**The Analysis of RESTful, JAX-RS and Java API for RESTful Web Services**

**Implementation of Other Web Services SOA, SOAP, and WSDL**

***Name(s)***

***Department, university name***

***Course Code*: Computer Science**

**Service Oriented Architecture (SOA)**

As the name suggest with the absence of the service there will be nothing to work with to give the business solution. Therefore services are the building blocks of an SOA. Multiple systems are interconnected to increase the functionality of the business. Developers are given access to these services by calling online APIs. An example is Facebook where other applications can post on it even though it is a completely different application. An SOA also ensures that data is reused like in the case of Facebook the developer gets an XML messages which can be used to read data and also transfer their data into the other application. To achieve the reuse of modular components SOA uses the services which are loosely coupled. According to (Hewitt, 2009), the main aim of SOA is that services are created in a way that they can operate together with other unknown components being loosely coupled to give the business solution.

RESTful, JAX-RS and Java API is used for creating these services used by SOA. The REST Web services are modern and light weight which is made as easy as possible for the user and server to interact through the HTTP protocol. There are no rules and specifications that govern the developments of these services like they are in SOAP Web Services.

**Strategic considerations in implementation of Web Services**

Implementation of web services involves developing of new web services or improving the existing web service. During implementation the web service stack will provide tools for implementation using the bottom up or top down approach. According to (Bultan, Su, & Fu, 2006), web services develop a conversation between each other through messages. The conversation process maybe synchronous or asynchronous. In this paper web services are specified into two ways since SOAP requires specification of the protocol. The specifications ate bottom up and top down approach. In bottom-up each service of the web service is specified separately and analysis is done to the combined behavior of each service. In top-down approach the overall desired behavior is specified then and individual services are not considered that much. If the service is compatible with the overall behavior then it is an accepted service implementation. In addition, in bottom-up the code file is created first. It can also be used where the codes are already available.

In top-down approach we come up with the visitor’s file first containing the messages used. The web services are SOAP and WSDL which both stands for Simple Object Access Protocol and Web Services Description Language respectively. Unlike REST, SOAP uses a standardized format of protocol called SOAP protocol. WSDL is a document used for service definition containing all the details of what the service does so that the client can know the details of the service before calling it. This document is a standard document for SOAP Web Service but REST rarely have service definition.

**Alternative Web Services Implementation**

RESTful services has gained popularity in deploying services to the internet over SOAP Web Services. The main reason is the lightweight of the RESTful web services and HTTP is used for data transfer which makes the interaction between the client and the services easy.

Development of RESTful web services is easy by using the JAX-RS and Java API since it gives room to test, build accessing applications to the web services by the client and also create the codes for calling the web services. REST messages are not interfered by the firewalls since they use specified operations in HTTP which are familiar with the firewall.

Due to the good performance, being reliable and up to scale, most developers tend to choose REST over SOAP. In designing REST is easy and straight forward for implementation alternative to SOAP which is a heavyweight.

**References**

Bultan, T., Su, J., & Fu, X. J. I. I. C. (2006). Analyzing conversations of web services. *10*(1), 18-25.

Hewitt, E. (2009). *Java SOA Cookbook: SOA Implementation Recipes, Tips, and Techniques*: " O'Reilly Media, Inc.".