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# Distributed Transaction System Application for Web Services Using Design Pattern

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## ABSTRACT

As we are creating our application using software Design patterns. We are using three types of designing patterns which are Service Oriented Designing Pattern, Technology Based Business Process Pattern, and Designing Pattern. We have Made Four Web services For User, PO, Accountant and Manager .We will host all these Web Services on IIS.

We are adding all these web service web references in our distributed application so that we can use functionality of all these Web Services. Each Web Service contains web method. In each web method we will write business logic for each module. Distributed systems are helpful in processing information and gathering about customers or users of a particular domain by means of efficient communication techniques between models for an effective sharing of resources. Extraction of relevant data from enormous volume of data has become a tedious task in today's world. Distributing system reduces the complexity of the task by assisting the users to obtain the relevant information from various data sources. Distributed system that fills the gap between a resource provider and customer through various models communications in the specific domain is proposed which has a service requester module which can access the services offered by the system by making request with interface.

***Keywords:-*** DM, DBMS, TM

## I. INTRODUCTION

A distributed DBMS consists of a number of computer workstations that form the network system. The distributed database system must be independent of the computer system hardware. Each workstation in a distributed system contains a number of network hardware and software components. These components allow each site to interact and exchange data with each other site. Network system independence is a desirable property of the distributed system. In a distributed system, any type of communication (data transfer, information exchange) among nodes is carried out through communication media. This is a very important component of a distributed DBMS. It is required that a distributed DBMS be communication media independent, that is, It must be able to support several types of communication media. A TP is a software component that resides in each computer connected with the distributed system and is responsible for receiving and processing both local and remote applications' data requests. This component is also known as the **application processor (AP)**or the **transaction manager (TM).**A DP is also a software component that resides in each computer connected with the distributed system and stores and retrieves data located at that site. The DP isalso known as the **data manager (DM).**

## II. BACKGROUND

In a distributed DBMS, a DP may be a centralized DBMS A decade prior, most software comprised of standalone applications and just negligible types of cooperation's through documents and information turned exchange methodologies were underpinned. With the pervasive utilization of the web and its cohorted technologies, more and more requisitions that are "participating" over the Web tend to be created. Relying on the structure and reason for the aforementioned requisitions, they exist under diverse sections for example integrated applications-business/B2B requisitions, Web requisitions, and so on[1]. Distributed Applications are now days used in

various domains. Some of such popular domains are given below

**Web Services:**

The web and intranets are the best examples of distributed systems. Today Internet and different Web services are popularly used by number of users. Internet is making use of different platforms, protocols and different design patterns and security mechanisms. Internet can be considered as the one of the most popular Distributed System used today and is growing day by day using some new technologies, new patterns etc.

**Banking:** Another popular Domain making use of Distributed System Applications is Banking. Different banksprovide various services like registration, CheckingAccount details…etc for its different users. As users are located anywhere in the world, the system running Banking Application should Support Distributed Capabilities. Today Various Banking Applications are available and still developing with the use of different Platforms, different languages, different security mechanisms and design patterns.

**Enterprise Applications:**

Enterprise Applications that is Applications that are run on the local network of Enterprises that is Intranets. Generally in Large Organizations various Departments are making use of different software that may be built on different platforms, may have different design patterns…etc. So Such Enterprises and need a Distributed Application which will handle such diversity in using Enterprises software.

Lot of Such like Distributed applications like ERP, CRM are available which are being used in Enterprises. Various improvements in performance of this software can be done by using some new design patterns.

**Medical or Healthcare:**

Distributed System Applications are also popular in Medical field. These Applications are used for various purposes like sharing digital information and computer resources among distant clinical and research facilities, for medical image transfer, telemedicine or Electronic Health Care.Etc.

## III. RELATED WORK

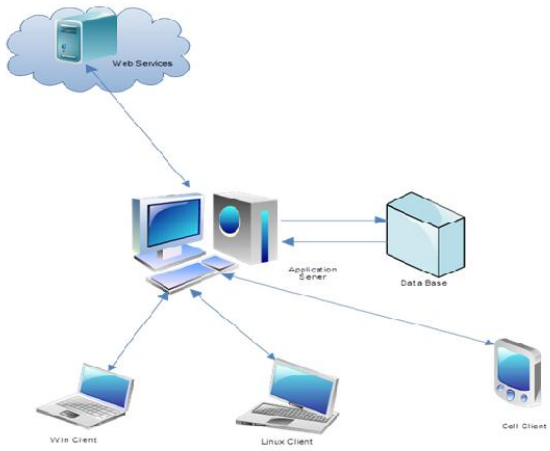
Distributed systems are groups of networked computers which have the same objective for their function. This kind of system has the characteristics like Comprises of loosely coupled sites that share no physical component, run on every site are independent of each other, transactions might access information at one or more sites. In most of the Existing System Data is stored into Database in Plain Text Format so it is not good for security purpose. Hacker hack the password & then he hack the data & information. The application cannot access on any operating system. It requires same type of OS also we cannot access it on smart phones. In Existing System it is not possible to trace current location and also user cannot see all previous transaction on one click. In existing system also it is not possible to get authority of another working person for some period.

