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Implement Token Authentication using Django REST Framework

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Token authentication refers to exchanging username and password for a token that will be used in all subsequent requests so to identify the user on the server side.This article revolves about implementing token authentication using Django REST Framework to make an API. The token authentication works by providing token in exchange for exchanging usernames and passwords.

Modules required :

- **django :**

```
pip install django
```

- **crispy_forms :**

```
 pip install --upgrade django-crispy-forms
```

- **django rest_framework :**

```
pip install djangorestframework
```

- **HTTPie :**

```
pip install httpie
```

and a project to add API, here we are using Sign Up and log in

Creating Viewset and Serializers

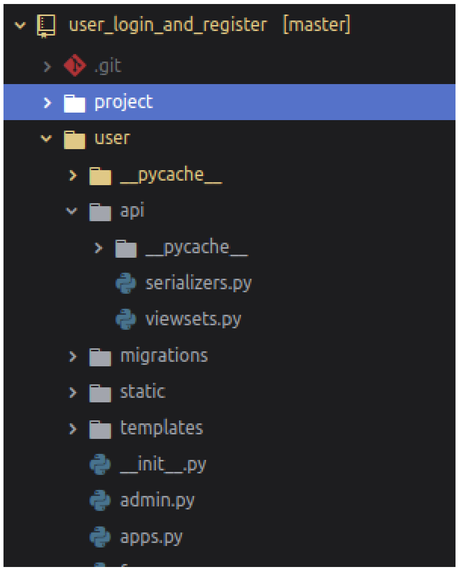
Go to ***user*** folder in given project

and make a api folder to keep all api related files

```
cd user && mkdir api
```

Now, make *user/api/serializers.py* and *user/api/viewsets.py* in api folder

```
cd user/api && touch serializers.py viewsets.py
```



now edit *user/api/serializers.py*

Python3

```python
from rest_framework import serializers
from django.contrib.auth.models import User


class userSerializers(serializers.ModelSerializer):

    class Meta:
        model = User
        fields =  '__all__'
```

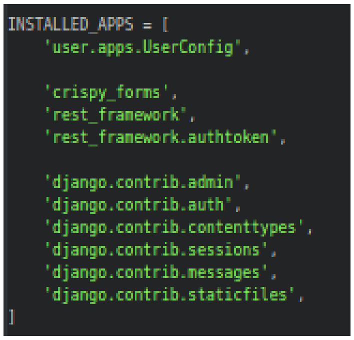
also edit *user/api/viewsets.py*

Python3

```
from rest_framework import viewsets
from .serializers import userSerializers
from django.contrib.auth.models import User


class userviewsets(viewsets.ModelViewSet):
    queryset = User.objects.all()
    serializer_class = userSerializers
```

Edit settings.py

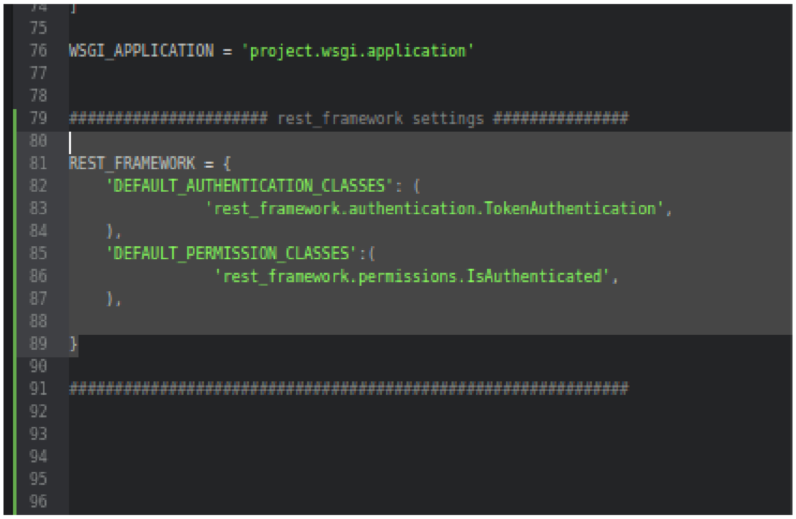
add rest_framework and rest_framework.authtoken in INSTALLED_APPS in setting.py



```
INSTALLED_APPS = [
    'user.apps.UserConfig',

    'crispy_forms',
    'rest_framework',
    'rest_framework.authtoken',

    'django.contrib.admin',
    'django.contrib.auth',
    'django.contrib.contenttypes',
    'django.contrib.sessions',
    'django.contrib.messages',
    'django.contrib.staticfiles',
]
```

