

# What is a RESTful Web Service?

## A Review of REST and RESTful Web Services

- 🕒 A Definition of Web Services
- 🕒 What is REST?
- 🕒 HTTP Methods POST, GET, PUT, DELETE
- 🕒 The Uniform Interface
- 🕒 Client/Server Architecture

# What is a RESTful Web Service?

## A Definition of Web Services

- ❏ Web Services are functions you can call using an API.
- ❏ RESTful Web services are services that are exposed to the internet by programmatic access.
- ❏ Unlike SOAP Web Services, which follow the SOAP Protocol, RESTful Web Services do not have strict rules on how the messages should be formatted.
- ❏ Messages can be sent using XML, JSON, or even text. The key is that Client and Server understand the protocol.

# What is a RESTful Web Service? An Illustration



## What is REST

- ❏ **REST** stands for **Representational State Transfer**
- ❏ This is a process in which a **Representation** of a **Resource** is transferred between a Client and a Server, an action is performed on the server, and information is returned to the Client.
- ❏ The **Representation** in a RESTful action is the information required for the Resource to perform the **HTTP Method**. We'll refer to **Representation** this presentation as the API string.
- ❏ The most commonly used **HTTP Methods** are **POST** (Create), **GET** (Read), **PUT** (Update) and **DELETE** (Delete). These are referred to as CRUD.
- ❏ The **Resource** is represented by a Universal Resource Identifier (URI)
- ❏ The **Representation** can be in any format, but JSON and XML are the most common.

## HTTP Methods POST, GET, PUT, DELETE (CRUD)

### POST/CREATE

- WRITE Record
- Return Record and File Status

### GET/READ

- READ Record on KEY
- Return Record and File Status

### PUT/UPDATE

- READ Record on KEY
- REWRITE Record
- Return Record and File Status

### DELETE/DELETE

- READ Record on KEY
- DELETE Record
- Return Record KEY and File Status

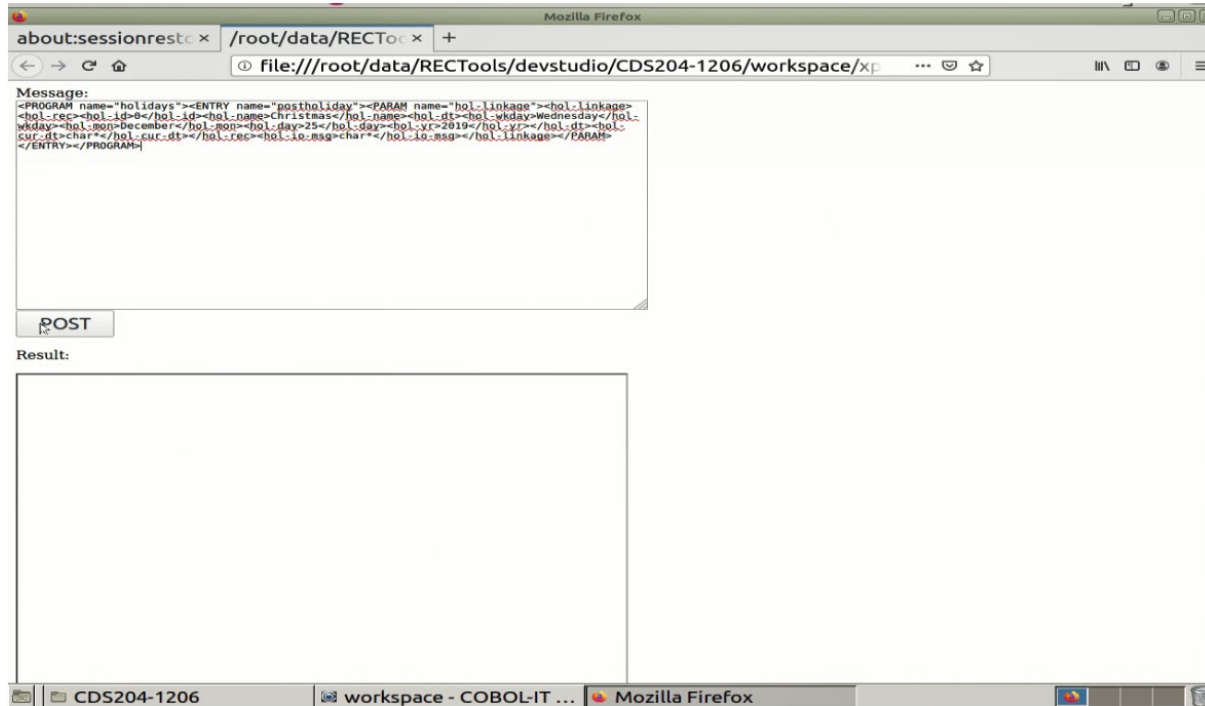
# What is a RESTful Web Service?

