# Implementation of the Cash Transfer System for the Bank Using Web Services

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## Abstract

*Web Services is a Web-based application that dynamically interacts and/or integrates with other Web application using open standards that include XML, UDDI and SOAP over an Internet network. One of the anticipated benefits of Web Services is the direct application-to-application communication with can replace the human end-user interaction in the current data entry Web application. So, this paper proposes a framework for cash transfer system of bank application integration and describes a SOAP that uses Web service to support the exchange of data between heterogeneous systems. By using Web Services, the user can view the list of available banks to exchange data across the Web. The user can transfer cash from one bank to another according to the location of the receiver. So, this system provides save time, secure time, easily and quickly time that are very efficient for business.*

## 1. Introduction

XML Web service exposes useful functionality to Web users through a standard Web protocol. In most cases, the protocol used is SOAP. XML Web services provide a way to describe their interfaces in enough detail to allow a user to build a client application to talk to them. This description is usually provided in an XML document called a Web Services Description Language (WSDL) document. XML Web services are registered so that potential users can find them easily. This is done with Universal Discovery Description and Integration (UDDI) [4].

An XML Web service can be used internally by a single application of expose externally over the internet for use by any number of applications. Because it is accessible through a standard interface an XML. Web service allows heterogeneous systems to work together as a single web of computation. This paper aims to support not only the Web integration but also to understand the Service Oriented-based Web Service Technology. On theory background which introduces the general knowledge about integration using XML Web Service and Sample Object Access Protocol (SOAP) [6].

This paper is organized as follows: in Section 2 describes related work, in Section 3 describes background theory, in Section 4 explains Web services system design, in Section 5 describes implementation and in Section 6 describes conclusion.

## 2. Related Work

Web service offer developers a standards-based, cross platform technology for building scalable, n-tire enterprise solutions and enabling Application Enterprise Integration. A Web service approach to middle ware software development allows system designers the latitude to utilize heterogeneous operating systems and development environments, Web services, SOAP

and XML facilitate integration of disparate systems in the enterprise computing environment.

The two Web-based applications show a range of application design choices: the Web Soil Data Viewer is a portal that integrates several Web services at the Web server and presents Web pages to a thin client The Environmental Easements Web Toolkit application is a rich-client design where the client performs the data integration of several Web service data sources. In this system users from across the country have quickly adopted this Web service based application to achieve their goal of creating and managing the national environmental easements geospatial database. The XML Web services technologies provide software-to-software communication across systems and network boundaries.

Karsten Januszewski is described the service column has documented a real world scenario of how to build a Web service, from initial design documents to business implications to final deployment. The next logical step to consider is how to publicize this Web service so that interested clients can easily discover and consume it into their applications. A discovery mechanism that fulfills this requirement exists today: Universal Description Discovery and Integration (UDDI), an industry-wide initiatives support Web service discovery across technologies and platforms [4].

## 3. Background Theory

The World Wide Web is more and more used for application to application communication. The "Web" in Web services is actually a misuse: the term "Internet Services" would be more appropriate. Because Web refers to Hyper Text Transfer Protocol (HTTP) and the World Wide Web, whereas the word "Internet" refers to the large network of computers on multiple protocols. A Web service can use any of these protocols to pass a message, not just HTTP [5]. Web services perform functions, which can be anything from simple requests to complicated business processes. Once a Web service is displayed, other applications (and other Web services) can discover and invoke the deployed service [3].

### 3.1. Web Services

Web services are technology that allows applications to communicate other in a platform and programming language independent manner. Web service is a server-side program that listens for messages from client application and return specific application. Some Web services provide information specific to single application and some services that can be used by many different applications. Web services give the ability to combine, share, and exchange to form entirely new service or custom application created on the fly to meet the requirements of the client. A Web service is a software interface that describes a collection of operation that can be accessed over the network through standardized XML messaging. It uses protocols based on the XML language to describe an operation to execute or data to exchange with another Web service [7].

