## Q1) Explain what is REST and RESTFUL?

- REST was first introduced by Roy Fielding in 2000.
- REST stands for REpresentational State Transfer. It means that each unique UI a represention of some object. it focuses on how state of resource should be

RESTFUL web service HTTP methods like GET, POST, PUT, PATCH and DELETE can be used to perform CRUD operations

**Note:** REST is basically an architecture where as RESTFul API is an API that implements REST.

## Q2) Explain the architectural style for creating any web API based on REST?

The architectural style for creating web api are

1) We can use HTTP for client server communication
2) We can use XML/JSON to send and receive messages. i.e XML/JSON acts as formatting language.
3) Each resource/service can be accessed by a unique URL. This URL acts as the address for the resource/service.
4) Stateless communication

## Q3) Explain some Key characterics of REST?

The following are various important key characterics of REST

1) REST is a stateless and hence SERVER has no state(or session data)
2) With a well-applied REST API, the server can be restarted without any impact on the client
3) Web Services mostly allow

## Q5) What is a "Resource" in REST?

REST architecture treats any content as a resource, which can be either database record, text files, HTML pages, images, videos or dynamic business information. Consumer application can send

- GET request to access a resource,
- POST request to create a resource,
- PUT/PATCH request to update a resource,
- DELETE request to delete a resource.

## Q6) Explain Which markup languages used in the REST API?

- JSON and XML are the most commonly used markup languages in the rest api.
- But these days JSON is commonly used because of light weight, high performance and less bandwidth requirements.

## Q7) What is the most popular way to represent a resource in REST?

XML and JSON are the most popular representations of resources.

## Q15) What is payload in RESTFul Web services?

The "payload" is the data what we are transporting from client application to server application.

## Q16) What is the upper limit for a payload to pass in the POST method?

In GET request, the data will be appended to the service URL. There is a limit on length of URL. Hence limit is applicable for payload of GET request.

In POST request, the payload (data) will be encapsulated in request body, which is not having any size limit. Hence there is no limit for payload of POST request.

## Q17) Explain the term 'Statelessness' with respect to RESTful WEB service?

Statelessness means complete isolation. Server won't maintain any information of the client. Every request to the server is treated as an independent new request. With every request client is responsible to send authentication information also like Tokens etc.

## Q18) Explain advantages and disadvantages of 'Statelessness'?

### Advantages:

1) Every request to the server is considered as independent request. i.e there are no dependencies to previous requests.
2) Any previous communication with the client and server is not maintained and hence the total process is simplified.
3) Every request contains complete information.
4) Without effecting client applications, we can restart server.

### Disadvantages:

1) With every request, compulsory client should send extra information like authentication tokens etc. It is a burden to the client application.
2) It causes network traffic problems and require more bandwidth.

## Q19) What is the caching mechanism?

Caching is the process in which server response is stored so that a cached copy can be used when required and there is no need of generating the same response again.

The main advantages of caching are:

1) It reduces load on the server
2) It improves performance of the application
3) It improves the scalability of the application.

Only the client is able to cache the response and that too for a limited period of time.

Mentioned below are the header of the resources and their brief description so that they can be identified for the caching process:

- Time and Date of resource creation
- Time and date of resource modification that usually stores the last detail.
- Cache control header
- Time and date at which the cached resource will expire.
- The age which determines the time from when the resource has been fetched.

## Q20) What is status code and what are various possible HTTP status codes?

HTTP status code represent the status of the response like success or fail etc. The following are various possible HTTP status codes

