

Topic: 7. Class-Based Views Basics & Retrieving All Records

Speaker: Personal / Notebook: API Development using Django Framework



Class-based views follow the principles of object-oriented programming. These views are used for reusability and code efficiency.

For this example, we need to create a new app called EMPLOYEES.

1. In the terminal, create a new app:

```
$ python manage.py startapp employees
```

2. Register this new app in the SETTINGS.PY

```
File Edit Selection View ... DjangoREST_APIProj
EXPLORER
  DJANGOREST_APIPROJECT
    > api
    > django_rest_main
      > __pycache__
      > __init__.py
      > asgi.py
      > settings.py
      > urls.py
      > wsgi.py
    > employees
      > migrations
      > __init__.py
      > admin.py
      > apps.py
  settings.py
  admin.py
  urls.py  django_rest_

django_rest_main > settings.py > ...
31 # Application definition
32
33 INSTALLED_APPS = [
34     'django.contrib.admin',
35     'django.contrib.auth',
36     'django.contrib.contenttypes',
37     'django.contrib.sessions',
38     'django.contrib.messages',
39     'django.contrib.staticfiles',
40     'rest_framework',
41     'students',
42     'api',
43     'employees',
44 ]
45
```

3. Create the new model in MODELS.PY

The screenshot shows the Visual Studio Code interface for a Django REST API project. The Explorer sidebar on the left shows the project structure: **DJANGOREST_APIPROJECT** > api > django_rest_main > employees > models.py. The `models.py` file is selected and highlighted with a red box. The code in the editor is as follows:

```
employees > models.py > ...
1  from django.db import models
2
3  class Employee(models.Model):
4      emp_id = models.CharField(max_length=20)
5      emp_name=models.CharField(max_length=50)
6      designation=models.CharField(max_length=50)
7
8      def __str__(self):
9          return self.emp_name
10
```

4. Update the ADMIN.PY

The screenshot shows the Visual Studio Code interface for the same Django REST API project. The Explorer sidebar on the left shows the project structure: **DJANGOREST_APIPROJECT** > api > django_rest_main > employees > admin.py. The `admin.py` file is selected and highlighted with a red box. The code in the editor is as follows:

```
employees > admin.py
1  from django.contrib import admin
2  from .models import Employee
3
4  admin.site.register(Employee)
```