Edit rest_framework settings as below

```
REST_FRAMEWORK = {
    'DEFAULT_AUTHENTICATION_CLASSES': (
                'rest_framework.authentication.TokenAuthentication',
    ),
    'DEFAULT_PERMISSION_CLASSES':(
                'rest_framework.permissions.IsAuthenticated',
    ),


}
```



```
]

WSGI_APPLICATION = 'project.wsgi.application'


###################### rest_framework settings ###############

REST_FRAMEWORK = {
    'DEFAULT_AUTHENTICATION_CLASSES': (
                'rest_framework.authentication.TokenAuthentication',
    ),
    'DEFAULT_PERMISSION_CLASSES':(
                 'rest_framework.permissions.IsAuthenticated',
    ),

}

################################################################
```

Creating router

goto *project/* and create router.py

```
cd project/ && touch router.py
```

edit *project/router.py*,

Python3

```python
from user.api.viewsets import userviewsets
from rest_framework import routers

router = routers.DefaultRouter()
router.register('user', userviewsets, base_name ='user_api')
```

Editing url.py

goto to *project/urls.py*

and edit it

Import router and rest_framework.authtoken for token authentication

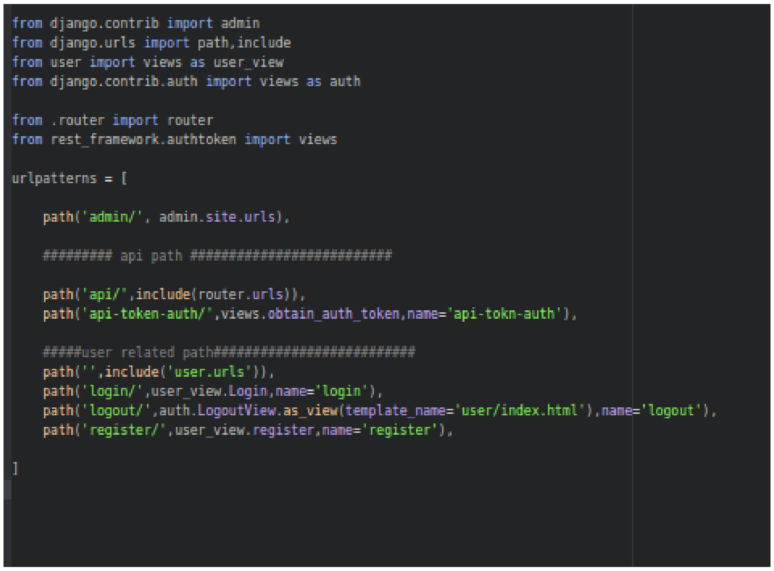
Python3

```python
from .router import router
from rest_framework.authtoken import views
```

add API related paths

Python3

```
path('api/', include(router.urls)),
path('api-token-auth/', views.obtain_auth_token, name='api-token-auth'),
```



```
from django.contrib import admin
from django.urls import path,include
from user import views as user_view
from django.contrib.auth import views as auth

from .router import router
from rest_framework.authtoken import views

urlpatterns = [

    path('admin/', admin.site.urls),

    ######### api path ##########################

    path('api/',include(router.urls)),
    path('api-token-auth/',views.obtain_auth_token,name='api-tokn-auth'),

    #####user related path##########################
    path('',include('user.urls')),
    path('login/',user_view.Login,name='login'),
    path('logout/',auth.LogoutView.as_view(template_name='user/index.html'),name='logout'),
    path('register/',user_view.register,name='register'),

]
```

Testing API

first, migrate models

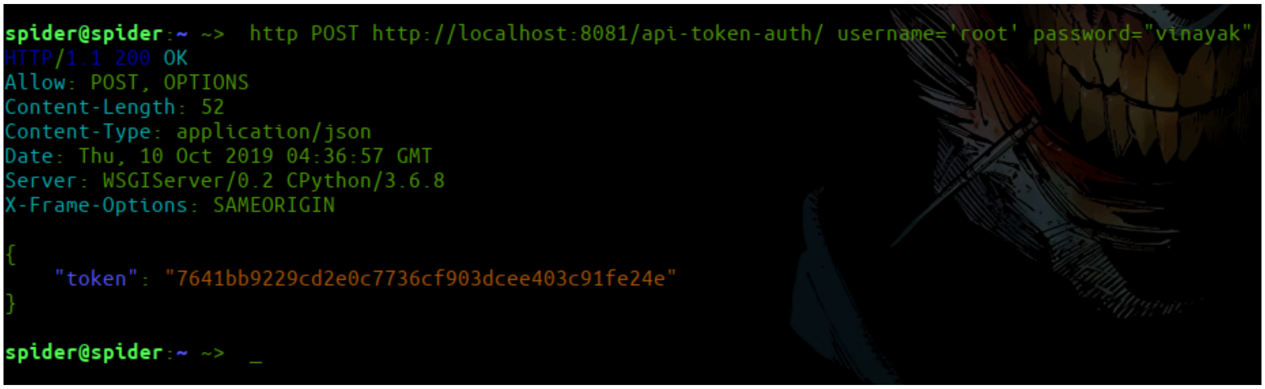
```
python manage.py migrate
```

start server using below command

```
python manage.py runserver
```

open another terminal and let us check our API using HTTP POST request for a token and paste username and password.