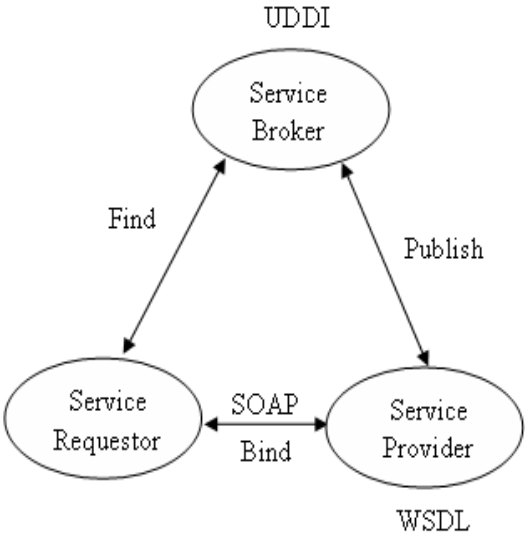


Figure 1. Web services architecture

Web services architecture consist of three parts. They are service provider, service requestor and service broker. Service provider makes its services available by publishing them on the broker by using a service contract. When the requestor needs a service it calls the broker for a service that matches the requestor criteria. If the broker has such a service, it gives the requestor a contract and an endpoint address for that service. Then the requestor sends a service request message to the provider and uses its service [1].

### 3.2. Extensible Market Language (XML)

XML is short for Extensible Markup Language a specification developed by the W3C. XML is a pared-down version of SGML, designed especially for Web documents. It allows designers to create their own customized tags, enabling the definition, transmission, validation and

interpretation of data between application and between organizations [2].

### 3.3. SOAP (Simple Object Access Protocol)

SOAP (Simple Object Access Protocol) defines an organization for structured data exchange between Web services [1]. (SOAP) is a lightweight protocol which allows applications to exchange information in a decentralized, distributed environment. It is XML-based format to construct messages which can be not only exchanged over a variety of protocols but also independent of particular programming languages. This protocol defines an organization for structured data exchanged Web services. Web services can be used to create more complex, interaction such as request/response, request/multiple responses, etc. This is platform independent, transport independent and operating independent. It is built using time testing systems like the HTTP protocol and text make-up in XML [5].

#### 3.3.1. Advantages of SOAP

SOAP is the communications protocol for XML Web services, a specification that defines the XML format for messages, SOAP supports RPC applications, also supports flexible document style applications, can be used to link disparate systems within and without your organization., smaller and simpler to implement than many of the previous protocols (CORBA) and 70 SOAP implementations available [2]. SOAP is a standardized XML format that is used to exchange an associated data between Web services clients and servers [1].

#### 3.3.2. Structure of a SOAP Message

A SOAP message is contained in an envelope. Within this envelope are two additional sections:

(i) The Header and

(ii) The Body

The SOAP Header expresses a way to pass data between XML Web services provider and XML Web Services consumers. How to implement custom authentication scheme using SOAP Header are also described. The SOAP Body element provides a simple mechanism for exchanging mandatory information intended for the ultimate recipient of the message [6].

### 3.4. Web Services Description Language (WSDL)

WSDL is stands for Web Services Description Language. WSDL file is an XML document that describes a set of SOAP messages and how the messages are exchanged. In other words, WSDL is to SOAP what IDL is to CORBA or COM. Since WSDL is XML, it is readable and editable. The notation that a WSDL file uses to describe message formats is based on the XML Schema standard. WSDL want to start calling a SOAP method provided by one of the business partners. It could ask for some sample SOAP messages and write in application to produce and consume messages that look like the samples [2].

### 3.5. Universal Description, Discovery and Integration (UDDI)

UDDI solves a unique problem with Web services: how to register, find, and bind to Web services in the applications need. UDDI contains information about the technical interfaces of a business's services. Through a set of SOAP-based XML API calls, one can interact with UDDI at both design time and run time to discover technical data, such that those services can be invoked and used. In this way, UDDI serves as infrastructure for a software landscape based on Web Services [4].

