Configurations

- ☐ install : pip install djangorestframework
- ☐ create serializers.py:

serializers.py

- ☐ To use all fields,
  - ☐ fields = '**all**'
- ☐ likes = serializers.RelatedField(many=True, read_only=True) will return str(likes): checkout: https://stackoverflow.com/questions/24346701/django-rest-framework-primarykeyrelatedfield

```
# serializers.py

from rest_framework import serializers
from .models import TweetModel

class TweetSerializer(serializers.ModelSerializer): #
HyperlinkedModelSerializer allows to add a 'url' field which allows to add
a link to the data.
    class Meta:
        model = TweetModel
        fields = ['id', 'content', 'likes']
        read_only_fields = ['id']

    def get_likes(self, obj):
        return obj.likes.count()

    def validate_content(self, value):
        if len(value)>MAX_TWEET_LENGTH:
            raise serializers.ValidationError("This tweet is too long")
        return value
```

- ☐ You can add custom fields with @property decorator in model class.
  - ☐ We don't need to create fields for the properties as class variables.
  - ☐ Just add them to fields list.

- [ ] To rename field name in json sent by serializer, add argument source='old_name'

```python
class TweetSerializer(serializers.ModelSerializer):
    likes = serializers.SerializerMethodField(read_only=True)
    og_tweet = TweetCreateSerializer(so read_only=True)
    class Meta:
        model = Tweet
        fields = ['id', 'content', 'likes', 'is_retweet', "parent"]

    def get_likes(self, obj):
        return obj.likes.count()
```

views.py

```python
# views.py
from rest_framework.response import Response
from rest_framework.decorators import api_view, permission_classes
from rest_framework.permissions import IsAuthenticated
from .serializer import TweetSerializer
from .model import TweetModel

@api_view(['POST']) # Only allows post request
@permission_classes([IsAuthenticated]) # This should be below of api_view,
else it gives some internal error.
def tweet_create_view(request, *args, **kwargs):
    serializer = TweetSerializer(data=request.POST)
    if serializer.is_valid(raise_exception=True):
        serializer.save(user=request.user)
        return Response(serializer.data, status=201)
    return Response({}, status=400) # This is not needed because of
raise_exception=True

@api_view(['GET'])
def tweet_list_view(request, *args, **kwargs):
    qs = TweetModel.objects.all()
    serializer = TweetSerializer(qs, many=True)
    return Response(serializer.data, status=200)


@api_view(['GET'])
def tweet_detail_view(request, tweet_id, *args, **kwargs):
    qs = TweetModel.objects.filter(id=tweet_id)
    if not qs.exists():
        return Response({'message':'Tweet not found'}, status=404)
    serializer = TweetSerializer(qs.first())
    return Response(serializer.data, status=200)

@api_view(['DELETE', 'POST'])
@permission_classes([IsAuthenticated])
def tweet_delete_view(request, tweet_id, *args, **kwargs):
```

```
    qs = TweetModel.objects.filter(id=tweet_id)
    if not qs.exists():
        return Response({'message':'Tweet not found', status=404})
    if not qs.filter
```

- [ ] To change the types of Authentication that give access to views,
  - [ ] Create REST_FRAMEWORK dictionary with 'DEFAULT_AUTHENTICATION_CLASS':['list', 'of', 'classes', 'from', 'documentation']
  - [ ] Add permission_classes decorator and pass the list of permission classes from from rest_framework.permissions.
- [ ] To pass data from views to serializer, pass it as context in the constructor: `TweetSerializer(instance=obj, context={"request":request})` and access in class using self.context.