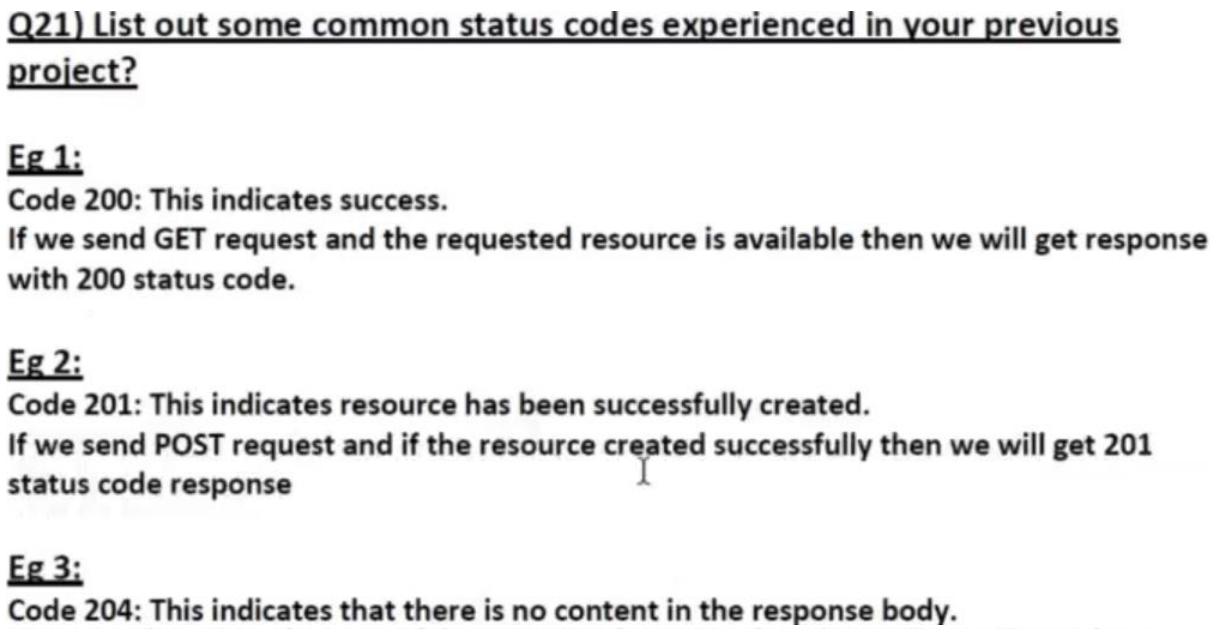
1XX → Informational

2XX → Successful

3XX → Redirection

4XX → Client Error

5XX → Server Error



## Q21) List out some common status codes experienced in your previous project?

**Eg 1:**

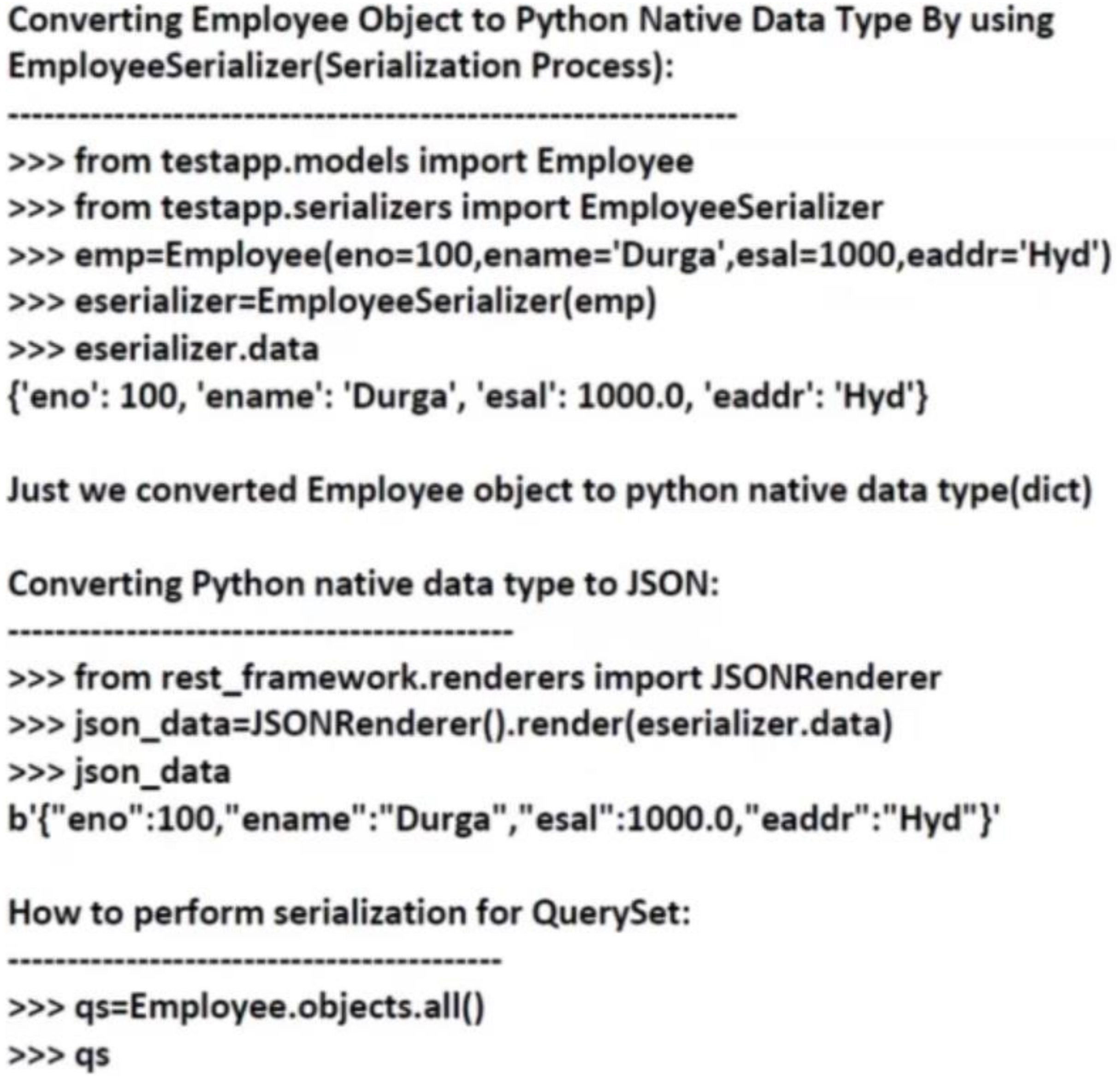
Code 200: This indicates success.
If we send GET request and the requested resource is available then we will get response with 200 status code.

**Eg 2:**

Code 201: This indicates resource has been successfully created.
If we send POST request and if the resource created successfully then we will get 201 status code response

**Eg 3:**

Code 204: This indicates that there is no content in the response body.



### Converting Employee Object to Python Native Data Type By using EmployeeSerializer(Serialization Process):

```
-------------------------------------------------------------
>>> from testapp.models import Employee
>>> from testapp.serializers import EmployeeSerializer
>>> emp=Employee(eno=100,ename='Durga',esal=1000,eaddr='Hyd')
>>> eserializer=EmployeeSerializer(emp)
>>> eserializer.data
{'eno': 100, 'ename': 'Durga', 'esal': 1000.0, 'eaddr': 'Hyd'}
```

