_academy.service.Impl
        ClassesServiceImpl.java
        StudentServiceImpl.java
        SubjectServiceImpl.java
        TeacherServiceImpl.java
      hibernate.cfg.xml
    Libraries
```



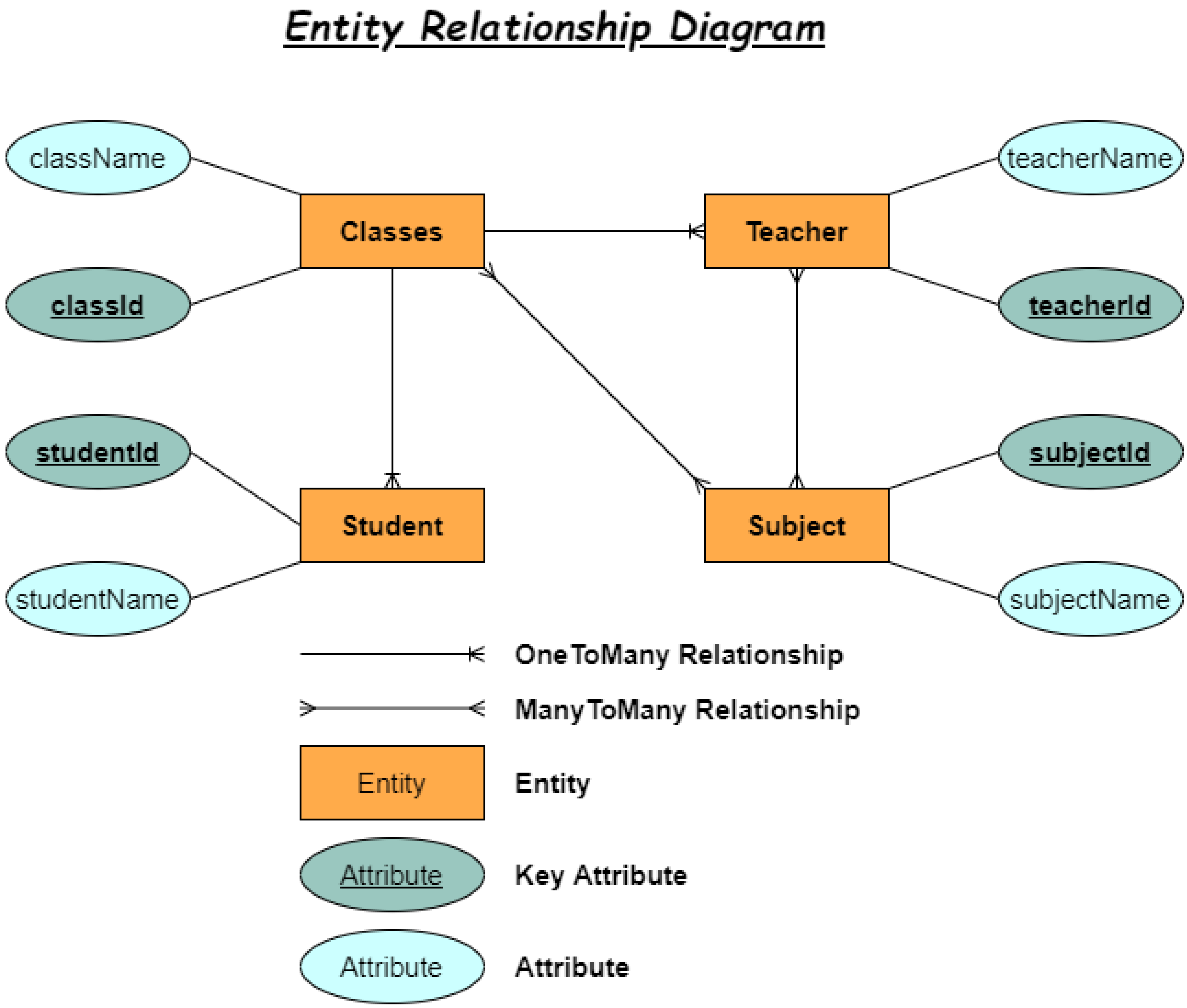
```
  JavaScript Resources
  Referenced Libraries
  build
  WebContent
    META-INF
    WEB-INF
      lib
      web.xml
  README.md
```

<u>Application Architecture and Flow Chart:</u>

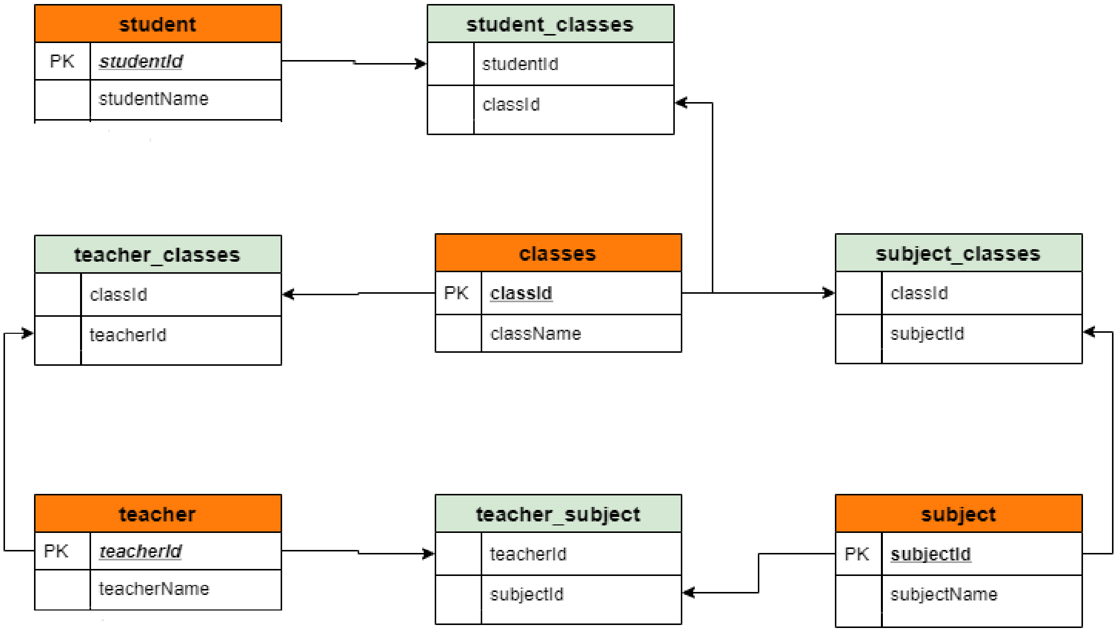


Exception Handling:

Some of the exceptions and errors are handled, so that the application won't close, exit or throw an exception.



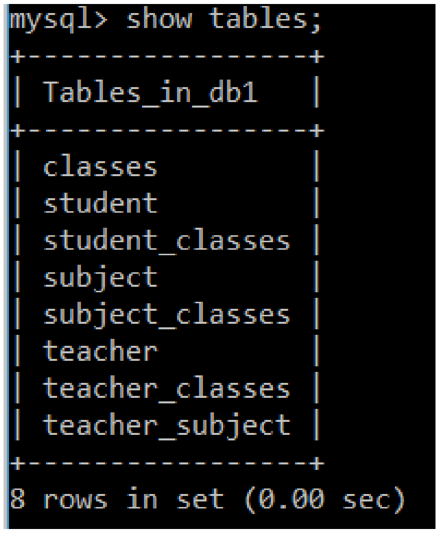
Entity and Tables:



Database Tables and Mapping

Legend	
🟧	*Entity & Table*
🟩	*Table*

Tables created in Database:



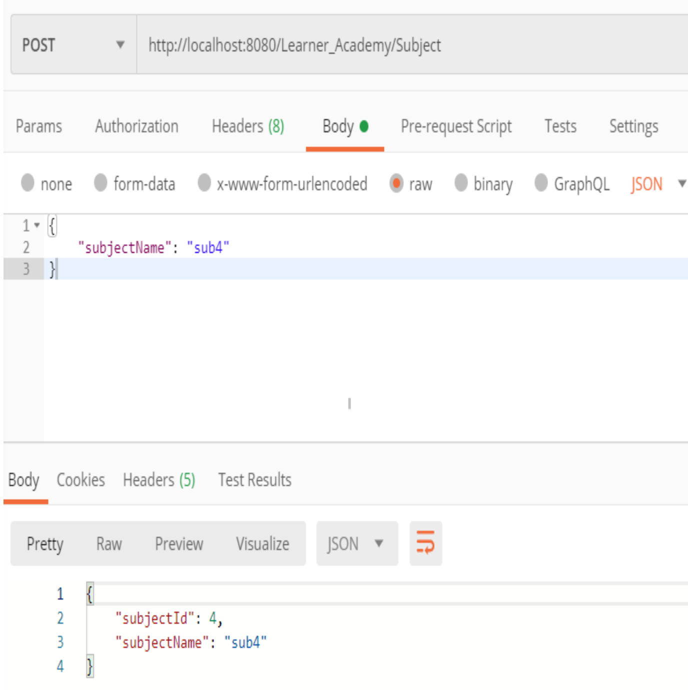
```
mysql> show tables;
+------------------+
| Tables_in_db1    |
+------------------+
| classes          |
| student          |
| student_classes  |
| subject          |
| subject_classes  |
| teacher          |
| teacher_classes  |
