

Django REST Framework – Core Real-World Cheat Sheet

1. Serializers

Simple Explanation: Serializers convert Django model data into JSON and also validate incoming data.

Interview One-liner: Serializer handles validation and conversion between Python objects and JSON.

Example Code:

```
from rest_framework import serializers
from .models import User

class UserSerializer(serializers.ModelSerializer):
    class Meta:
        model = User
        fields = ['id', 'username', 'email']

    def validate_email(self, value):
        if 'admin' in value:
            raise serializers.ValidationError("Invalid email")
        return value
```

2. ModelViewSet

Simple Explanation: ModelViewSet gives all CRUD operations in one class.

Interview One-liner: ModelViewSet combines list, create, retrieve, update and delete in one view.

Example Code:

```
from rest_framework.viewsets import ModelViewSet
from .models import User
from .serializers import UserSerializer

class UserViewSet(ModelViewSet):
    queryset = User.objects.all()
    serializer_class = UserSerializer
```

3. Request & Response

Simple Explanation: DRF uses `request.data` for input and `Response` for output instead of `HttpResponse`.

Interview One-liner: DRF request and response handle JSON data automatically.

Example Code:

```
from rest_framework.response import Response
from rest_framework.decorators import api_view

@api_view(['POST'])
def sample_view(request):
    name = request.data.get('name')
    return Response({'message': f'Hello {name}'})
```

4. Authentication (JWT / Token)

Simple Explanation: Authentication checks who the user is for API requests.

Interview One-liner: Authentication identifies the user making the API request.

Example Code:

```
from rest_framework.permissions import IsAuthenticated

class SecureViewSet(ModelViewSet):
    permission_classes = [IsAuthenticated]
```

5. Permissions

Simple Explanation: Permissions decide whether a user can access an API or not.

Interview One-liner: Permissions control what authenticated users are allowed to do.

Example Code:

```
from rest_framework.permissions import IsAuthenticated

permission_classes = [IsAuthenticated]
```

6. Pagination

Simple Explanation: Pagination limits how many records are sent in one API response.

Interview One-liner: Pagination improves performance by limiting API response size.

Example Code:

```
from rest_framework.pagination import PageNumberPagination

class CustomPagination(PageNumberPagination):
    page_size = 10
```

7. Filtering & Search

Simple Explanation: Filtering allows searching and ordering data using query parameters.

Interview One-liner: Filtering helps clients fetch only required data.

Example Code:

```
class UserViewSet(ModelViewSet):
    filterset_fields = ['is_active']
    search_fields = ['username']
    ordering_fields = ['id']
```