

## Topic: 5. Serializing / Deserializing JSON Data (GET/POST)

Speaker: Personal / Notebook: API Development using Django Framework



To see more details about serializers, view this [Youtube clip](#)

1. To view the JSON file in a formatted style, we added the [Google Chrome extension, JSON FORMATTER:](#)

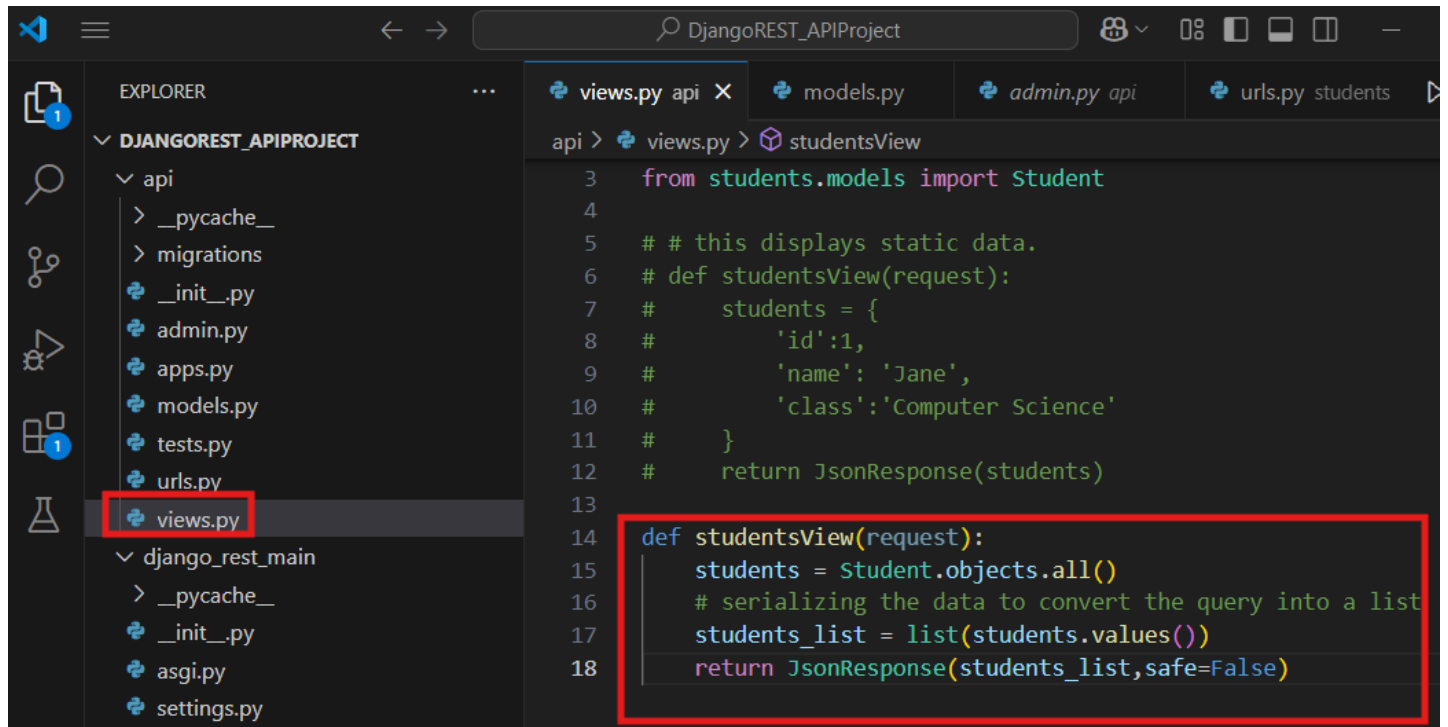
BEFORE:

```
127.0.0.1:8000/api/v1/students/
Pretty-print
[{"id":1,"student_id":"S001","name":"Rosilie","branch":"Computer Science"}, {"id":2,"student_id":"S002","name":"Yuri","branch":"Engineering"}, {"id":3,"student_id":"S003","name":"Xeria","branch":"Hotel Mgt"}]
```

AFTER:

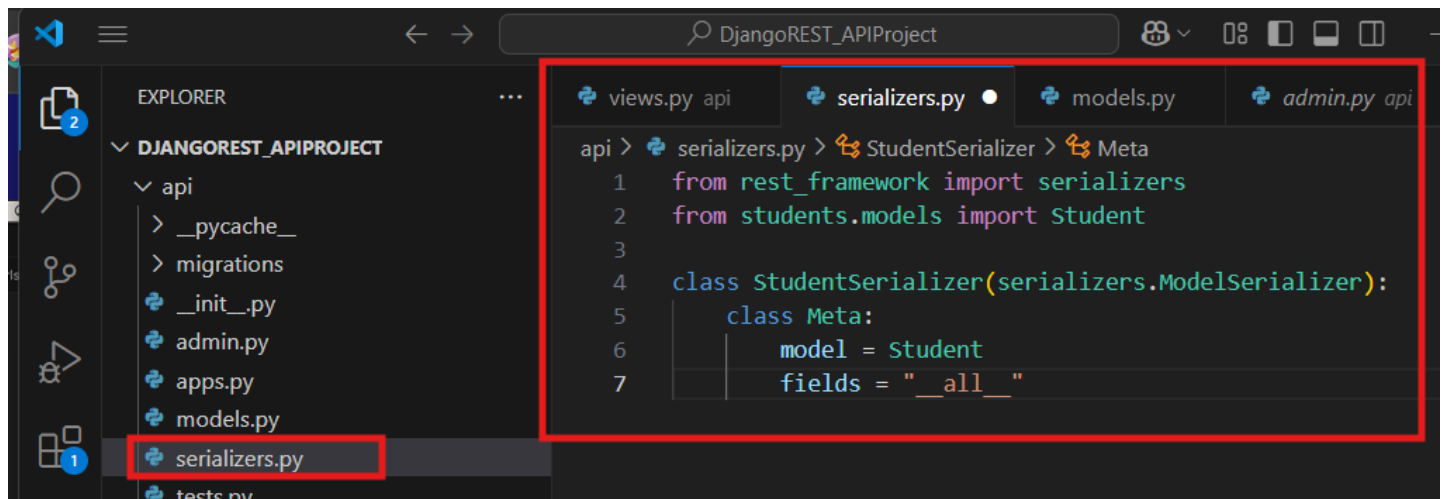
```
127.0.0.1:8000/api/v1/students/
Pretty-print 
[
  {
    "id": 1,
    "student_id": "S001",
    "name": "Rosilie",
    "branch": "Computer Science"
  },
  {
    "id": 2,
    "student_id": "S002",
    "name": "Yuri",
    "branch": "Engineering"
  },
  {
    "id": 3,
    "student_id": "S003",
    "name": "Xeria",
    "branch": "Hotel Mgt"
  }
]
```

2. Previously, we manually used serializers to convert our query set into a list. The code is below to show the output in Step 1.



```
3 from students.models import Student
4
5 # # this displays static data.
6 # def studentsView(request):
7 #     students = {
8 #         'id':1,
9 #         'name': 'Jane',
10 #         'class':'Computer Science'
11 #     }
12 #     return JsonResponse(students)
13
14 def studentsView(request):
15     students = Student.objects.all()
16     # serializing the data to convert the query into a list
17     students_list = list(students.values())
18     return JsonResponse(students_list,safe=False)
```

3. In Django, we can use serializer tools. In the API app folder, create a new file SERIALIZERS.PY:



```
1 from rest_framework import serializers
2 from students.models import Student
3
4 class StudentSerializer(serializers.ModelSerializer):
5     class Meta:
6         model = Student
7         fields = "__all__"
```

4. Update our APIVIEWS.PY:

FROM manual serialization:

```
api > views.py > studentsView
11 #     }
12 #     return JsonResponse(students)
13
14 def studentsView(request):
15     students = Student.objects.all()
16     # serializing the data to convert the query into a list
17     students_list = list(students.values())
18     return JsonResponse(students_list, safe=False)
```

TO:

```
api > views.py > studentsView
1 # from django.shortcuts import render
2 # from django.http import JsonResponse
3 from students.models import Student
4 from .serializers import StudentSerializer
5 from rest_framework.response import Response
6 from rest_framework import status
7 from rest_framework.decorators import api_view
8
9 @api_view(['GET'])
10 def studentsView(request):
11     if request.method == 'GET':
12         # get all the data from the Student table
13         students = Student.objects.all()
14         # serialize or translate the query set into json
15         serializer = StudentSerializer(students, many=True)
16         return Response(serializer.data, status=status.HTTP_200_OK)
```

So, when you run the URL path again:

<http://127.0.0.1:8000/api/v1/students/>

← → ↻ 127.0.0.1:8000/api/v1/students/ ☆ 🔍 📄 🎵 🌐

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Students

# Students

[OPTIONS](#) [GET](#) ▾

GET /api/v1/students/

HTTP 200 OK  
Allow: GET, OPTIONS  
Content-Type: application/json  
Vary: Accept

```
[
  {
    "id": 1,
    "student_id": "S001",
    "name": "Rosilie",
    "branch": "Computer Science"
  },
  {
    "id": 2,
    "student_id": "S002",
    "name": "Yuri",
    "branch": "Engineering"
  },
  {
    "id": 3,
    "student_id": "S003",
    "name": "Xeria",
    "branch": "Hotel Mgt"
  }
]
```

5. Now, if you update your database model for a new record and use the GET button from Step 4, you will be able to use GET button to get the latest added records or you can simply refresh your page and that will be considered as a GET method.

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# Students

OPTIONS GET

GET /api/v1/students/

HTTP 200 OK  
Allow: GET, OPTIONS  
Content-Type: application/json  
Vary: Accept

```
[
  {
    "id": 1,
    "student_id": "S001",
    "name": "Rosilie",
    "branch": "Computer Science"
  },
  {
    "id": 2,
    "student_id": "S002",
    "name": "Yuri",
    "branch": "Engineering"
  },
  {
    "id": 3,
    "student_id": "S003",
    "name": "Xeria",
    "branch": "Hotel Mgt"
  },
  {
    "id": 4,
    "student_id": "S004",
    "name": "Russell",
    "branch": "Veterinary"
  }
]
```

6. Now using **POSTMAN**, you can copy the same API link paste it into the POSTMAN search bar and use GET method. It should return all records from the database. Simply click on + and add the same path we used from the browser. To use POSTMAN, this must be installed in your device.

The screenshot shows the Postman interface. The URL bar at the top is highlighted with a red box and contains `http://127.0.0.1:8000/api/v1/students/`. Below it, the request method is set to `GET` and the same URL is entered in the request field, also highlighted with a red box. The response is a `200 OK` with a `Content-Type: application/json` and a `Vary: Accept` header. The response body is a JSON array of student objects:

```
[
  {
    "id": 1,
    "student_id": "S001",
    "name": "Rosllie",
    "branch": "Computer Science"
  },
  {
    "id": 2,
    "student_id": "S002",
    "name": "Yuri",
    "branch": "Engineering"
  },
  {
    "id": 3,
    "student_id": "S003",
    "name": "Xeria",
    "branch": "Hotel Mgt"
  },
  {
    "id": 4,
    "student_id": "S004",
    "name": "Russell",
    "branch": "Veterinary"
  }
]
```

7. To store data using the Django Rest Framework, update the VIEWS.PY to allow for POST method.

The screenshot shows the VS Code editor with the `views.py` file open in the `api` directory. The code is as follows:

```

1 # from django.http import JsonResponse
2 from students.models import Student
3 from .serializers import StudentSerializer
4 from rest_framework.response import Response
5 from rest_framework import status
6 from rest_framework.decorators import api_view
7
8
9 @api_view(['GET', 'POST'])
10 def studentsView(request):
11     if request.method == 'GET':
12         # get all the data from the Student table
13         students = Student.objects.all()
14         # serialize or translate the query set into Json
15         serializer = StudentSerializer(students, many=True)
16         return Response(serializer.data, status=status.HTTP_200_OK)
17     elif request.method == 'POST':
18         # saves data into our database
19         serializer = StudentSerializer(data=request.data)
20         if serializer.is_valid():
21             serializer.save()
22             return Response(serializer.data, status=status.HTTP_201_CREATED)
23         # if data are not valid
24         print(serializer.errors)
25         return Response(serializer.errors, status=status.HTTP_400_BAD_REQUEST)

```

The `@api_view(['GET', 'POST'])` decorator and the `POST` handling logic are highlighted with red boxes.

