Restful WebServices

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Restful Web Service

- What is REST architecture?
- REST stands for REpresentational State Transfer. REST is web standards based architecture and uses HTTP Protocol.
- In REST architecture, a REST Server simply provides access to resources and REST client accesses and modifies the resources.
- Here each resource is identified by URIs/ global IDs.
- REST uses various representation to represent a resource like text, JSON, XML.
- JSON is the most popular one.

Introduction to RESTFul web services

- A web service is a collection of open protocols and standards used for exchanging data between applications or systems.

- This interoperability (e.g., between Java and Python, or Windows and Linux applications) is due to the use of open standards.

Introduction to RESTFul web services

- Web services based on REST Architecture are known as RESTful web services.

- These webservices uses HTTP methods to implement the concept of REST architecture.

- A RESTful web service usually defines a URI, Uniform Resource Identifier a service, provides resource representation such as JSON and set
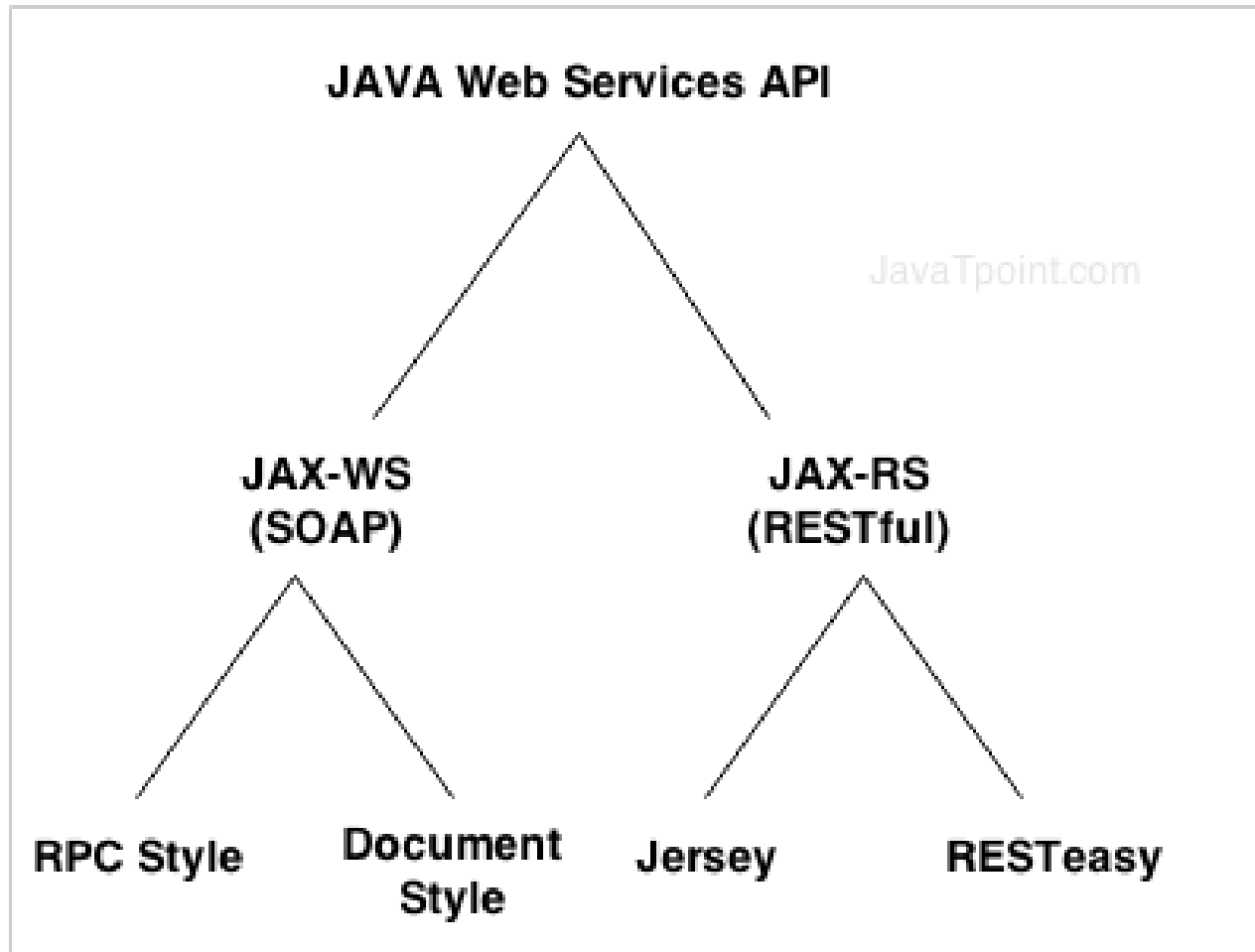
SOAP vs REST Web Services