Class Views

```
from rest_framework import generics, permissions

class RecipeCreateView(generics.CreateAPIView):
  queryset = Recipe.objects.all()
  serializer_class = RecipeSerializer
  permission_classes = [
    permissions.IsAuthenticated,
  ]

  def perform_create(self, serializer):
    serializer.save(author=self.request.user)
    serializer_class = RecipeSerializer
    permission_classes = [permissions.AllowAny]

  # THERE IS ListAPIView ALSO !!!

class IngredientCreateView(generics.ListCreateAPIView):
  queryset = Ingredient.objects.all()
  serializer_class = Ingredient

class CreateUpvoteView(generics.CreateAPIView):
  serializer_class = UpvoteSerializer
  permission_classes = [permissions.IsAuthenticated]

  def get_queryset(self):
    user = self.request.user
    recipe = Recipe.objects.filter(pk=self.kwargs['pk'])
    return Upvote.objects.filter(user=user, recipe=recipe)

  def perform_create(self, serializer):
    if self.get_queryset().exists():
      raise ValidationError('You have already voted on the recipe.')
    user = self.request.user
    recipe = Recipe.objects.filter(pk=self.kwargs['pk'])
```

```
    serializer.save(user=user, recipe=recipe)
```

```
from rest_framework import viewsets
class CourseView(viewsets.ModelViewSet):
  queryset = Course.objects.all()
  serializer_class = CourseSerializer
```

settings.py

- [ ] add to INSTALLED_APPS : 'rest_framework'

```
REST_FRAMEWORK = {
    'DEFAULT_AUTHENTICATION_CLASSES': [
        # 'rest_framework.authentication.BasicAuthentication',
        'rest_framework.authentication.SessionAuthentication',
    ],
    'DEFAULT_RENDERER_CLASSES': [
        'rest_framework.renderers.JSONRenderer',
        # 'rest_framework.renderers.BrowsableAPIRenderer',
    ]
}
```

JS

- [ ] xhr.setRequestHeader('Content-Type', 'applications/json')
- [ ] CSRF javascript
  - []

```
  function getCookie(name) {
      let cookieValue = null;
      if (document.cookie && document.cookie !== '') {
          const cookies = document.cookie.split(';');
          for (let i = 0; i < cookies.length; i++) {
              const cookie = cookies[i].trim();
              // Does this cookie string begin with the name we want?
              if (cookie.substring(0, name.length + 1) === (name +
'=')) {
                  cookieValue =
decodeURIComponent(cookie.substring(name.length + 1));
                  break;
              }
          }
      }
      return cookieValue;
```

```
    }
    const csrftoken = getCookie('csrftoken');
```

- [ ] xhr.setRequestHeader('X-CSRFToken', csrftoken)

Adding Like functionality

```
# models.py
class TweetLikeModel(models.Model):
  user = models.ForeignKey(User, on_delete=CASCADE)
  tweet = models.ForeignKey('TweetModel', on_delete=CASCADE)
  timestamp = models.DateTimeField(auto_add_now=True)

class TweetModel(models.Model):
  likes = models.ManyToManyField(User, related_name='tweet_user',
blank=True, through=TweetLike)

# If you don't need timestamp, you can remove through attribute and
associate them directly.

# serializers.py
class TweetActionSerializer(serializers.Serializer):
  id = serializers.IntegerField()
  action = serializers.CharField()

  def validate_action(self, value):
    value = value.lower().strip()
    if not value in TWEET_ACTION_OPTIONS:
      raise serializers.ValidationError(f"Actions can only be:
{*TWEET_ACTION_OPTIONS}")
    return value

# views.py
@api_view(['POST'])
@permission_classes([IsAuthenticated]) # see django_rest_framework.md to
refer this.
def tweet_action_view(request, tweet_id, *args, **kwargs):
  qs = TweetModel.filter(id=tweet_id)
  if not qs.exists():
    return Response({'message', 'Tweet not found'}, status=404)

  serializer = TweetActionSerializer(obj)
  like, unlike, retweet = 'like', 'unlike', 'retweet'

  if serializer.is_valid(raise_exception=True):
    data = serializer.validated_data
    action = data.get('action')
    if action == like:
      obj.likes.add(request.user)
    elif action == unlike:
      obj.likes.remove(request.user)
```

```
    elif action == retweet:
      # Something needs to be done.
      pass
    else:
      assert False, 'Invalid action has been validated by
TweetActionValidator !!!😈'
    return Response({'message':'Tweet action successful'}, status=200)
  return Response({'message':'Invalid Tweet'}, status=400)
  ...


# admin.py
class TweetLikeAdmin(admin.TabularInline):
  model = TweetLike

admin.site.register(TweetAdmin, TweetLikeAdmin)
```

