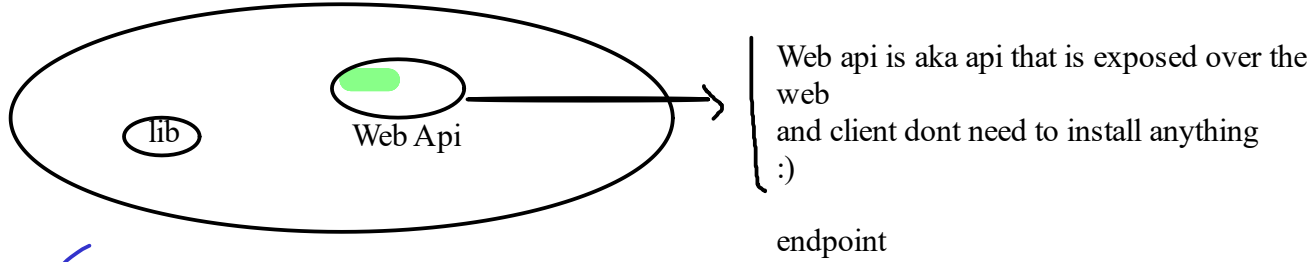
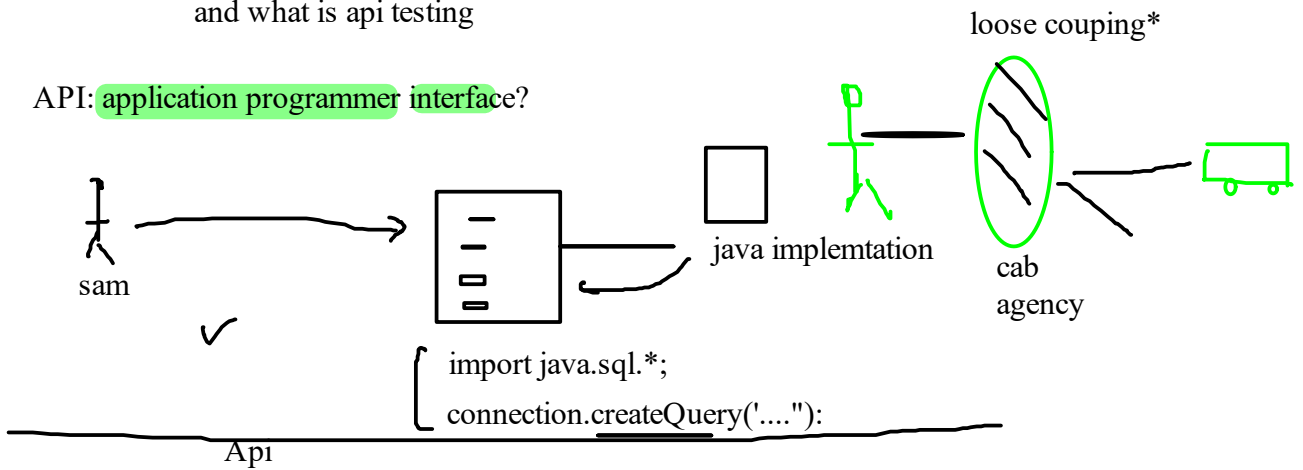
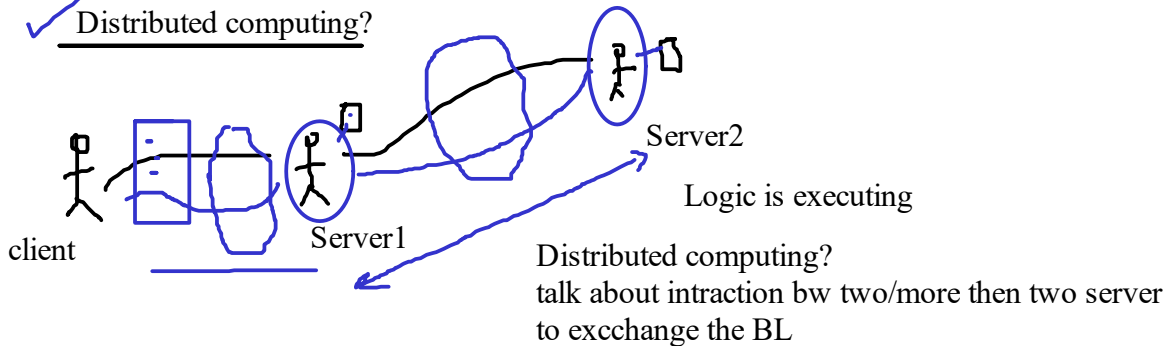