No.	SOAP	REST
1)	SOAP is a **protocol**.	REST is an **architectural style**.
2)	SOAP stands for **Simple Object Access Protocol**.	REST stands for **REpresentational State Transfer**.
3)	SOAP **can't use REST** because it is a protocol.	REST **can use SOAP** web services because it is a concept and can use any protocol like HTTP, SOAP.
4)	SOAP **uses services interfaces to expose the business logic**.	REST **uses URI to expose business logic**.
5)	**JAX-WS** is the java API for SOAP web services.	**JAX-RS** is the java API for RESTful web services.

SOAP vs REST Web Services

6)	SOAP **defines standards** to be strictly followed.	REST does not define too much standards like SOAP.
7)	SOAP **requires more bandwidth** and resource than REST.	REST **requires less bandwidth** and resource than SOAP.
8)	SOAP **defines its own security**.	RESTful web services **inherits security measures** from the underlying transport.
9)	SOAP **permits XML** data format only.	REST **permits different** data format such as Plain text, HTML, XML, JSON etc.
10)	SOAP is **less preferred** than REST.	REST **more preferred** than SOAP.

Java Web Services API

JAX-RS Annotations

The **javax.ws.rs** package contains JAX-RS annotations.

Annotation	Description
Path	It identifies the URI path. It can be specified on class or method.
PathParam	represents the parameter of the URI path.
GET	specifies method responds to GET request.
POST	specifies method responds to POST request.
PUT	specifies method responds to PUT request.
HEAD	specifies method responds to HEAD request.
DELETE	specifies method responds to DELETE request.
Produces	defines media type for the response such as XML, PLAIN, JSON etc. It defines the media type that the methods of a resource class or MessageBodyWriter can produce.

What is a Resource?

- REST architecture treats every content as a resource. These resources can be Text Files, Html Pages, Images, Videos or Dynamic Business Data.

- REST Server simply provides access to resources and REST client accesses and modifies the resources. Here each resource is identified by URIs/ Global IDs.

Representation of Resources

- A resource in REST is a similar Object in Object Oriented Programming or is like an Entity in a Database.
- Once a resource is identified then its representation is to be decided using a standard format so that the server can send the resource in the above said format and client can understand the same format.

URL vs URI

- For starters, URI stands for uniform resource **identifier** and URL stands for uniform resource **locator**.
- URLs are a subset of URIs. That means all URLs are URIs. It doesn't work the opposite way though.
- Your name could be a URI because it identifies you, but it couldn't be a URL because it doesn't help anyone find your location.
- On the other hand, your address is both a URI and a URL because it both identifies you *and* it provides a location for you.

Types of URI

- Two types of resource URIs
- Instance resource URIs

  ex: weather/zipcode/387001

- Collection resource URIs

  ex: in.bookmyshow.com/ahmedabad/movies/

  /messages/{messageid}/comments/
  {commentid}

  / message?offset=30&limit=10

Json Format

- ['page type': 'buytickets movie',
- 'session_daypart': 'Morning',
- 'pageurl': 'https://in.bookmyshow.com/buytickets/mission-mangal-ahmedabad/movie-ahd-ET00089473-MT/20190820',
- 'user_mode': 'Guest Mode',
- 'app_code': 'WEB',
- 'domain': 'bms_web',
- 'event_format': eventDetails.dimension,
- 'event_id': 'ET00089473',
- 'language': eventDetails.language,
- 'event_name': eventDetails.title,
- 'genre': eventDetails.genre,
- 'event_release_date': 'Aug 15, 2019']

```html
<a class="__showtime-link  time_vrcenter " href="/booktickets/WAGA/164419"
  data-session-id="164419"
  data-showtime-code="2245"
  data-showtime-filter-index='night'
  data-date-time="10:45 PM"
  data-display-showtime="10:45 PM"
  data-is-atmos-enabled="N"
  data-availability="A"
  data-cut-off-date-time="201908202215"
  data-venue-code="WAGA"
  data-event-id="ET00089473"


  data-cat-popup='[{"price":"220.00","desc":"Silver","availabilityClass":"_available"
      ,"availabilityText":"Available"},{"price":"220.00","desc":"Gold","availabilityClass"
      :"_available","availabilityText":"Available"},{"price":"270.00","desc":"Platinum"
      ,"availabilityClass":"_filling","availabilityText":"Filling Fast"}]'
  data-price-filter-index='[3]'
  data-is-unpaid="0"
  data-unpaid-quota="0"
  data-seats-percent="60"
  >
  10:45 PM
```