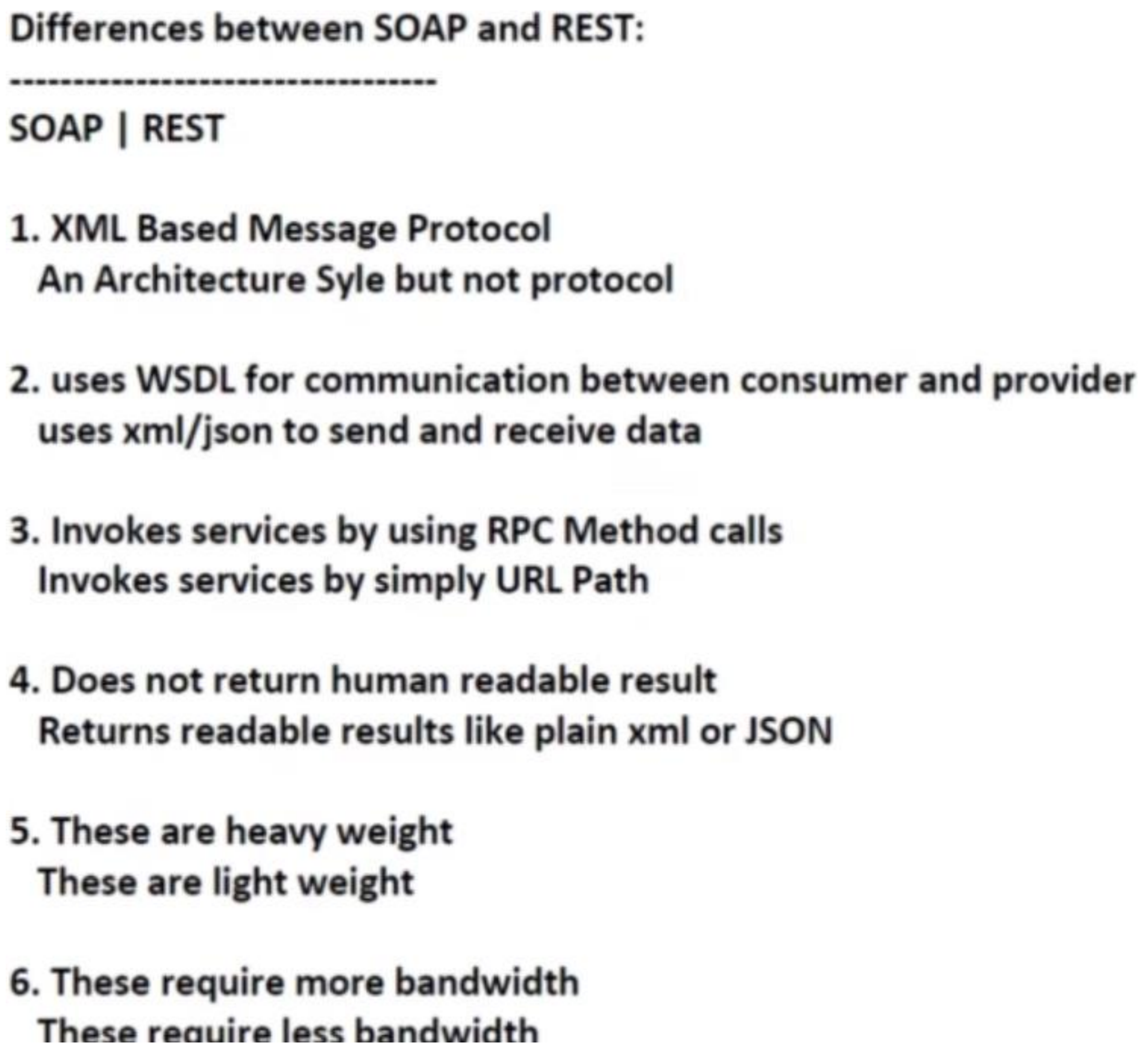
Just we converted Employee object to python native data type(dict)

### Converting Python native data type to JSON:

```
------------------------------------------
>>> from rest_framework.renderers import JSONRenderer
>>> json_data=JSONRenderer().render(eserializer.data)
>>> json_data
b'{"eno":100,"ename":"Durga","esal":1000.0,"eaddr":"Hyd"}'
```

### How to perform serialization for QuerySet:

```
-----------------------------------------
>>> qs=Employee.objects.all()
>>> qs
```



Differences between SOAP and REST:

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SOAP | REST

1. XML Based Message Protocol
   An Architecture Syle but not protocol

2. uses WSDL for communication between consumer and provider
   uses xml/json to send and receive data

3. Invokes services by using RPC Method calls
   Invokes services by simply URL Path

4. Does not return human readable result
   Returns readable results like plain xml or JSON

5. These are heavy weight
   These are light weight

6. These require more bandwidth
   These require less bandwidth