| teacher_subject  |
+------------------+
8 rows in set (0.00 sec)
```

Project Requirement and Verification in POSTMAN Tool:

Project Requirement		Verifying in POSTMAN tool	
S.No.	**Requirement**	**HTTP Method**	**Request URL**
1	Set up a master list of all the subjects	GET	http://localhost:8080/Learner_Academy/Subject
2	Set up a master list of all the teachers	GET	http://localhost:8080/Learner_Academy/Teacher
3	Set up a master list of all the classes	GET	http://localhost:8080/Learner_Academy/Classes
4	Assign subject for class	GET	http://localhost:8080/Learner_Academy/Classes
5	Assign teacher to subject	GET	http://localhost:8080/Learner_Academy/Classes
6	Get a master list of students	GET	http://localhost:8080/Learner_Academy/Student
7	An option to view a Class Report which will show all the information about the class, such as the list of students, subjects, and teachers	GET	http://localhost:8080/Learner_Academy/Classes

Screenshots taken while executing project requirements and their verification:

1) ***Set up a master list of all the subjects:***

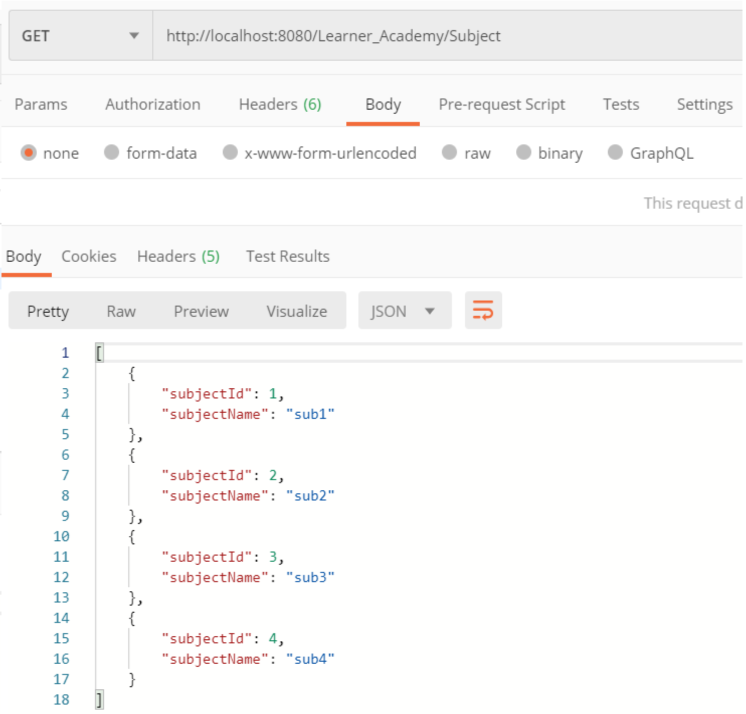


POST http://localhost:8080/Learner_Academy/Subject

```
{
    "subjectName": "sub4"
}
```

Response:

```
{
    "subjectId": 4,
    "subjectName": "sub4"
}
```



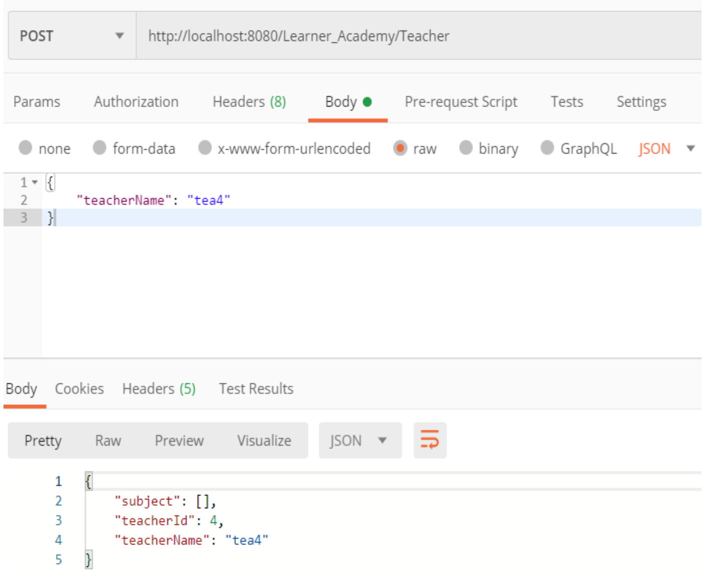
GET http://localhost:8080/Learner_Academy/Subject

Body: none

Response:

```
[
    {
        "subjectId": 1,
        "subjectName": "sub1"
    },
    {
        "subjectId": 2,
        "subjectName": "sub2"
    },
    {
        "subjectId": 3,
        "subjectName": "sub3"
    },
    {
        "subjectId": 4,
        "subjectName": "sub4"
    }
]
```

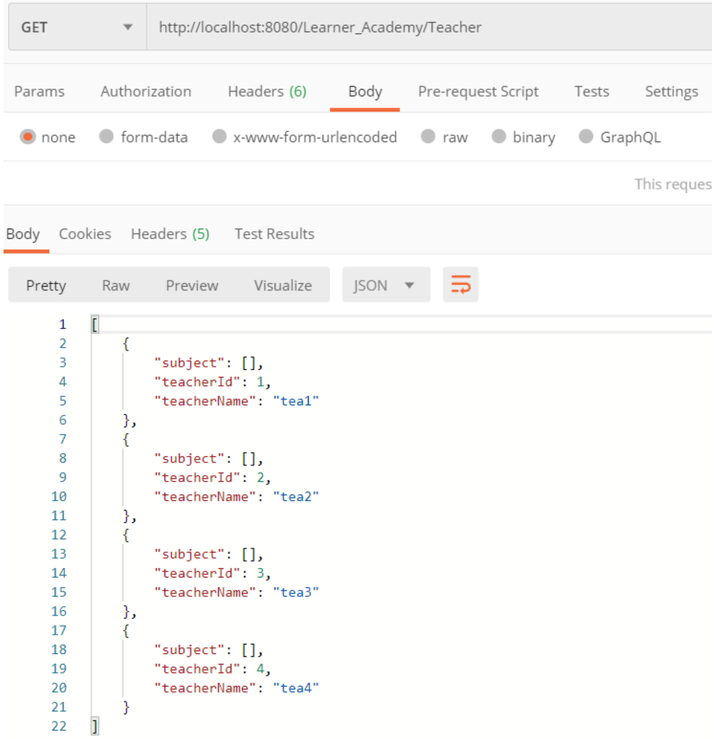
2) ***Set up a master list of all the teachers:***



POST http://localhost:8080/Learner_Academy/Teacher

```
{
    "teacherName": "tea4"
}
```

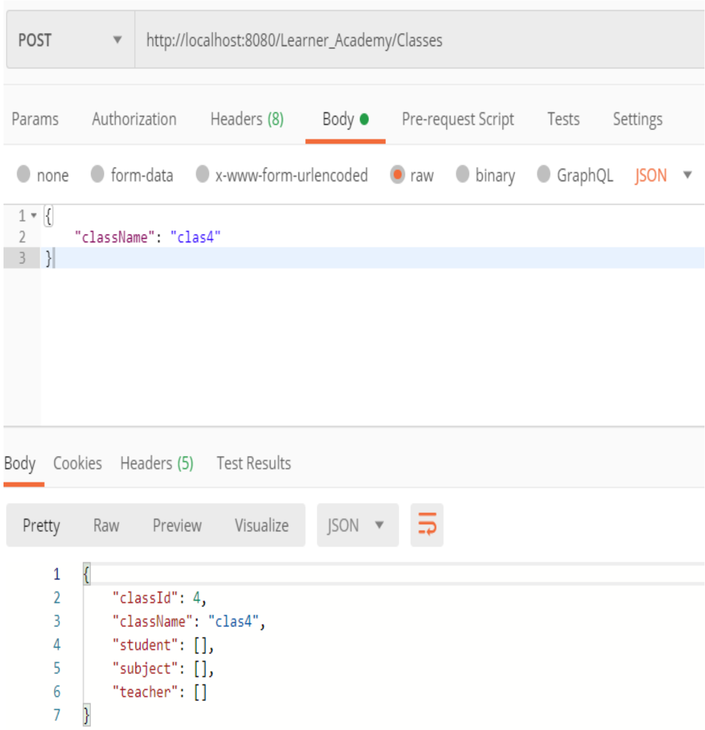
```
{
    "subject": [],
    "teacherId": 4,
    "teacherName": "tea4"
}
```



GET http://localhost:8080/Learner_Academy/Teacher

```
[
    {
        "subject": [],
        "teacherId": 1,
