Web Service Programming

Final Project

VT 2010
ICT School

Final Project -Part 1

Aims of part 1 : To learn how to compose Web services.

The project is divided into two related parts.

Part 1 : Design and implement Online Book Store service as a composition of services to be invoked and coordinated using BPEL engine.

Authorization Service

Implement the following services:

- Authorization of customers. Only the user with the correct username and password can have access to other services. This service should accept customer's Id and Password, check them with the list of registered customers and if found then give a reply that allows system access. When a user is authorized it returns the profile of user which reveals user name,phone and address.

Book Publisher Service -1

- **Publisher Service**: Refers to the online services offered by a book publisher for searching and selling discovered books. The service are:

1- Searching for books based on the given book identifier(s) (Book Title, Book Author, ISBN) and returning the full information all the discovered books .

2- Selling a book . It gets the Book Identifier, and credit card of the customer and returns the invoice , book full info and location in which book should be picked up.

Book Publisher Service -2

Selling a book is an asynchronous service and includes two operations: orderBookPurchase (request to buy book) and bookOrderDone (callback service confirming that book is sold and reveals the invoice and sold book information) .

3-There is also purchaseCancel service allowing to cancel a previously submitted book order. The service should be called when we don't get the purchase confirmation response in 20 seconds .

Shipment Service -1

- **Shipment Services** : It refers to online services (WSDL interface) offered by a shipment company for transporation of goods between cities or countries. The online service are:

1. The shipment service to be realized as an asynchronous service via two operations: -orderShipment to order transporting an item . It accepts the item's weight, source and destination address and customer credit card.

-shipmentDone to confirm the submitted order to the requester. So the requester will get the invoice and estimated delivery date of the item

Shipment Service -2

- cancelShipment : to cancel already submitted shipment order . This service will be called in case that we don't get any response for the submitted shipment request in 20 seconds .It could happen because the service is broken or in the case there is no shipment service (for example because the shipment to destination country is not covered by this company) for the submitted order, so no confirmation will be send.

Assumptions

- To purchase a book, first it should be discovered (from different publishers) and if it is available, the publisher offering lowest price is chosen for purchase.
- The shipment service should only be invoked when location (country) of customer and book place are not same!
- To simplify the process, consider two different publishers and only one shipment company.
- The resulted BPEL is Synchronous.
- There is no need for any DataBase, you can keep the required information in a text file .
- No Need to register services in UDDI Registry

Project Task

Implement the following functionalities:

- Using the services implemented on the previous step implement the following composite service in BPEL4WS:
  - The composite service takes the username, password, Book Title (alternatively ISBN, Author) and credit card number as input, and buys the cheapest available book and orders shipment service if the book is not available in the same place as customer resides . If no book is found, the service outputs an error message.

Deliverables

1- Source code for the service implementations, WSDLs, schema(s) and BPEL .

2- Deploy the services and BPEL script and make the system running .

3- Present your running system in a (10-15) presentation.

4- Make a report explaining installation of tools, deployment of services and BPEL script and the experiment

Send your deliverables to both of us:

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Project Deadline: 21 March 2010

Project Presentation: To Be Announced

Useful Links

We recommend SUN BPEL engine + NetBeans BPEL designer , but you are free to choose any BPEL engine and designer !

http://www.netbeans.org/features/soa/index.html

http://www.netbeans.org/kb/trails/soa.html

You can find samples for both Synchronous and Asynchronous BPELs if you have installed NetBeans with SOA features.Specially look at TravelReservation BPEL sample.

If you are more curious have a look at BPEL blue prints.

https://blueprints.dev.java.net/bpcatalog/ee5/soa/