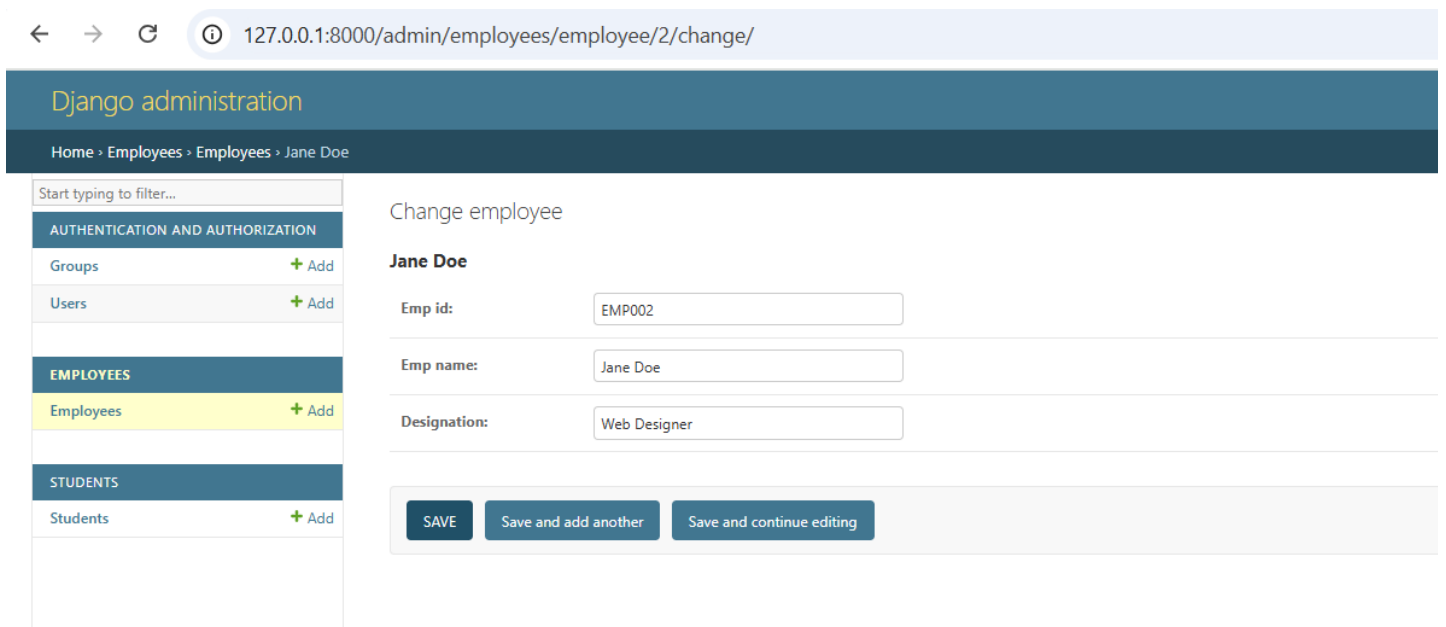
5. Make the migrations. Be sure you are in the correct folder to see the migrations happen.

```

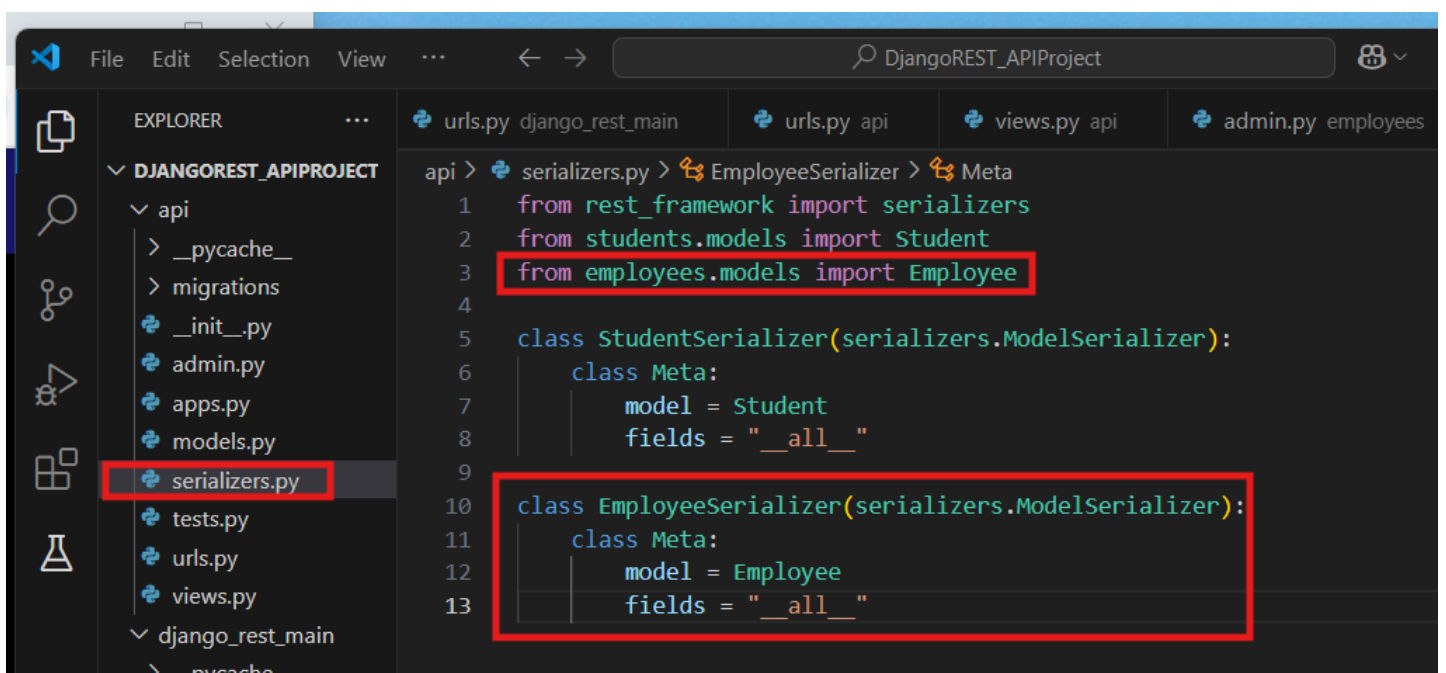
rosil@LearnCodeRepeat MINGW64 /c/Users/rosil/OneDrive/Documents/MyCodingCareer/Django Projects/API
Dev/Resources/DjangoREST_APIProject
• $ python manage.py makemigrations
Migrations for 'employees':
  employees\migrations\0001_initial.py
    + Create model Employee
(env)
rosil@LearnCodeRepeat MINGW64 /c/Users/rosil/OneDrive/Documents/MyCodingCareer/Django Projects/API
Dev/Resources/DjangoREST_APIProject
• $ python manage.py migrate
Operations to perform:
  Apply all migrations: admin, auth, contenttypes, employees, sessions, students
Running migrations:
  Applying employees.0001_initial... OK
(env)
rosil@LearnCodeRepeat MINGW64 /c/Users/rosil/OneDrive/Documents/MyCodingCareer/Django Projects/API
Dev/Resources/DjangoREST_APIProject
$

