

1. Do some research on the Python requests module. Explain what it is, and how it is used to make HTTP requests.

Python requests module is the requests module that allows you to send HTTP request using python to the web servers. Its functionality is to allow python programs to communicate with web services such as websites. Python requests module also is used to handle HTTP methods like GET, POST, PUT etc. which manages header, parameters, cookies, sessions and authentications. So to use it you have to face navigate your command line to the location of PIP and type "pip install requests" so once you run the command it return syntax "requests.methodname()" which will requests the user to insert the type of operation he would want to use for example if its "response = request.get(url)" so once i run the command " print(response.status_code)" it will print out the http status code be it 400 or 404 or if I run " response = requests.get("url")" and "print(response.text)" , it will print out all the content has been requested from the server via the https protocol.

2. JSON DATA FORMAT

JSON stands for Javascript Object notation which is a human readable text format used for data interchange. It is normally structured using key -value pairs and arrays, it is widely used in APIs, configurations and Databases.

Advantages of json

1. it is light weight and easy to to read and interpret for humans.
2. it is smaller in size making data transfer faster
3. Is is supported in almost every recent programming languages.
4. works well with restful API

disadvantages of json

1. it does not support other types of data types like other form of binary data or dates.
2. it has less validation options
3. it is difficult to present in complex document structures.
4. No built in schema support.

XML

extensible markup language is a markup language designed to store and transoprt structured data. It identified by udsing tags like that of html. It is motsly used on SOAP APIs and configuration files.

Advantages of XML

1. supports complex hierarchial structures
2. it can be used for validation supports
3. it goes well with documente-oriented data like excel.
4. it is flexible to humans

disadvantages of XML

1. larger files take long to transfer
2. it is more difficult to read and write as compared to json
3. It is more resource intensive so which makes parsing very slow.

4.it is becoming less popular for APIs compared to json.

4. Provide a brief explanation of what a RESTful API is, how it works and what it is used for. List at least four advantages and four disadvantages of RESTful APIs.

Representational State Transfer is an architectural style of building web services which uses HTTP methods like GET, POST, PUT and DELETE to interact with resources and each resource is represented by a unique url or endpoint. So when a client uses a browser to send the http request to an API end point, the server processes the request and send back a response usually in JSON or XML and each request will contain all necessary information. RESTful APIs are normally used to connect frontend apps with backend apps and also for data sharing between systems.

Advantages of RESTful APIs

1. works well with json for fast data exchange.
2. uses http methods consistently.
3. each requests are independent.
4. it is supported by all languages and frameworks.

Disadvantages of RESTful APIs

1. there can over fetch information or under-fetch information.
2. there is no strict standardization.
3. it is less efficient for complex enquiries.
- 4.Requires multiple requests for related resources.