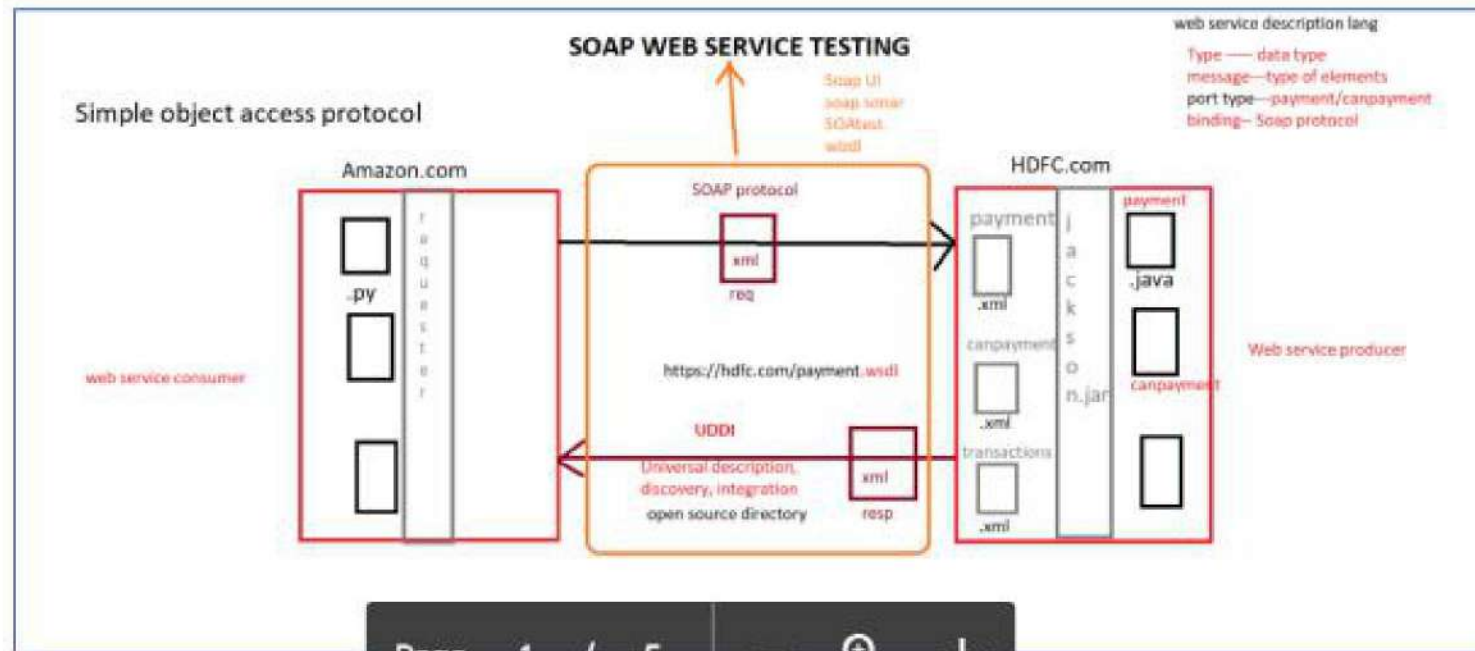


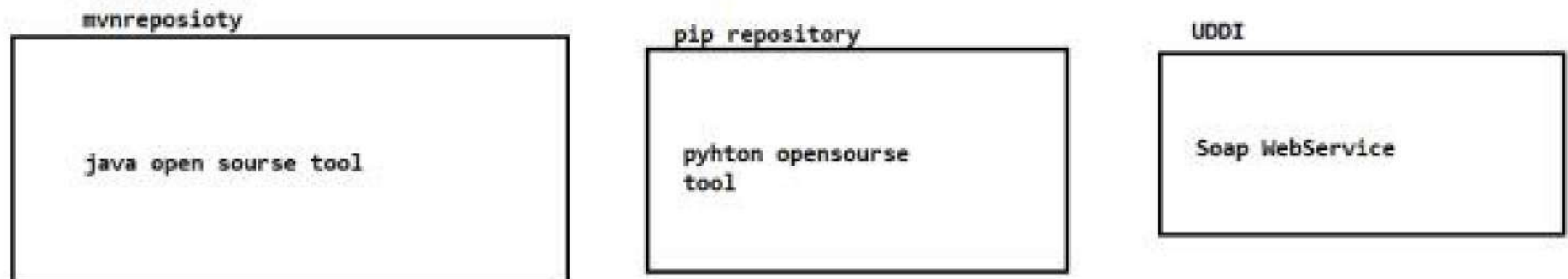
What is SOAP?

- SOAP stands for Simple Object Access Protocol
- SOAP is a simple **XML**-based protocol to let applications exchange information over HTTP.
- SOAP uses XML to exchange information between applications.
- SOAP provides a way to communicate between 2 applications running on different operating systems, with different technologies and programming languages.
- SOAP communicates via Internet
- SOAP is platform independent
- SOAP is language independent
- SOAP is simple and extensible



UDDI

- UDDI is an XML-based standard for describing, publishing, and finding web services.
- UDDI stands for **Universal Description, Discovery, and Integration**.
- UDDI is a specification for a distributed registry of web services.



What is WSDL?

- An WSDL document describes a soap web service. It specifies the **location** of the service, and the methods of the service, using these major elements:
 - Element
 - `<types>`
 - Defines the (XML Schema) data types used by the web service
 - `<message>`
 - Defines the data elements for each operation
 - `<portType>`
 - Describes the operations that can be performed and the messages involved.
 - `<binding>`
 - Defines the protocol and data format for each port type

Soap Web Service API Testing

- When two applications exchange information via **soap** protocol, which is based on **xml**, testing those request and response is called Soap webservice testing
- SOAP Web service exposed via **.WSDL** file
- EG: SOAP API

<http://www.dneonline.com/calculator.asmx?WSDL>

<http://map.google/api/soap/service.wsdl>

What is Rest?

