

In Django REST Framework, Some main common words or concepts that are using.

1. API
2. Web API / Web Services
3. REST
4. REST API / RESTful Web Services
5. Django REST Framework

1. API :

- API stands for Application Programming Interface.
- If we want to access the functionality of one application from another application or from the End user then we need one Interface , That interface is called as API.
- If it is Software application, then we use API for communication purpose.
- If it is normal end user, then we use GUI for communication purpose.
- So by using API TWO different kind of applications will communicate to each other for exchanging the Data between them.

2. Web API or Web Services :

- The API which is developed to access the web applications , such type of API is called as Web API.
- Web API's are also called as Web Services.
- Web Service is a service which is provided over the web by some web applications.
- Web API concept is applicable for web applications.
- So by using the Web API , we can access services of web applications.

3. REST :

- REST stands for Representational State Transfer .
- REST is an architectural style for building the Web API's. So REST defines several guidelines to develop the web api's very easily with less time.

4. REST API :

- The API's which are developed by using the REST principles or guidelines are called as REST API's.
- REST API's are using the HTTP protocols.
- REST API's are also called as RESTful api's or RESTful web services.

Web Service Provider :

- The application which is providing web services is called Web Service Provider.

Web Service Consumer :

- The application which is consuming web services is called Web Service Consumer.

For example :

```

graph LR
    subgraph "BookMyShow Application"
        direction TB
        C[Consumer App]
    end
    subgraph "PaymentGateWay Application"
        direction TB
        P[Provider App]
    end
    C <--> P

```

- Why because here BookMyShow app uses the services of PaymentGateWay app for doing their activities.

How many types of Web Services are there ?

We have two types of services. They are,

1. SOAP based Web Services
2. RESTful Web Services

SOAP :

- SOAP stands for **Simple Object Access Protocol**
- SOAP is always used XML based data
- Biggest problem of XML is Heavy Weight

Syntax:

```
<root>
  <child1>Data</child1>
  <child2>More Data</child2>
</root>
```

- Heavy Band width needed

For example:

If any data is transferred from provider application to consumer application , then Heavy Band width data is required.

- Parsing the XML data is take more time. so it is not efficiency.
- Note : Parsing means reading the data from XML object types to Another object types.
- Low performance
- Implementing the SOAP based Web API's are more complexing
- Development time and Cost of the Project is increasing

So because of these common problems , the people are not using the SOAP based Web Services.

Advantages :

- SOAP supports multiple types of protocols. For example , HTTP , SMTP, FTP etc
- WSDL (Web Service Description Language) uses
If we want to send the data from one application to another application , we need one special language called as WSDL .
- Due to this WSDL , data has more secured when transferring between two applications over the networks.
- No limit on size of the data.

RESTful Web Services :

- REST stands for Representational State Transfer , where each URL is Representation of an object.
- By using HTTP verbs or protocols, we can perform operations related to that object.
For example, **GET , POST , PUT , DELETE**

Advantages :

- RESTful Web Services are using "JSON" type based data.
- JSON is a "Light weight" component .
- So when transferring of json data over networks is required "less Band width".
- No WSDL language required means we can expose directly our json data over networks by using URLs.
- High performance

- Easy development
- Human understandable message format like plain Text (looks like Python Dictionary)

Drawbacks :

- Less secured to data
- It supports only HTTP protocol, no SMTP , no FTP
- Limited amount of data is transferring.