## 4. Web Services System Design

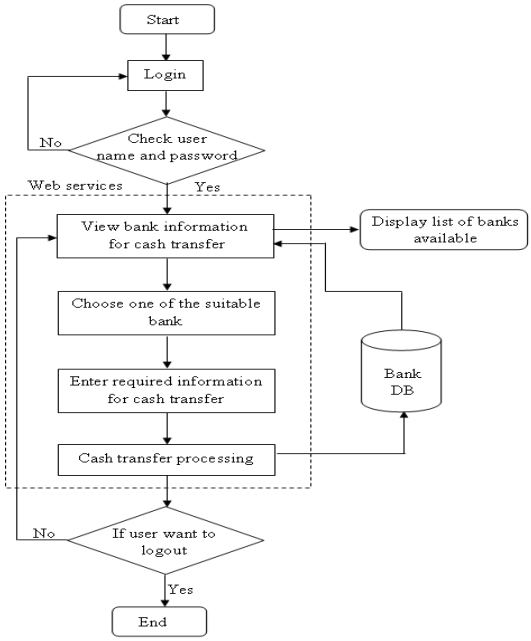


Figure 2. System architecture flow

This system implemented the cash transfer system for the bank using services. The file that can be invoked in order to call Web service methods and it points to the code for the Web service. The essential step is data transfer; it must create the Web method. In one class may include many Web methods. One process represents one web method. Web method may also be called component.

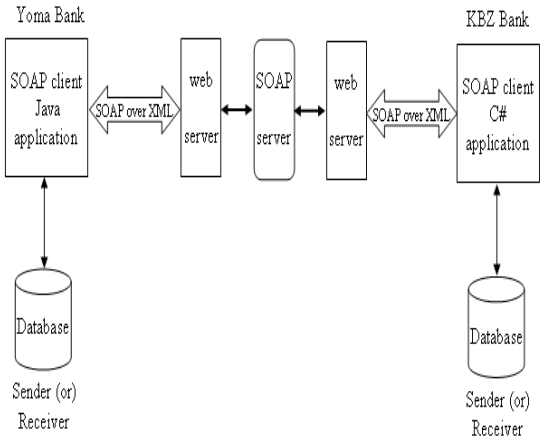


Figure 3. Web service system design

The service name exists as a class name and it has already existed as a Web service. After writing these Web services, SOAP protocol for the services are automatically generated. This Web service supports for overall bank system and the same services for different Web sites of the SOAP method generated as shown in figure 1. This system provides the exchange of data between heterogeneous platforms of banks by using SOAP.

## 4.1. Use Case Diagram for User

In this system, there are two main actors. They are User and Administrator. In user portion, there are five main processes. They are ' user login process', 'view bank information', 'cash transfer', 'search receive' and 'view account'. User need to login process and then types the true name and password and types cash transfer information. User can know bank's interest time in the view bank information. In cash transfer, type cash transfer date, from bank, to bank, sender name, NRC No of sender, sender address, sender phone no, receiver name, NRC No of receiver, receiver address, receiver phone no, email account of receiver and the amount of money. In view account shows the receive bank of the receiver. The information is true; the sender can transfer the wanted amount of money to the receiver. In search receive, the user know by typing the name and NRC No get or not that the cash transfer.

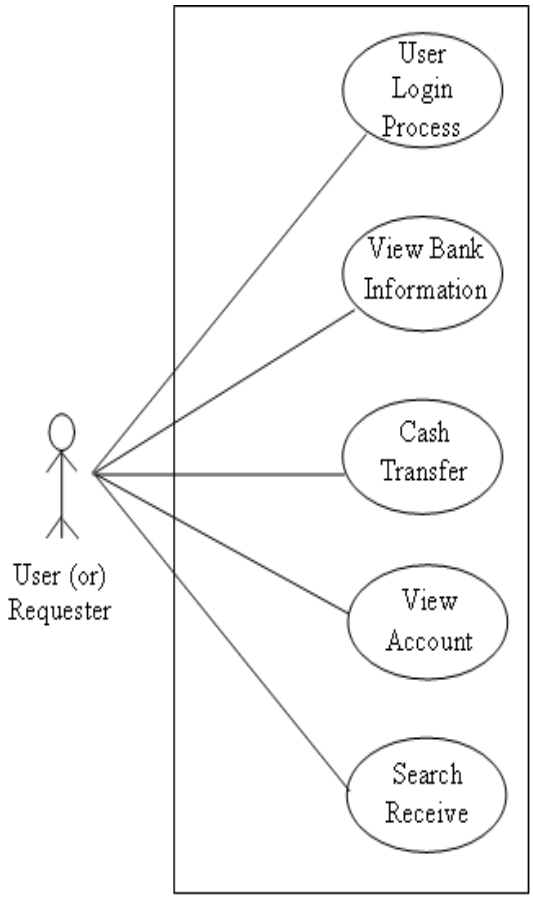


Figure 4. Use case diagram for user

## 4.2. Use Case Diagram for Administrator

In administrator portion, there are five main processes. They are 'admin login process', 'view bank information', 'view account receive', 'view account transfer' and 'modified bank information'. Administrator need to login process and then view the information of view bank. In view bank information, can change the cash transfer limitations depend on the bank manager. In view amount receive, admin can view the amount of cash receive from the bank by daily. In view account transfer; admin can view the amount of cash transfer to the banks by daily. In modified bank information, admin level can add/modify name of banks. If the admin wants to delete the name of bank, admin needs to enter the ID number of bank only.