- REST stands for Representational State Transfer.
- It means when a RESTful API is called, the server will transfer to the client a representation of the state of the request
- REST is an architectural style for developing web services. REST is popular due to its simplicity and the fact that it builds upon existing systems and features of the internet's http resource.

Why JSON is Popular in Restful Webservice?

- Java Script Object Notation
- It's a Programming language to exchange information between 2 applications
- The JSON format is syntactically identical to the code for creating JavaScript objects.
Because of this similarity, a JavaScript program can easily convert JSON data into native JavaScript objects.
- JSON is a lightweight format for storing and transporting data
- All Browser & Mobile UI can easily consume json language
- NoSQL databases can directly store the data in the form of JSON (Mongo DB, Cassandra)
- It is platform independent

Restful Webservice API Testing

- When two applications exchange information via **http** protocol, which is based **json/xml/text/html**, testing those request and response is called Rest webservice testing
- Rest API Webservice are exposed via **URI**
- EG: Rest API

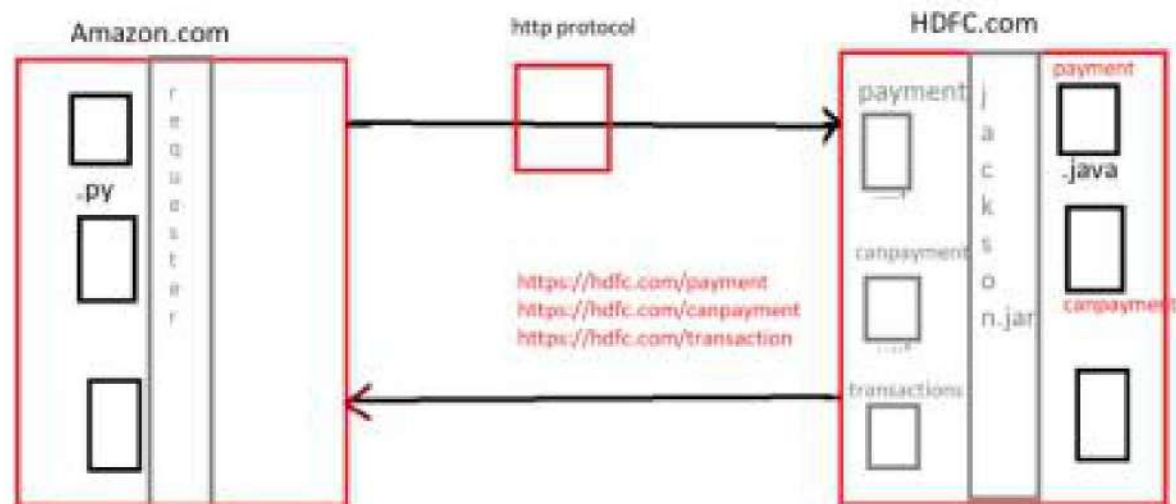
<http://map.google/api/getlocation>

<http://map.google/api/gettraffice?src='value'&dest=value>

<http://map.google/api/gettraffic>

REST WEB SERVICE TESTING XML, JSON, text, html

Representational state transfer architectural style



Difference between SOAP/ Rest

SOAP Web Service	Rest Web Service
SOAP is a protocol	REST is Architectural style
Simple Object Access Protocol	Representational State Transfer
SOAP can't use REST Web service; it is a protocol	REST can use soap as well since it is concept
SOAP expose the services (Business Logic) via .WSDL file	REST expose the service (Business Logic) via URI
SOAP is designed using too much standards	REST does not define too much standards
SOAP permits XML data format only	REST permits different data formats- Plain text, html, JSON, XML, JS
SOAP requires more bandwidth and resources	REST requires less bandwidth and resource than SOAP
SOAP defines its own security	Inherits security measures from underlined transport Protocol (ouath-1.0, outh-2.0, Bearer token)
Less preferred than REST	REST more preferred than SOAP

Advantages of Web Service

1. Web Services Interoperability (WS-I)

- Web Services are "Application, Platform and Technology Independent"
- Ex: Uber / OLA and Google Maps shares the data among each other

2. Loosely Coupled

- Each application is independent of one another. Hence changes done to one application will not impact the "unrelated areas"

3. No need of re-inventing the wheel

- Web Services reduces the software development time

- This helps the other business partners to quickly develop application and start doing business
- This helps business to save time and money by cutting development time
- Ex: Uber / OLA can make use of Google Maps

4. Business Opportunity

- Web Services will open the door for new business opportunities by making it easy to connect with partners
- Ex: Dominos can get the order from Food Panda / Swiggy along with getting orders from its own site

5. Service Reuse

- Web Services takes code reuse a step further
- Ex: An organization can have a "Single Payment Gateway service" which helps other web applications of that organization to interact

Http request & http response



Status codes

Status Code	Description
100	Continue
200	Server successfully handled the request
300	Re-direction request
400	Client-side error (requested resource not found at server side)
500	Server-side error (Server encounter, an unexpected condition)

HTTP Status Codes

Level 200 (Success)

200 : OK
201 : Created
203 : Non-Authoritative Information
204 : No content

Level 400

400 : Bad Request
401 : Unauthorized
403 : Forbidden
404 : Not Found
409 : Conflict

Level 500

500 : Internal Server error
501 : Not Implemented
502 : Bad Gateway
503 : Service Unavailable
504 : Gateway timeout
599 : Network timeout