        "teacherName": "tea1"
    },
    {
        "subject": [],
        "teacherId": 2,
        "teacherName": "tea2"
    },
    {
        "subject": [],
        "teacherId": 3,
        "teacherName": "tea3"
    },
    {
        "subject": [],
        "teacherId": 4,
        "teacherName": "tea4"
    }
]
```

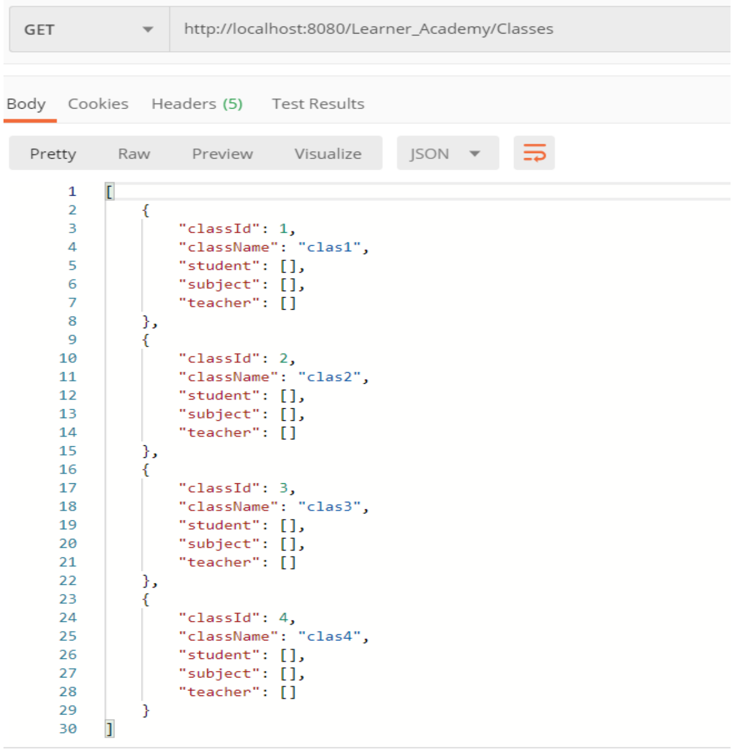
3) ***Set up a master list of all the classes:***



POST http://localhost:8080/Learner_Academy/Classes

```
{
    "className": "clas4"
}
```

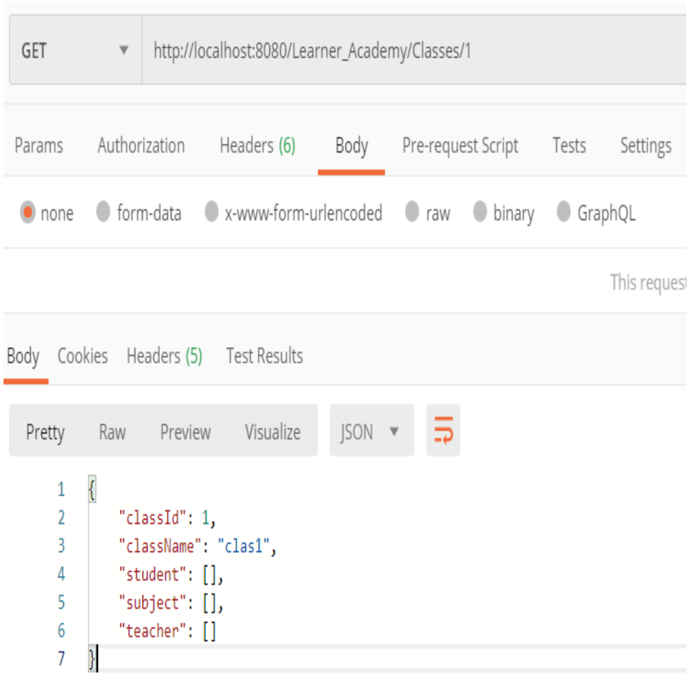
```
{
    "classId": 4,
    "className": "clas4",
    "student": [],
    "subject": [],
    "teacher": []
}
```



GET http://localhost:8080/Learner_Academy/Classes

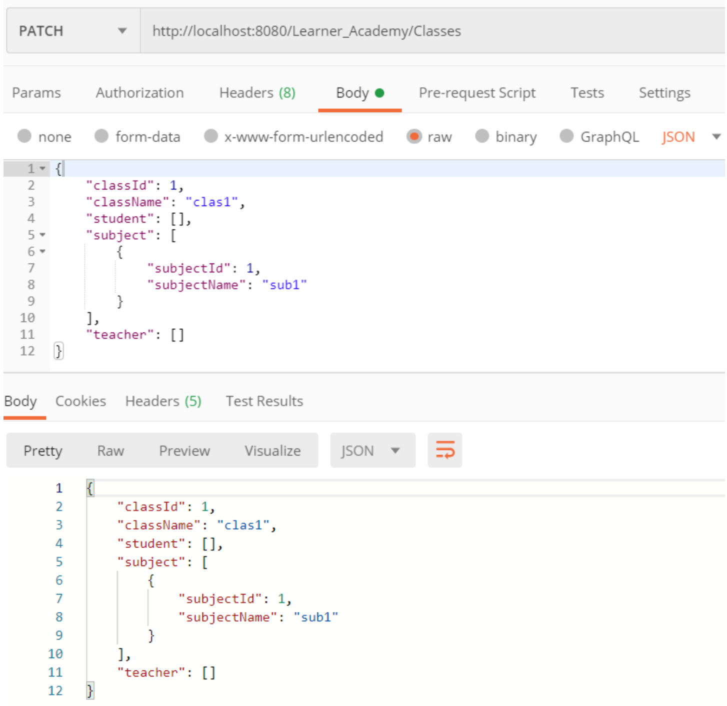
```
[
    {
        "classId": 1,
        "className": "clas1",
        "student": [],
        "subject": [],
        "teacher": []
    },
    {
        "classId": 2,
        "className": "clas2",
        "student": [],
        "subject": [],
        "teacher": []
    },
    {
        "classId": 3,
