**REST API (Django Rest Framework-DRF)**

**Session-18**

**Generate token by exposing API endpoint:**

**httpie :**

* HTTPie (pronounced as aitch-tee-tee-pie) is a command-line HTTP client to make CLI interaction with web services as human-friendly as possible.
* HTTPie provides a simple http command that allows for sending arbitrary HTTP requests using a simple and natural syntax and displays beautifully colorized output.
* To Install httpie, Go to terminal and then type the following command
* pip install httpie

**urls.py :**

**from** django.contrib **import** admin  
**from** django.urls **import** path,include  
**from** myapp8 **import** views  
**from** rest\_framework.routers **import** DefaultRouter  
**from** rest\_framework.authtoken.views **import** obtain\_auth\_token  
  
*#create a router object*router=DefaultRouter()  
*#register your viewset with router*router.register(**'ManagerViewset'**,views.ManagerModelViewSet,basename=**'manager'**)  
  
urlpatterns = [  
 path(**'admin/'**, admin.site.urls),  
 path(**''**,include(router.urls)),  
 path(**'authentication/'**,include(**'rest\_framework.urls'**,namespace=**'rest\_framework'**)),  
 path(**'gettoken/'**,obtain\_auth\_token)  
]

Now go to terminal and then type following command

F:\djangoProject5pm> http http://127.0.0.1:8000/gettoken/ username="shanvi" password="durgasoft@123"

This will create a token for shanvi user.

**Generate token by using signals:**

**models.py :**

**from** django.db **import** models  
**from** django.conf **import** settings  
**from** django.db.models.signals **import** post\_save  
**from** django.dispatch **import** receiver  
**from** rest\_framework.authtoken.models **import** Token  
  
*# Create your models here.***class** Manager(models.Model):  
 name=models.CharField(max\_length=20)  
 address=models.CharField(max\_length=20)  
 mail = models.CharField(max\_length=20)  
 age = models.IntegerField()  
  
 @receiver(post\_save,sender=settings.AUTH\_USER\_MODEL)  
 **def** create\_auth\_token(sender,instance=**None**,created=**False**,\*\*kwargs):  
 **if** created:  
 Token.objects.create(user=instance)

**Note**: in this case as soon as we create a user through signal automatically token will be create.

**Ex to test API using token authentication:**

**Settings.py:**

INSTALLED\_APPS = [  
 **'django.contrib.admin'**,  
 **'django.contrib.auth'**,  
 **'django.contrib.contenttypes'**,  
 **'django.contrib.sessions'**,  
 **'django.contrib.messages'**,  
 **'django.contrib.staticfiles'**,  
 **'myapp.apps.MyappConfig'**,  
 **'rest\_framework'**,  
  
 **'myapp8'**,

**'rest\_framework.authtoken'**,

]

**Models.py:**

**from** django.db **import** models  
**from** django.conf **import** settings  
**from** django.db.models.signals **import** post\_save  
**from** django.dispatch **import** receiver  
**from** rest\_framework.authtoken.models **import** Token  
  
*# Create your models here.***class** Manager(models.Model):  
 name=models.CharField(max\_length=20)  
 address=models.CharField(max\_length=20)  
 mail = models.CharField(max\_length=20)  
 age = models.IntegerField()  
  
 @receiver(post\_save,sender=settings.AUTH\_USER\_MODEL)  
 **def** create\_auth\_token(sender,instance=**None**,created=**False**,\*\*kwargs):  
 **if** created:  
 Token.objects.create(user=instance)

**admin.py:**

**from** django.contrib **import** admin  
**from** myapp8.models **import** Manager  
*# Register your models here.*@admin.register(Manager)  
**class** ManagerAdmin(admin.ModelAdmin):  
 list\_display = [**'id'**,**'name'**,**'address'**,**'mail'**,**'age'**]

**Now go to terminal and then type the following commands**

* Python manage.py makemigrations
* Python manage.py migrate
* Python manage.py createsuperuser
* Now run server: python manage.py runserver
* Now go to browser: <http://127.0.0.1:8000/admin>
* Insert few records

Create a new python file with the name serializers.py.

**serializer.py:**

**from** rest\_framework **import** serializers  
**from** myapp8.models **import** Manager  
  
**class** ManagerSerializer(serializers.ModelSerializer):  
 **class** Meta:  
 model=Manager  
 fields=[**'id'**,**'name'**,**'address'**,**'mail'**,**'age'**]

**views.py:**

**from** django.shortcuts **import** render  
**from** myapp8.models **import** Manager  
**from** myapp8.serializers **import** ManagerSerializer  
**from** rest\_framework **import** viewsets  
**from** rest\_framework.authentication **import** TokenAuthentication  
**from** rest\_framework.permissions **import** IsAuthenticated  
  
*# Create your views here.***class** ManagerModelViewSet(viewsets.ModelViewSet):  
 queryset = Manager.objects.all()  
 serializer\_class = ManagerSerializer  
 authentication\_classes = [TokenAuthentication]  
 permission\_classes = [IsAuthenticated]

**urls.py**:

**from** django.contrib **import** admin  
**from** django.urls **import** path,include  
**from** myapp8 **import** views  
**from** rest\_framework.routers **import** DefaultRouter  
  
  
*#create a router object*router=DefaultRouter()  
*#register your viewset with router*router.register(**'ManagerViewset'**,views.ManagerModelViewSet,basename=**'manager'**)  
  
urlpatterns = [  
 path(**'admin/'**, admin.site.urls),  
 path(**''**,include(router.urls)),  
 path(**'authentication/'**,include(**'rest\_framework.urls'**,namespace=**'rest\_framework'**)),  
  
]

* Now go to terminal : python manage.py runserver
* Now go to browser: <http://127.0.0.1:8000/admin>
* After login in to admin panel, create a new user and insert few records into a manager table.
* Now open new terminal and test your API with token authentication by following commands.