When you reload your page, then you can insert a new post:

Students

# Students

OPTIONS

GET

GET /api/v1/students/

HTTP 200 OK  
Allow: POST, OPTIONS, GET  
Content-Type: application/json  
Vary: Accept

```
[
  {
    "id": 1,
    "student_id": "s001",
    "name": "Rosilie",
    "branch": "Computer Science"
  },
  {
    "id": 2,
    "student_id": "s002",
    "name": "Yuri",
    "branch": "Engineering"
  },
  {
    "id": 3,
    "student_id": "s003",
    "name": "Xeria",
    "branch": "Hotel Mgt"
  },
  {
    "id": 4,
    "student_id": "s004",
    "name": "Russell",
    "branch": "Veterinary"
  }
]
```

Media type: application/json

Content:

```
{
  "student_id": "S005",
  "name": "Mary Ann",
  "branch": "Engineering"
}
```



POST

127.0.0.1:8000/api/v1/students/

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## Students

OPTIONS GET

POST /api/v1/students/

```
HTTP 201 Created
Allow: POST, OPTIONS, GET
Content-Type: application/json
Vary: Accept

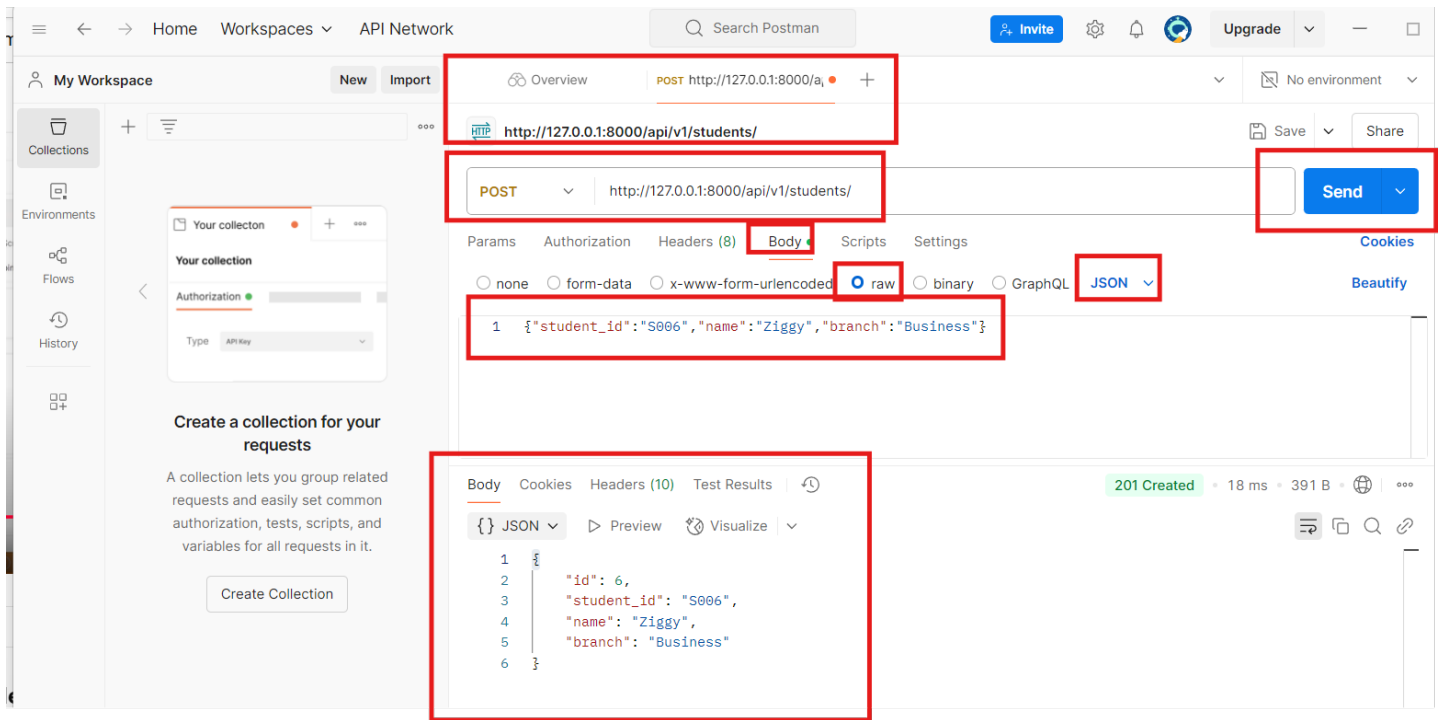
{
  "id": 5,
  "student_id": "s005",
  "name": "Mary Ann",
  "branch": "Engineering"
}
```

Media type: application/json

Content:

POST

8. To use POSTMAN, add the path again. Select BODY, then RAW, then JSON. Add your records then select select the SEND method.



9. Now, to see the newly inserted record, use the GET method. You will then see the newly added record.