        "className": "clas3",
        "student": [],
        "subject": [],
        "teacher": []
    },
    {
        "classId": 4,
        "className": "clas4",
        "student": [],
        "subject": [],
        "teacher": []
    }
]
```

4) ***Assign subject for class:***



GET http://localhost:8080/Learner_Academy/Classes/1

```
{
    "classId": 1,
    "className": "clas1",
    "student": [],
    "subject": [],
    "teacher": []
}
```

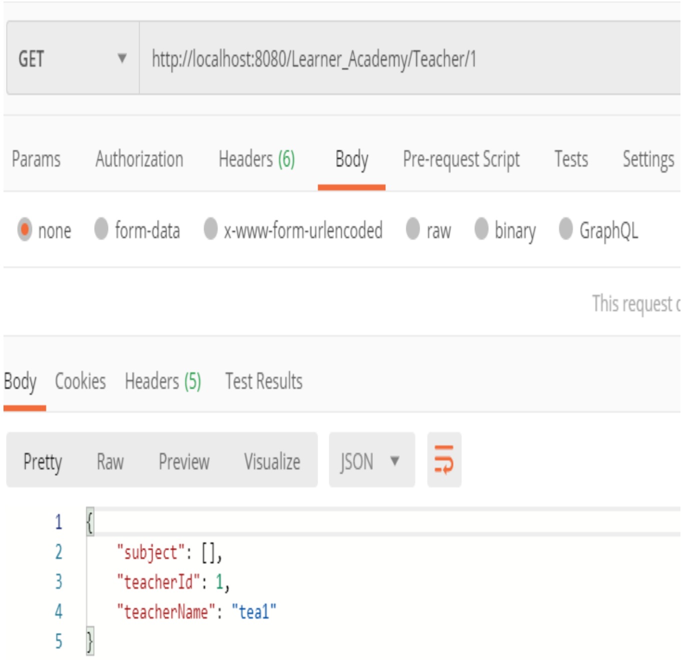


PATCH http://localhost:8080/Learner_Academy/Classes

```
{
    "classId": 1,
    "className": "clas1",
    "student": [],
    "subject": [
        {
            "subjectId": 1,
            "subjectName": "sub1"
        }
    ],
    "teacher": []
}
```

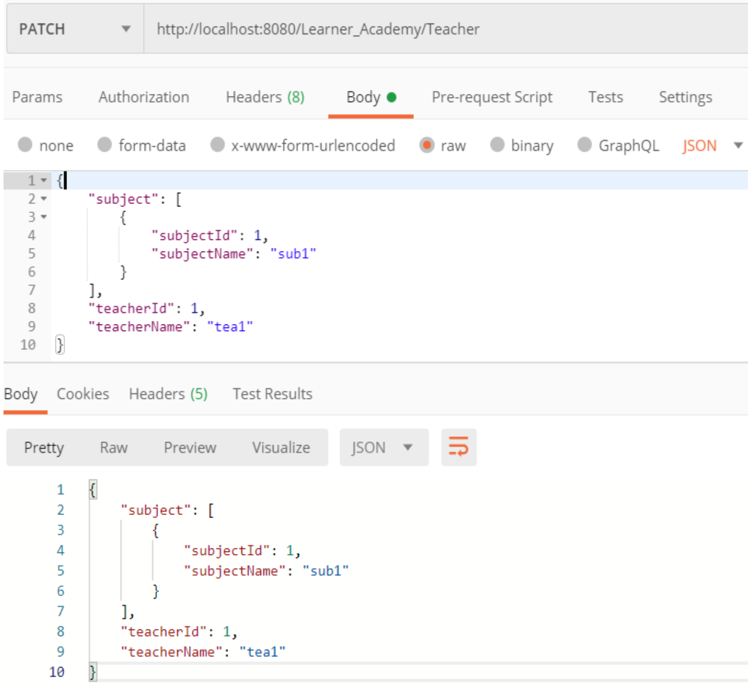
```
{
    "classId": 1,
    "className": "clas1",
    "student": [],
    "subject": [
        {
            "subjectId": 1,
            "subjectName": "sub1"
        }
    ],
    "teacher": []
}
```

5) ***Assign teacher to subject:***