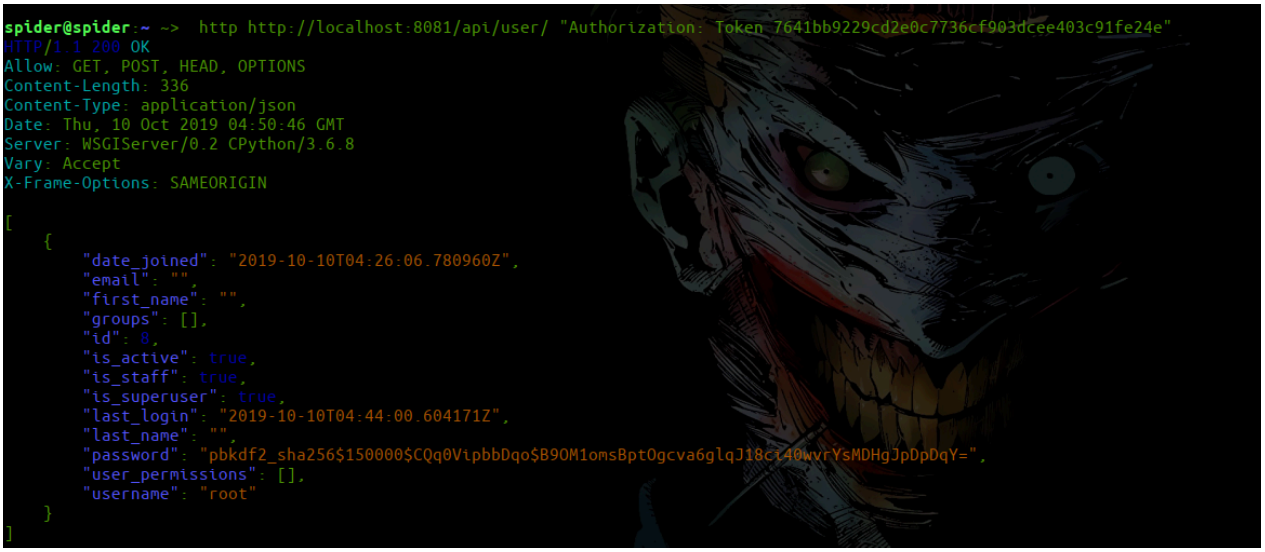
```
http POST http://localhost:8081/api-token-auth/ username='your_username'
password="your_password"
```



```
spider@spider:~ ~>  http POST http://localhost:8081/api-token-auth/ username='root' password="vinayak"
HTTP/1.1 200 OK
Allow: POST, OPTIONS
Content-Length: 52
Content-Type: application/json
Date: Thu, 10 Oct 2019 04:36:57 GMT
Server: WSGIServer/0.2 CPython/3.6.8
X-Frame-Options: SAMEORIGIN

{
    "token": "7641bb9229cd2e0c7736cf903dcee403c91fe24e"
}

spider@spider:~ ~>  _
```

now use this token to get data from API, place your API token

```
http http://localhost:8081/api/user/ "Authorization: Token API_KEY_HERE"
```



```
spider@spider:~ ~>  http http://localhost:8081/api/user/ "Authorization: Token 7641bb9229cd2e0c7736cf903dcee403c91fe24e"
HTTP/1.1 200 OK
Allow: GET, POST, HEAD, OPTIONS
Content-Length: 336
Content-Type: application/json
Date: Thu, 10 Oct 2019 04:50:46 GMT
Server: WSGIServer/0.2 CPython/3.6.8
Vary: Accept
X-Frame-Options: SAMEORIGIN

[
    {
        "date_joined": "2019-10-10T04:26:06.780960Z",
        "email": "",
        "first_name": "",
        "groups": [],
        "id": 8,
        "is_active": true,
        "is_staff": true,
        "is_superuser": true,
        "last_login": "2019-10-10T04:44:00.604171Z",
        "last_name": "",
        "password": "pbkdf2_sha256$150000$CQq0VipbbDqo$B9OM1omsBptOgcva6glqJ18ci40wvrYsMDHgJpDpDqY=",
        "user_permissions": [],
        "username": "root"
    }
]
```

itsvin... 11

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