**For Reading records:**

* http http://127.0.0.1:8000/ManagerViewset/ 'Authorization:Token a91294fb8b2653427334896a3fccf558e2d701dd'

**For POST a record:**

* http -f POST http://127.0.0.1:8000/ManagerViewset/ name=kumar address=hyd mail=kumar@gmail.com age=45 'Authorization:Token a91294fb8b2653427334896a3fccf558e2d701dd'

**For PUT a record:**

* http PUT http://127.0.0.1:8000/ManagerViewset/1/ name=manoj address=hyd mail=manoj@gmail.com age=33 'Authorization:Token a91294fb8b2653427334896a3fccf558e2d701dd'

**For DELETE a record:**

* http DELETE http://127.0.0.1:8000/ManagerViewset/2/ 'Authorization:Token a91294fb8b2653427334896a3fccf558e2d701dd'

**Working with custom authentication:**

* To implement a custom authentication scheme, subclass BaseAuthentication and override the .authenticate (self, request) method.
* The method should return a two-tuple of (user, auth) if authentication succeeds, or None otherwise.
* In some circumstances instead of returning None, you may want to raise an AuthenticationFailed exception from the .authenticate () method.
* Typically the approach you should take is:
* If authentication is not attempted, return None. Any other authentication schemes also in use will still be checked.
* If authentication is attempted but fails, raise an AuthenticationFailed exception. An error response will be returned immediately, regardless of any permissions checks, and without checking any other authentication schemes.

**Settings.py:**

INSTALLED\_APPS = [  
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 **'django.contrib.auth'**,  
 **'django.contrib.contenttypes'**,  
 **'django.contrib.sessions'**,  
 **'django.contrib.messages'**,  
 **'django.contrib.staticfiles'**,  
 **'myapp.apps.MyappConfig'**,  
 **'rest\_framework'**,  
  
 **'myapp8'**,

]

**Models.py:**

**from** django.db **import** models  
  
*# Create your models here.***class** Manager(models.Model):  
 name=models.CharField(max\_length=20)  
 address=models.CharField(max\_length=20)  
 mail = models.CharField(max\_length=20)  
 age = models.IntegerField()

**admin.py:**

**from** django.contrib **import** admin  
**from** myapp8.models **import** Manager  
*# Register your models here.*@admin.register(Manager)  
**class** ManagerAdmin(admin.ModelAdmin):  
 list\_display = [**'id'**,**'name'**,**'address'**,**'mail'**,**'age'**]

**Now go to terminal and then type the following commands**

* Python manage.py makemigrations
* Python manage.py migrate
* Python manage.py createsuperuser
* Now run server: python manage.py runserver
* Now go to browser: <http://127.0.0.1:8000/admin>
* Insert few records

Create a new python file with the name serializers.py.

**serializer.py:**

**from** rest\_framework **import** serializers  
**from** myapp8.models **import** Manager  
  
**class** ManagerSerializer(serializers.ModelSerializer):  
 **class** Meta:  
 model=Manager  
 fields=[**'id'**,**'name'**,**'address'**,**'mail'**,**'age'**]

Create a new python file with the name authentication.py.

**from** rest\_framework.authentication **import** BaseAuthentication  
**from** django.contrib.auth.models **import** User  
**from** rest\_framework.exceptions **import** AuthenticationFailed  
  
**class** CustomAuthentication(BaseAuthentication):  
 **def** authenticate(self, request):  
 username=request.GET.get(**'username'**)  
 **if** username **is None**:  
 **return None  
  
 try**:  
 user=User.objects.get(username=username)  
 **except** User.DoesNotExist:  
 **raise** AuthenticationFailed(**"User does not exist"**)  
 **return** (user,**None**)

**views.py:**

**from** myapp8.models **import** Manager  
**from** myapp8.serializers **import** ManagerSerializer  
**from** rest\_framework **import** viewsets  
**from** rest\_framework.permissions **import** IsAuthenticated  
**from** myapp8.authentication **import** CustomAuthentication  
  
*# Create your views here.***class** ManagerModelViewSet(viewsets.ModelViewSet):  
 queryset = Manager.objects.all()  
 serializer\_class = ManagerSerializer  
 authentication\_classes = [CustomAuthentication]  
 permission\_classes = [IsAuthenticated]

**urls.py**:

**from** django.contrib **import** admin  
**from** django.urls **import** path,include  
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**from** rest\_framework.routers **import** DefaultRouter  
  
  
*#create a router object*router=DefaultRouter()  
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urlpatterns = [  
 path(**'admin/'**, admin.site.urls),  
 path(**''**,include(router.urls)),  
 path(**'authentication/'**,include(**'rest\_framework.urls'**,namespace=**'rest\_framework'**)),  
  
]

* Now go to terminal : python manage.py runserver
* Now go to browser: <http://127.0.0.1:8000/admin>
* **HTTP 200 OK**
* **Allow:** GET, HEAD, OPTIONS
* **Content-Type:** application/json
* **Vary:** Accept
* {
* "ManagerViewset": "<http://127.0.0.1:8000/ManagerViewset/>"
* }
* Click on the ManagerViewset link and try the below link with providing username
* http://127.0.0.1:8000/ManagerViewset/?username=mohan