GET http://localhost:8080/Learner_Academy/Teacher/1

```
{
    "subject": [],
    "teacherId": 1,
    "teacherName": "tea1"
}
```

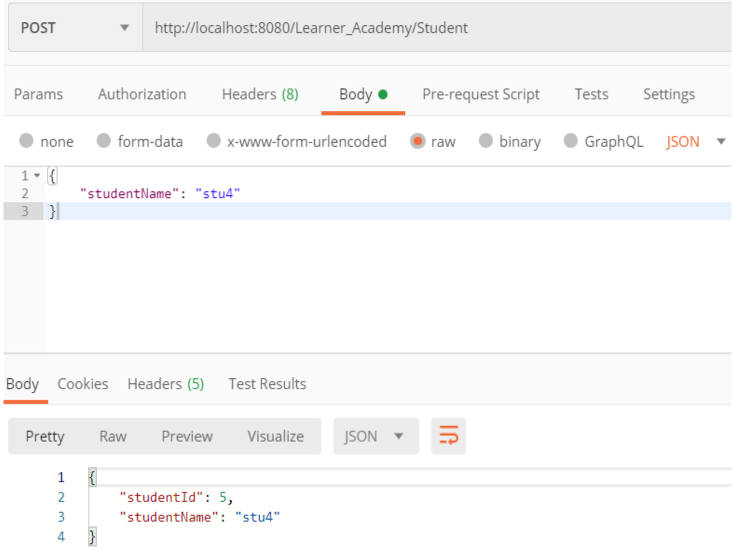


PATCH http://localhost:8080/Learner_Academy/Teacher

```
{
    "subject": [
        {
            "subjectId": 1,
            "subjectName": "sub1"
        }
    ],
    "teacherId": 1,
    "teacherName": "tea1"
}
```

```
{
    "subject": [
        {
            "subjectId": 1,
            "subjectName": "sub1"
        }
    ],
    "teacherId": 1,
    "teacherName": "tea1"
}
```

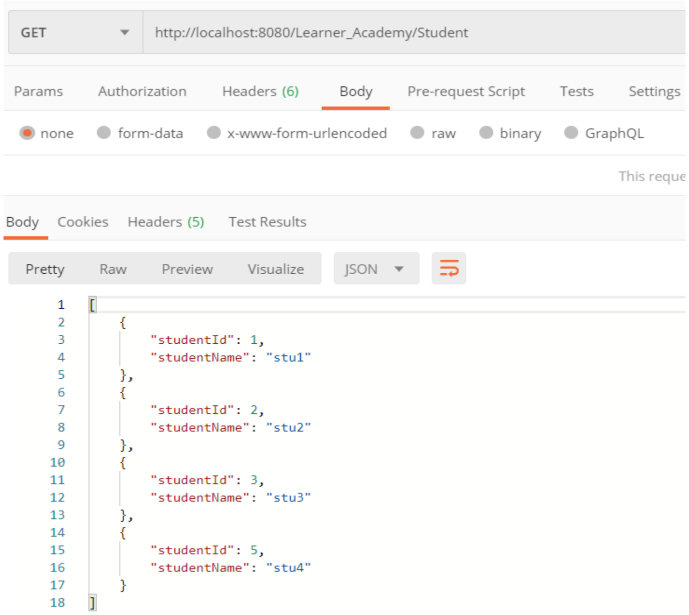
6) Get a master list of students



POST http://localhost:8080/Learner_Academy/Student

```
{
    "studentName": "stu4"
}
```

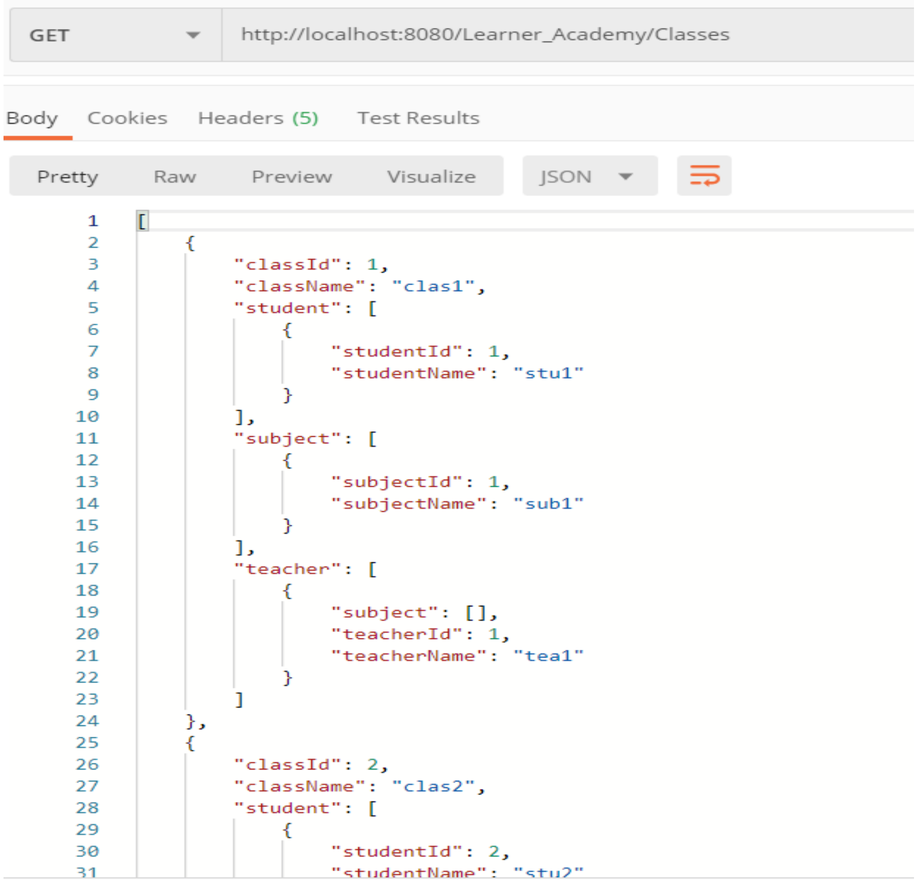
```
{
    "studentId": 5,
    "studentName": "stu4"
}
```



GET http://localhost:8080/Learner_Academy/Student

```
[
    {
        "studentId": 1,
        "studentName": "stu1"
    },
    {
        "studentId": 2,
        "studentName": "stu2"
    },
    {
        "studentId": 3,