What is API, web service, rest, soap and what is api testing

API: **application programmer interface**?

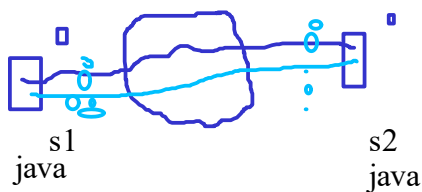


✓ Distributed computing?



Kind of Distributed computing?

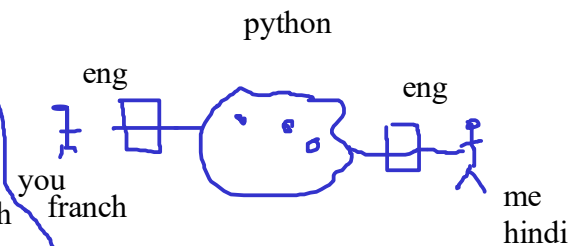
- > corba
- > ejb, remoting
- > RMI



Web service :aka service (BL) that is exposed over web (http) and can be access in **interoperatable** way

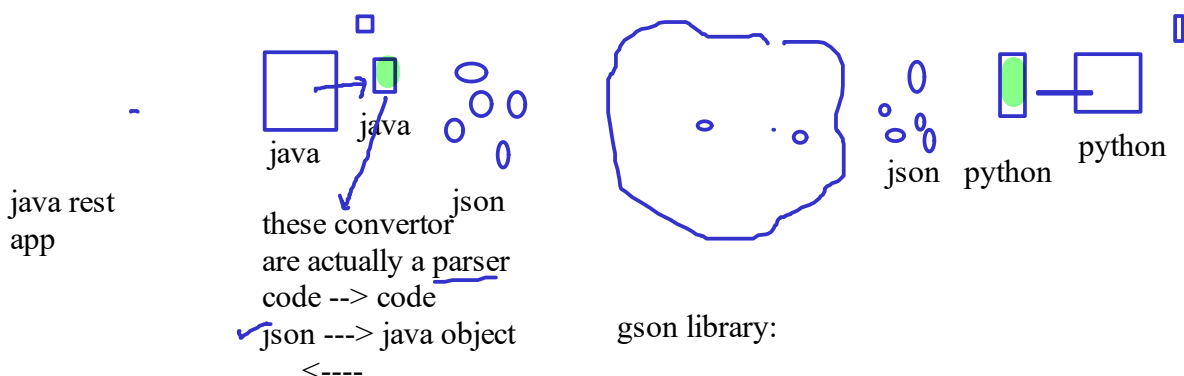
- ✓ xml
- ✓ json

it is the data format that is used access all web service and understood by each parties and hence interoperatable



✓ xml : eXtended MarkupLanguage

✓ json: JavaScript Object Notation *js object



Web services:

1. REST web service
2. SOAP web service

What is REST web service?

REST web service

Representational State Transfer (REST) architectural style.