- ☐ When using Content-Type: application/json, user request.data instead of request.POST.
- ☐ Logic for retweeting
  - ☐ Add a self linking ForeignKey in TweetModel called parent.
  - ☐ When someone retweets, create new tweet and its parent attribute to the original tweet.
  - ☐ Make the TweetSerializer readonly and copy original one to TweetCreateSerializer.

```
    class TweetSerializer(serializers.ModelSerializer):
        likes = serializers.SerializerMethodField(read_only=True)
        content = serializers.SerializerMethodField(read_only=True)
        class Meta:
            model = TweetModel
            fields = ['id', 'content', 'likes']
        def get_likes(self, obj):
            return obj.likes.count()
```

tests.py

- ☐ Create a user and add a tweet in it in setup function (from models itself).
- ☐ Refer ApiClient in django-rest-framework documentation -> testing.

urls.py

```
from rest_framework import routers
router.register('courses', CourseView) # CourseView imported from .views

urlpatterns = [
  path('', include(router.urls)),
]
```

settings.py

- [ ] To add api access to other applications, we need to configure CORS policies.
- [ ] To install, view django-cors-header in pypi.
- [ ] To know about configuration options, refer its github repo: https://github.com/adamchainz/django-cors-headers

```
CORS_ORIGIN_ALLOW_ALL = True # Any website has access to api.
# specific websites can be assigned as a list (http and https need to
be added separately)
CORS_URLS_REGEX = r'^/api/.*$'
```

TO enable automatic authentication in dev environment.

- [ ] Create rest_api directory inside project (where settings.py exists).
  - [ ] Create an **init**.py file inside that to make it a module.
  - [ ] Create another file dev.py # Delete this file when in production.
    - []

```
from rest_framework import authentication
from django.contrib.auth import get_user_model
User = get_user_model()
class DevAuthentication(authentication.BasicAuthentication):
  def authenticate(self, request):
    qs = User.objects.all()
    user = qs.order_by("?").first()
    return (user, None) # usually it returns (user, auth)
```

- [ ] In settings.py

```
  if DEBUG:
    DEFAULT_AUTHENTICATION_CLASSES +=
['tweetme2.rest_api.dev.DevAuthentication']
```

Pagination

- [ ] Look at django-rest-framework pagination.
- [ ] There are many types of inbuilt pagination-classes and you can create your own custom ones.
- [ ] Eg:

```
# views.py
from rest_framework.pagination import PageNumberPagination
@api_view(['GET'])
@permission_classes([IsAuthenticated])
def tweet_feed_view(request, *args, **kwargs):
  paginator = PageNumberPagination()
```

```
    paginator.page_size = 20
    user = request.user
    qs = Tweet.objects.feed(user)
    paginated_qs = paginator.paginate(qs, request)
    serializer = TweetSerializer(paginated_qs, many=True)
    return paginator.get_paginated_response(serializer.data)
```

Custom Serializers

```
class ProfileSerializer(serializers.ModelSerializer):
    first_name = serializers.SerializerMethodField(read_only=True)
    last_name = serializers.SerializerMethodField(read_only=True)
    username = serializers.SerializerMethodField(read_only=True)
    follower_count = serializers.SerializerMethodField(read_only=True)
    following_count = serializers.SerializerMethodField(read_only=True)

    class Meta:
        model = Profile
        fields = [
            'first_name',
            'last_name',
            'follower_count',
            'following_count',
            'username',
            'id',
        ]

    def get_first_name(self, obj):
        return obj.user.first_name

    def get_last_name(self, obj):
        return obj.user.last_name

    def get_username(self, obj):
        return obj.user.username

    def get_following_count(self, obj):
        return obj.user.following.count()

    def get_followers_count(self, obj):
        return obj.user.followers.count()
```

Some Notes

- ☐ Always use request.data for a post request.