## The Uniform Interface

- ❶ RESTful Web services are Web services that follow certain prescribed guidelines which allow a Client to manipulate a Resource on a Server.
- ❷ A RESTful Web service operates within an architecture that follows defined constraints. ( See Resources for informative links )
- ❸ First, there is a **Uniform Interface** constraint, which describes how the Representational State Transfer takes place:
- ❹ In the Uniform Interface, you will find:
  - ❶ HTTP Verb                      Post, Get, Put, Delete (CRUD)
  - ❷ URI                                Resource Identifier
  - ❸ HTTP String                    Status, Body, with information describing how to process the message
- ❺ Also **Client/Server architecture**, Stateless Server, Cacheing...

# What is a RESTful Web Service?

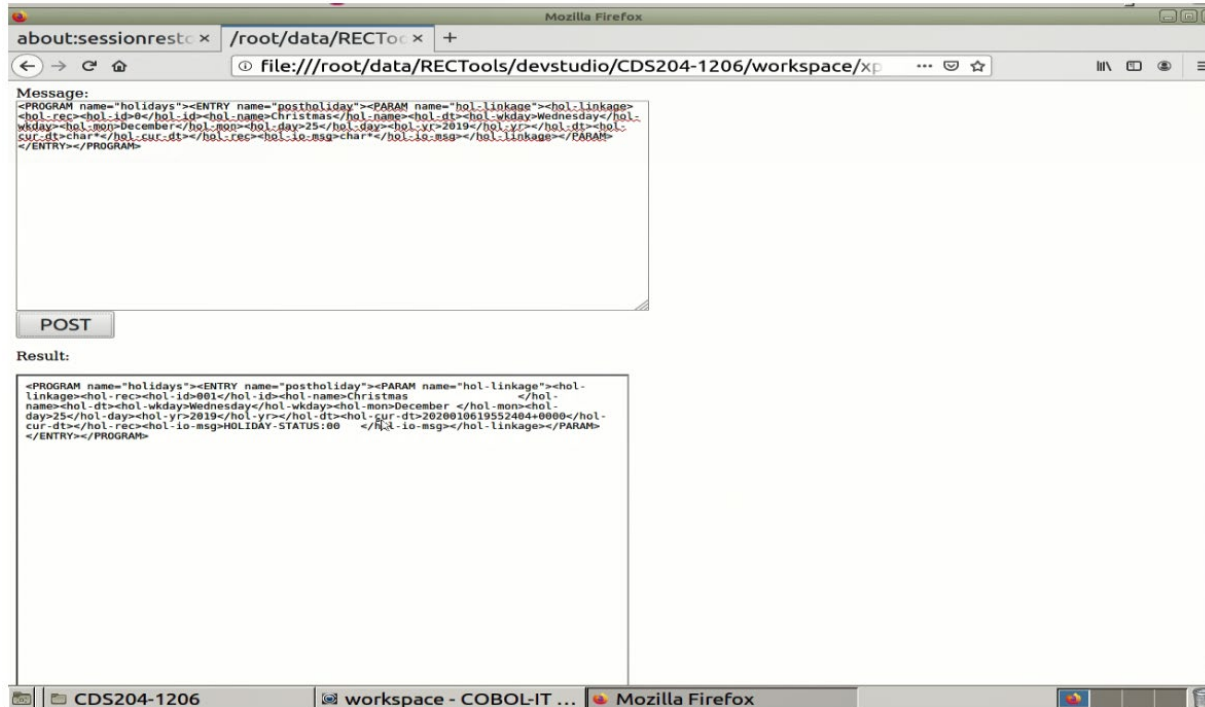
## When you press the POST button





- ☉ Message:<br>
- ☉ <textarea rows="20" cols="90" maxlength="1000" name="msg" form="myForm">
- ☉ </textarea>
- ☉ <br>
- ☉ **<form action="http://localhost:9735" target="result2" method="post" id="myForm" accept-charset="ISO-8859-1">**
- ☉ **<input type="submit" value="POST">**
- ☉ **</form>**
- ☉ <p>Result:</p>
- ☉ <iframe name="result2" style="height:450px;width:643px;"></iframe>