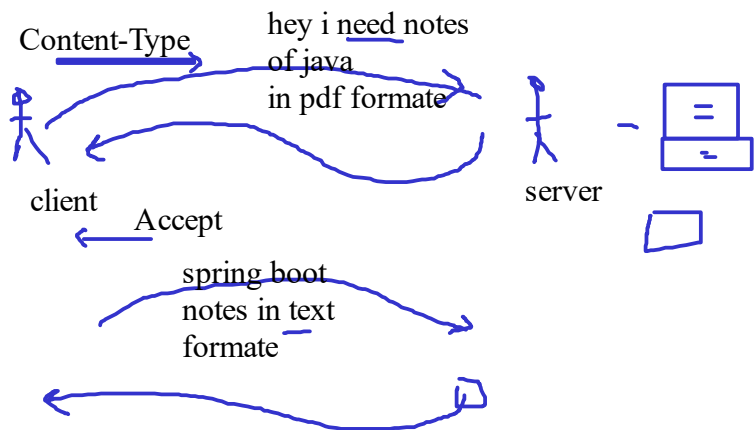
REST is a set of rules that dictate how web service applications communicate over the internet.

RESTful APIs are APIs that follow these rules, and provide flexibility, bandwidth, and speed advantages to software integrations and communications.

Swagger is very imp

OpenAPI specification

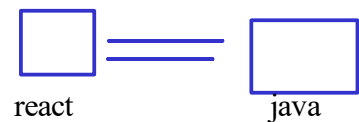
Why rest is called **Representational State Transfer (REST)**?



REST
exchange of representation of data
bw two machine based on
content negotiation

data formate most of the time
is json

full stack sw dev



characteristics of REST

✓ **Uniform interface:**

A group of methods, such as GET, PUT, POST, and DELETE, that are easily understood by the client and server

✓ **Stateless:** Each request is processed independently from the previous ones

✓ **Cacheable:** REST is cache friendly and supports multiple formats

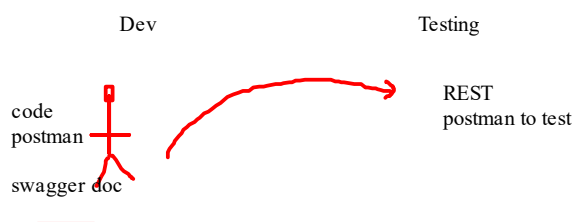
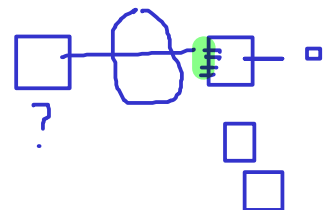
✓ **Client-server:**

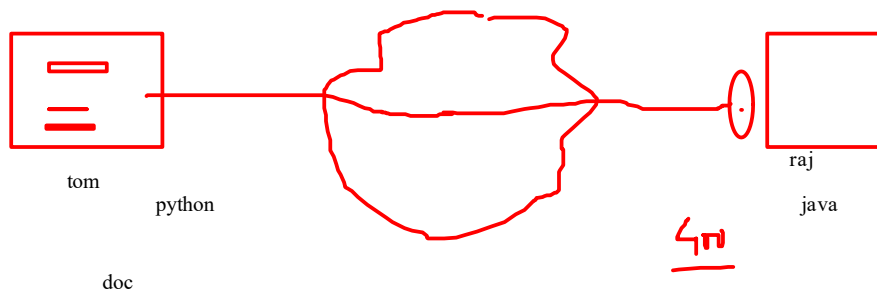
The server has "resources" that are presented to the client as a representation of the resource's state

✓ **Layered system:**

Individual components cannot see beyond the immediate layer with which they are interacting

CRUD

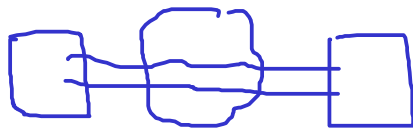




Http protocol?