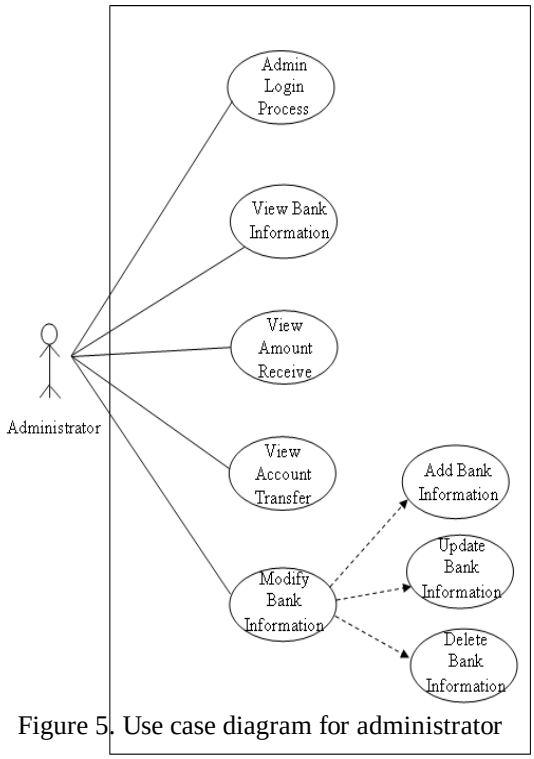


Figure 5. Use case diagram for administrator

## 5. Implementation

There are three main menus in this system. They are "Home Page", "Login" and "Contact us". User can enter the login process by typing name and password. If the user type mistake information, the system appear the error sign. If the enter success, user can do the functions of the bank transfer. In cash transfer portion, the user can fill in cash transfer date, from bank, to bank, sender name, NRC No of sender, sender address, sender phone no, receiver name, NRC No of receiver, receiver address, receiver phone no, email account of receiver and the amount of cash. After that the system transferred the transaction. In search receive potion, user can check the receive inbox by name and NRC number to the system.

User can view the transfer transaction records of all Banks. User can choose the desired bank name from the list box. So, the system displayed about the detail information of cash transfer.

The online banking system using Web Services, improve the processing time than other banking system by replacing direct application-to-application communication instead of the human end-user interaction. So, this system improve processing speed not only the sender but also the receiver in business environments.


Figure 6. Cash transfer for user portion

In administrator portion, admin can process login by typing name and password. If it success, admin can add/modify the name of banks and modify amount received and amount transferred. Admin can check the amount received by receiving date.


Figure 7. Service charges form

Admin can check the cash transfer account from the bank by using user requirement date. After finishing transfer cash, the system calculated the service charges for transfer rate as shown in Figure 5. In add bank information function, admin can enter bank name, bank address, bank limitation and the interest time for cash amount which depends on bank manager. System also checked input validation for the duplication of bank name. After adding, the admin can view the list of the modified list. In update bank information function, admin can also the permission to modify the bank information to the system. The modify factors include bank ID, bank name, bank address, bank limitation and bank interest time. After that, admin can view the updated information bank in view banks.

## 6. Conclusions

This system allows services and resources to meeting on the web services. And examine the information isolated as much as possible,

integrate internal system with other related system using internet techniques, and realize data exchange and data sharing.

This system's Web service based on XML which uses standard Web protocol is a safe way to realize data exchange.

It can integrate data with the lowest cost, quickest efficiency; at most realize the data exchange and data sharing among many systems. It provided convenience for information interchange.

## 6.1. Further Extension

In future, we can extend the cash transfer system for the bank; we can support to fuse the online member email, fuse to other commercial sites that are joined with our bank. we can integrate instant messaging system, video conferencing system to this Web services.

## References


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