        "studentName": "stu3"
    },
    {
        "studentId": 5,
        "studentName": "stu4"
    }
]
```

7) An option to view a Class Report which will show all the information about the class, such as the list of students, subjects, and teachers:



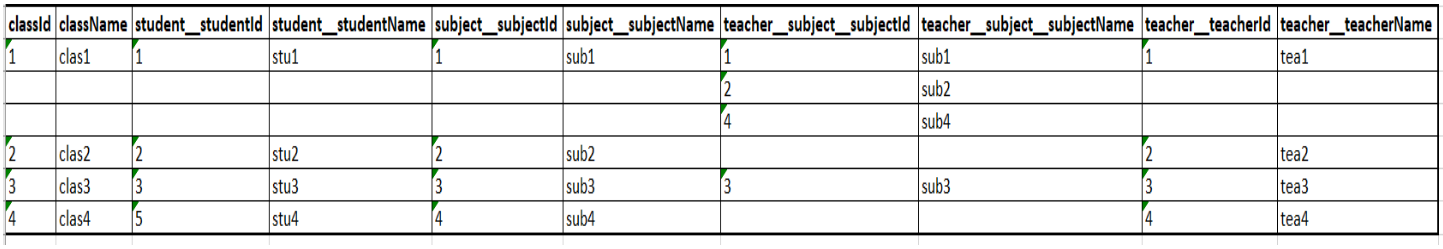
GET http://localhost:8080/Learner_Academy/Classes

```
[
    {
        "classId": 1,
        "className": "clas1",
        "student": [
            {
                "studentId": 1,
                "studentName": "stu1"
            }
        ],
        "subject": [
            {
                "subjectId": 1,
                "subjectName": "sub1"
            }
        ],
        "teacher": [
            {
                "subject": [],
                "teacherId": 1,
                "teacherName": "tea1"
            }
        ]
    },
    {
        "classId": 2,
        "className": "clas2",
        "student": [
            {
                "studentId": 2,
                "studentName": "stu2"
```

Since the response Body for above requirement is lengthier, the output is copied to notepad and embedded here (also uploaded to the project's GitHub Repository)

Class Report
response JSON.txt

Converted the above JSON response of Class Master Report to CSV for ease of viewing



classId	className	student__studentId	student__studentName	subject__subjectId	subject__subjectName	teacher__subject__subjectId	teacher__subject__subjectName	teacher__teacherId	teacher__teacherName
1	clas1	1	stu1	1	sub1	1	sub1	1	tea1
						2	sub2		
						4	sub4		
2	clas2	2	stu2	2	sub2			2	tea2
3	clas3	3	stu3	3	sub3	3	sub3	3	tea3
4	clas4	5	stu4	4	sub4			4	tea4

Git Screenshots:

GitHub Screenshot:

GitHub Repository:

All the project related files are uploaded to the below GitHub repository.

***Note:** The data in the database might be different from the screenshots, as few data were modified for testing purpose after taking screenshot. This project specification document is uploaded to below GitHub Repository in .pdf extensions.*

https://github.com/sdgishraddha/LearnerAcademy.git