REST is build on top of Http protocol

The Hypertext Transfer Protocol (HTTP) is a set of rules for transferring files over the web. It's the foundation of the World Wide Web and is used to load web pages using hypertext links. HTTP is an application layer protocol that runs on top of the TCP/IP suite of protocols, which forms the internet's foundation



Http is stateless

✓ idempotent?

post is non idempotent

✓ GET.
- PUT.
- POST.
- DELETE.
- PATCH.
HEAD.
OPTIONS.
TRACE.
CONNECT.

used to get data from the server

idempotent

no side effect

used to get update from the server

idempotent

no side effect

used to add new data to the server

Non idempotent

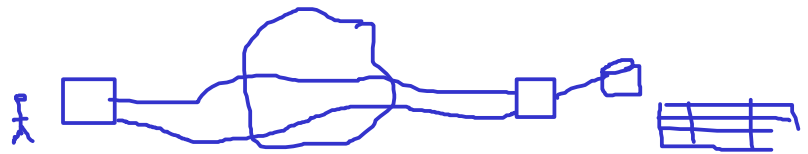
have side effect

used to delete a resource from the server

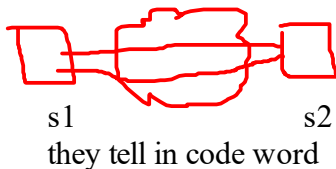
idempotent

no side effect

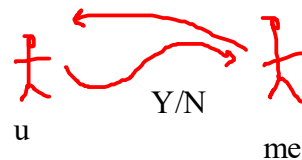
used to get update a part of the data to the server



Http status code?



s1 s2
they tell in code word



200
201
203
...

- ✗ Informational responses (100 – 199)
- ✓ Successful responses (200 – 299)
- ✓ Redirection messages (300 – 399)
- ✓ Client error responses (400 – 499)
- ✓ Server error responses (500 – 599)

200: ok

201: created

204 : No Content

delete

401: authentication

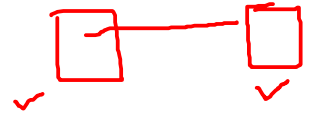
403: authorization fail



Client error responses

✓ 400 Bad Request

The server cannot or will not process the request due to something that is perceived to be a client error (e.g., malformed request syntax, invalid request message framing, or deceptive request routing).



✓ 401 Unauthorized

Although the HTTP standard specifies "unauthorized", semantically this response means "unauthenticated". That is, the client must authenticate itself to get the requested response.

who are u

402 Payment Required Experimental

This response code is reserved for future use. The initial aim for creating this code was using it for digital payment systems, however this status code is used very rarely and no standard convention exists.

403 Forbidden

✓ The client does not have access rights to the content; that is, it is unauthorized, so the server is refusing to give the requested resource. Unlike 401 Unauthorized, the client's identity is known to the server.

404 Not Found

The server cannot find the requested resource. In the browser, this means the URL is not recognized.

In an API, this can also mean that the endpoint is valid but the resource itself does not exist.

Servers may also send this response instead of 403 Forbidden to hide the existence of a resource from an unauthorized client. This response code is probably the most common.

405 Method Not Allowed

The request method is known by the server but is not supported by the target resource.

For example, an API may not allow calling DELETE to remove a resource.

406 Not Acceptable

This response is sent when the web server, after performing server-driven content negotiation, doesn't find any content that conforms to the criteria given by the user agent.

Server error responses

500 Internal Server Error

The server has encountered a situation it does not know how to handle.

501 Not Implemented

The request method is not supported by the server and cannot be handled. The only methods that servers are required to support (and therefore that must not return this code) are GET and HEAD.

502 Bad Gateway

This error response means that the server, while working as a gateway to get a response needed to handle the request, got an invalid response.

503 Service Unavailable

How to test the api

Postman: rest web service
SoapUI: SOAP web service

we already have a api test
dev
tester
admin

Use case:

B2B: bank app : transfer the money
atm card validation

logic
oriented

logic is complicated but data is very less
i want more secure way of data comm
more mature sol

SOAP

User oriented app / mass app /twitter api/
u have data oriented application

REST

CRUD