## The Web Service is run, and data is returned



about:sessionrestc x /root/data/RECTools/ +  
file:///root/data/RECTools/devstudio/CDS204-1206/workspace/xp

Message:

```
<PROGRAM name="holidays"><ENTRY name="postholiday"><PARAM name="hol-linkage"><hol-linkage>
<hol-rec><hol-id><hol-id><hol-id><hol-name>Christmas</hol-name> </hol-
wkday><hol-mon>December</hol-mon><hol-day>25</hol-day><hol-yr>2019</hol-yr></hol-dt><hol-
cur-dt><char*></hol-cur-dt></hol-rec><hol-io-msg><char*></hol-io-msg></hol-linkage></PARAM>
</ENTRY></PROGRAM>
```

POST

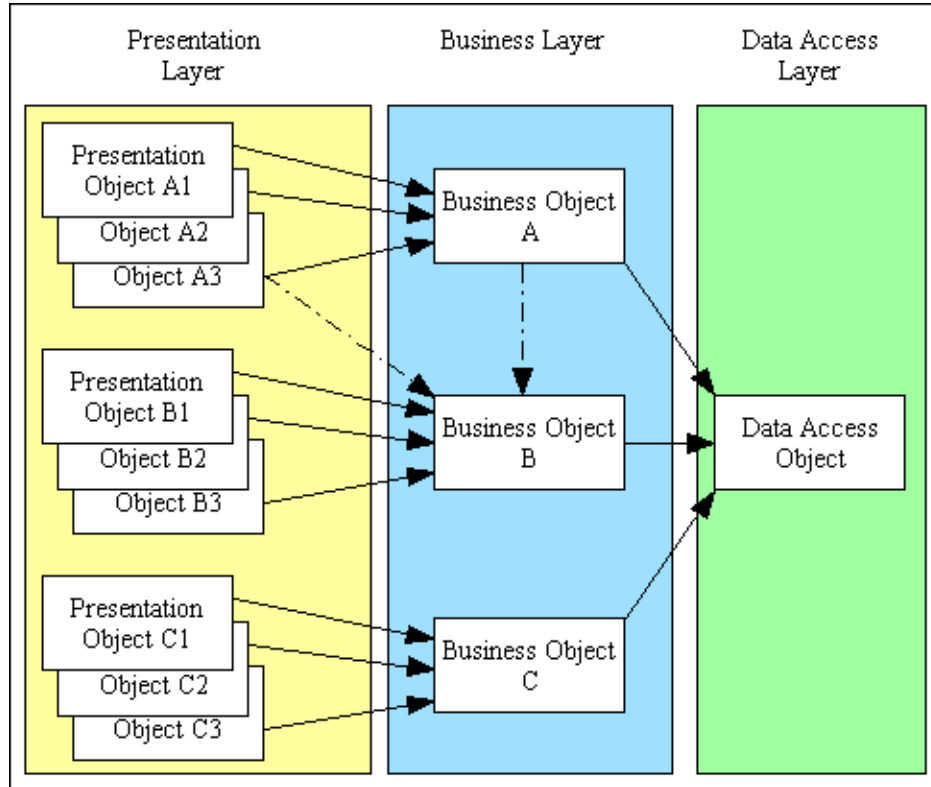
Result:

```
<PROGRAM name="holidays"><ENTRY name="postholiday"><PARAM name="hol-linkage"><hol-
linkage><hol-rec><hol-id>001</hol-id><hol-name>Christmas </hol-
name><hol-dt><hol-wkday>Wednesday</hol-wkday><hol-mon>December </hol-mon><hol-
day>25</hol-day><hol-yr>2019</hol-yr></hol-dt><hol-cur-dt>202001061955240+0000</hol-
cur-dt></hol-rec><hol-io-msg>HOLIDAY-STATUS:00 </hol-io-msg></hol-linkage></PARAM>
</ENTRY></PROGRAM>
```

CDS204-1206 workspace - COBOL-IT ... Mozilla Firefox

# What is a RESTful Web Service?

## Client/Server Architecture



- 🕒 [https://www.ics.uci.edu/~fielding/pubs/dissertation/rest\\_arch\\_style.html](https://www.ics.uci.edu/~fielding/pubs/dissertation/rest_arch_style.html) is a good place to start with a definition of the basis of RESTful-style.
- 🕒 [RestApiTutorial.com](https://restapitutorial.com) discusses REST API best practices and provides additional resources for the users just starting to get familiar with the REST API.
- 🕒 <https://www.restapitutorial.com/lessons/whatisrest.html> is a quick overview of REST and RESTful Services



Thank You!