```

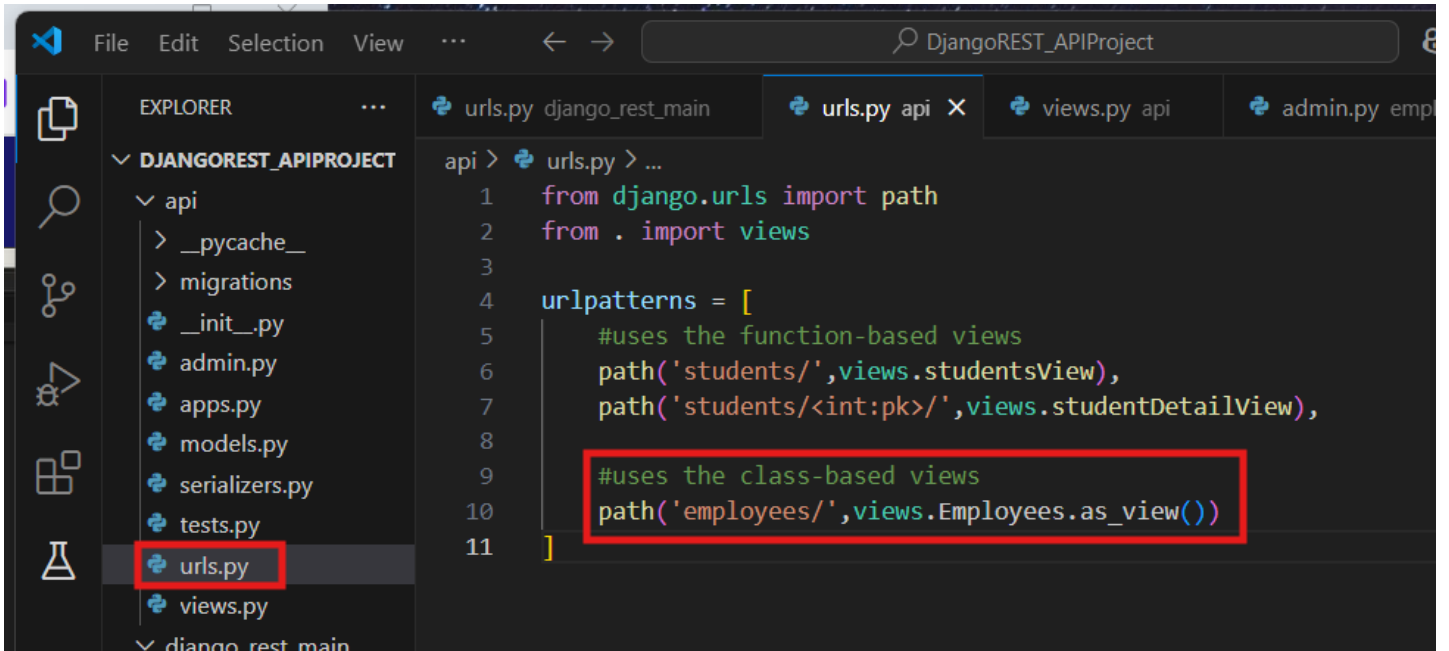
6. Check the admin panel and create new records for the Employees model:



7. Create a serializer for the Employees model. Go to API\SERIALIZER.PY



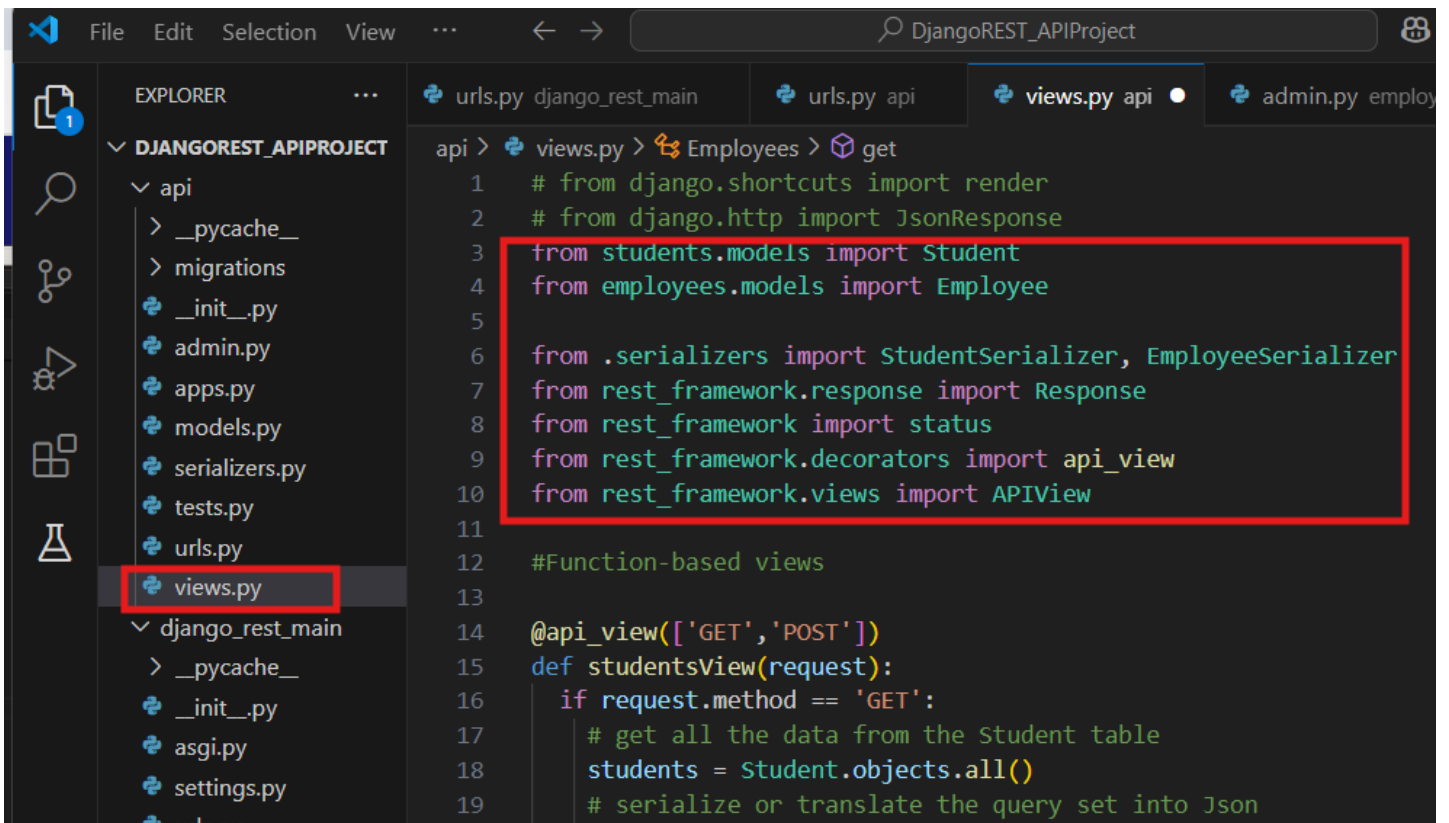
8. To retrieve all the records, go to the APIURLS.PY and update:



```
api > urls.py > ...
1  from django.urls import path
2  from . import views
3
4  urlpatterns = [
5      #uses the function-based views
6      path('students/', views.studentsView),
7      path('students/<int:pk>/', views.studentDetailView),
8
9      #uses the class-based views
10     path('employees/', views.Employees.as_view())
11 ]
```

9. Create the class-based views. Go to the APIVIEWS.PY:

Add the necessary libraries:



```
api > views.py > Employees > get
1  # from django.shortcuts import render
2  # from django.http import JsonResponse
3  from students.models import Student
4  from employees.models import Employee
5
6  from .serializers import StudentSerializer, EmployeeSerializer
7  from rest_framework.response import Response
8  from rest_framework import status
9  from rest_framework.decorators import api_view
10 from rest_framework.views import APIView
11
12 #Function-based views
13
14 @api_view(['GET', 'POST'])
15 def studentsView(request):
16     if request.method == 'GET':
17         # get all the data from the Student table
18         students = Student.objects.all()
19         # serialize or translate the query set into Json
```

Create the class Employee and its methods:

```
33 def studentDetailView(request, pk):
49     return Response(serializer.data, status=status.HTTP_200_OK)
50     else:
51         return Response(serializer.errors, status.HTTP_400_BAD_REQUEST)
52
53     # delete a specific record using the PK
54     elif request.method == 'DELETE':
55         student.delete()
56         return Response(status=status.HTTP_204_NO_CONTENT)
57
58
59 # Class-based views
60 class Employees(APIView):
61
62     def get(self, request):
63         employees = Employee.objects.all()
64         serializer = EmployeeSerializer(employees, many=True)
65         return Response(serializer.data, status=status.HTTP_200_OK)
66
```

10. To test, use the URL <http://127.0.0.1:8000/api/v1/employees/>

127.0.0.1:8000/api/v1/employees/

Django REST framework api_djangoadmin

Employees

Employees

OPTIONS GET

GET /api/v1/employees/

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

```
[
  {
    "id": 1,
    "emp_id": "EMP001",
    "emp_name": "Rosilie Lim",
    "designation": "Software Developer"
  },
  {
    "id": 2,
    "emp_id": "EMP002",
    "emp_name": "Jane Doe",
    "designation": "Web Designer"
  }
]
```

11.