## IV. OUR ANALYSIS

### 4.1 Design:

Systemarchitecture is theconceptual model which defines the structure and behaviour of the system. An architecture description is a formal description and representation of a system. System architecture represents the structure of a system which consists of system components, external visibility of those components and their relationships between them. The language used for architecture description is called the architecture description language.

### 4.2 System Architecture:




In our system first user registers on distributed website; he enters all the necessary details required for opening account. All information entered by user

will go to PO, PO will check all details and he will approve that user. Whatever users approved by PO will come to accountant. Accountant will check & validate all details of user. If he wants authority of any PO then he will send request to manager with duration of Authority.. All the users approved by accountant will come to the manager and after that manager will do the final approval of user. Manager will also approve authority of PO & accountant and also approve request for authority send by accountant. Manager is having rights to delete accounts of users.

After Final Approval of manager, User's Account will be activated after that user can be able to do deposit, withdraw and transfer. And he will also able to see last transaction made by him. All the information i.e. Deposit Amount/Withdraw Amount, Date and Time of Deposit Amount/Withdraw Amount and Current Balance after Deposit Amount/Withdraw Amount and Also Location Will Be Send on the User's Email ID So that he will get detailed information about transactions. And also we are using AES Algorithm for encryption and decryption so even though Database will be hacked by attacker then also he will get information in Encrypted Format which is not readable.

**4.3Implementation:**

We are hosting our application on any windows version so that we can access our application on any OS where we need to browse our application using which we can achieve OS Independence. Here we need any OS which support browser and we can access our application on Android Smart Phones also. In Our Project we have used SOAP, SMTP Protocols. We used Intel Pentium 4 processor, Mother board, 40 GB hard disk, 256 MB RAM, Modem, Monitor, Printer , CD ROM drive & cache memory are required. We used SQL server 2008, C# & Asp.net components, Internet Explorer / Mozilla / Netscape, IIS (Internet Information service) manager 6.0 are required.

**4.4 Algorithm:**

In this application AES algorithm is used to encrypt and decrypt data. AES means Advanced Encryption Standard**.** In this algorithm key value is used to encrypt & decrypt the data. In this project password is stored in encrypted format. Whenever attacker, attack on password then he will get encrypted data. So he cannot understand about original message.

**4.5 Effectiveness:**

For User, we are providing security by sending all the information like password, deposit, credit amount including date, time, location and balance on her/his email id. If any accountant will need authority of any PO for some duration then he can request for that & it's working correctly. We have used AES algorithm for security. AES has "key lengths" of various sizes (in the case of AES, keys are 128, 192, or 256 bits long). These keys are what are used to actually encrypt the data, using the publicly-known AES algorithm. As of now, even taking into account all known attacks, 128-bit AES would still require approximately 2 to the power of 126 calculations to retrieve an unknown key, with 256-bit AES taking 2 to the power of 254 calculations. Again, without getting too technical, that number of calculations would take millions of years to complete. In this project AES algorithm provides security by encrypting password. We have Used Web Services. A web service is a collection of open protocols and standards used for exchanging data between applications or systems. Software applications written in various programming languages and running on various platforms can use web services to exchange data over computer networks like the Internet in a manner similar to inter-process communication on a single computer. This interoperability is due to the use of open standards. Web Services allows different applications to talk to each other and share data and services among themselves. Other applications can also use the services of the web services. For example VB or .NET application can talk to java web services and vice versa. So, Web services are used to make the application platform and technology independent. In this project 4 web services are used which includes user, PO, accountant & manager & it share data & services among themselves. We used SMTP (Simple mail Transfer Protocol) Protocol.SMTP provides a set of codes that simplify the communication of email messages between servers. It's a kind of shorthand that allows a server to break up different parts of a message into categories the other server can

understand. Any email message has a sender, a recipient - or sometimes multiple recipients - a message body, and usually a title heading. From the perspective of users, when they write an email message, they see the slick interface oftheir email software, but once that message goes out on the Internet, everything is turned into strings of text. This text is separated by code words or numbers that identify the purpose of each section. Due to this protocol, user receives all information on their e-mail id.

We used SOAP (Simple Object Access Protocol) protocol. SOAP is used to communicate with web services. SOAP is the simplest mechanism yet to achieve integration and Interoperability between enterprises. Due to SOAP protocol all web services communicates with each other.

## V. LIMITATION AND FUTURE WORK

First, troubleshooting and diagnosing problems are the most important disadvantages of distributed computing system. The analysis may require connecting to remote nodes or checking communication between nodes. Second, less software support is the main disadvantage of distributed computing system. Because of more software components that comprise a system there is a chance of error occurring and if one Web service will be dependent on another then if one web service is not working properly then it will affect other web services also.

## VI. CONCLUSION

In this project, Distributed System provides effective and secures transaction services to user. The distributed system discussed in this work includes a number of distinct and expedient features such as ease of use, effective communication between customers and service providers, segregation from resource specific details. The main focus of this work is on the design and implementation of a System, which offers a wholesome access to information present in the database. Moreover, this system provides additional features such as the Login Validation, Service Registration, user Identification, and User Interface for an effective interaction between customer and the system.

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