CHAMELI DEVI SCHOOL OF ENGINEERING

DEPARTMENT OF COMPUTER SCIENCE

Minor Project

Blood Donor Database

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Blood Donor Database

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ABSTRACT

Blood Donor Database – *is a web application that aims for creating an electronic database of all blood donors and those who want to join this social welfare for the upliftment of their society.*

The main aim behind this innovation is to create a virtual world that can unleash the requirement of most important thing in accidental and fatal situations for a human being i.e. BLOOD. Using this technology a person who met an unfortunate accident can ask for help to anyone in the nearby region who cares to donate his valuable blood to save someone's life without much ado and at a quicker time and in return helps to develop the lost humanitarian quality among citizens in a society.

INTRODUCTION

After the above brief abstract regarding our project online blood donor database what we need to further introduce and discuss is the user characteristics of the entire system.. Their issues, what all powers they have under their domain and howthey use it or communicate with other possible users.

Admin :

Admin is the super user. The whole portal is his virtual working directory. He manages all sorts of databases. He has got the authority to create, update and delete any details. He takes the responsibility of providing response to all the complaints received (if

not spams). He writes blogs to make the people more aware of this whole donation thing.

Donor:

He is the main component of the entire theme. He is who will donate the blood. He gets a donor ID after getting his blood sample examined and thus becomes a authenticated donor and thus earns a profile from the admin. He can now donate to anyone if request comes depending upon his own willingness.

Hospital & Blood Bank:

It is the hospital via his manager who got the right to access personnel data especially the contact details to locate the donor in case of requirement. Any end user or visitor of the portal is not provided with this functionality. Also, hospital helps the admin by confirming the details of patient who came there to get their blood group known and thus helps in authentication procedure.

End User:

End user has not any big rights. He is like the one who wish to be a part of this humanitarian eve and in process want to register for the same. To b noted, the end user though can have an access to details of already listed donors in the database except their names and blood group; but still can browse the portal as any regular donor by viewing help desk, reading blogs and knowing the laws and facts behind the scenario.

PROBLEM DOMAIN

It includes two sections overall description and specific requirements.

Overall description will describe major role of the system components and interconnections.

Specific requirements will describe roles & functions of the actors.

- **Existing System –**

  a) *Persons who are interested to donate their blood come to donor camp and do the same.*

  b) *After the campaign is over the blood is distributed to the hospitals under the norms of health care act and law suit of constitutional provisions.*

  c) *No records of donors were kept and thus there was no help at the time of emergency.*

  d) *No connectivity of such an important issue among the users via a web portal in the era where net is the medium of communication.*

- **Drawbacks –**

  a) *Long queue at donation booths.*

b) *Records of donors are not properly maintained for future contact.*

c) *Distribution of blood pouch is made among reputed hospitals which are promoting the campaign, no concept of primary help to low status hospitals or any zonal concept.*

d) *Irregularities in regularly helding such campaigns.*

e) *Poor propaganda of the whole campaign and very few people come to know about the donation of blood undergoing and its benefits and helpfulness.*

f) *Information about patients health report is not primarily checked. If the guy wants to donate blood he is allowed on some basic norms and blood is later tested. If found negative, blood is wasted and that's a huge loophole in the whole system.*

- **Proposed System –**

a) *Registration for any end user.*

b) *Only any hospital manager can know the personnel details of a patient.*

c) *Any non-member can enter our portal.*

d) *For donation requirement, the donor who is part of our donor database can be contacted.*

- **Our Plan –**

a) *Any end user can visit the website and can register in the portal by filling the registration form.*

b) *End user will only be given access to details like donor name and blood group, no contact details can be seen by any outsider.*

c) *For donation if any donor registered in our portal is to be enquired, must be done via hospital manager who are given access to personnel details of donor on the account of admin.*

d) *Hospital must register themselves for this functionally using their unique affiliation no (license no).*

e) *Donor with most donation of blood will be given preference rating which in turn will help them if they are on the receiving side.*

f) *End user will go to d near by hospital of his/her district to get check up and confirm the blood group.*

g) *Donor will be allowed to participate in any discussion forum or blog and even will be given the power to let the admin know about his/her experience via feedback form in their respective profile.*

h) *User can even complain regarding any issues he want to raise infront of the governing body.*

SOLUTION DOMAIN

In order to accomplish the task of making the blood donation procedure online, we need to analyze the requirements of this project including the techniques to be used while designing, coding and testing the web application. A proper planning has to be done regarding the database and architecture to be employed.

This web app can be designed using Java at the front end and DB2 at the back end for database. Wherever static web pages are required, HTML is used and for dynamic web pages, JSP is preferred. For web services, Websphere Application Server Community Edition (WASCE) is employed as it is an application server that runs and supports the J2EE applications. Rational Application Developer (RAD) is responsible for generating the DDL. Since, before implementation of any project, it is a very necessary step to make a designed layout of it. Therefore, various diagrams can be drawn to identify the solution domain. With the help of Unified Modeling Language (UML), these diagrams can be made. This includes designing database diagram to analyze the back end of the project. It actually aims at exploring all the schemas to be included in the database of the application. Entity-Relationship diagram shows the attributes that the user i.e., client and provider (server) possess and also the kind of relationship they mutually extend.

Then we need to identify the various tasks that can be performed by the user. For this, use case diagrams are of great help. Sequence diagrams and activity diagrams tell the flow of processes which further help in coding and database connectivity. All these UML diagrams can be drawn on an IBM tool name IBM Rational Rose and Umbrello of Linux.

In this way, a diagrammatic approach is made to start with the implementation of the project.

Necessary algorithms are designed for the critical portions of the code designing phase, so that the problem can be sorted to a great extent.

After the development of this web application, its testing is carried out. As per the testing outcomes, suitable changes will be made. It is allowed to run on different platforms and servers to check its portability. In order to take the backup and utilize the space IBM's another tool Tivoli is used. In this way, such a procedure is followed while developing a website.

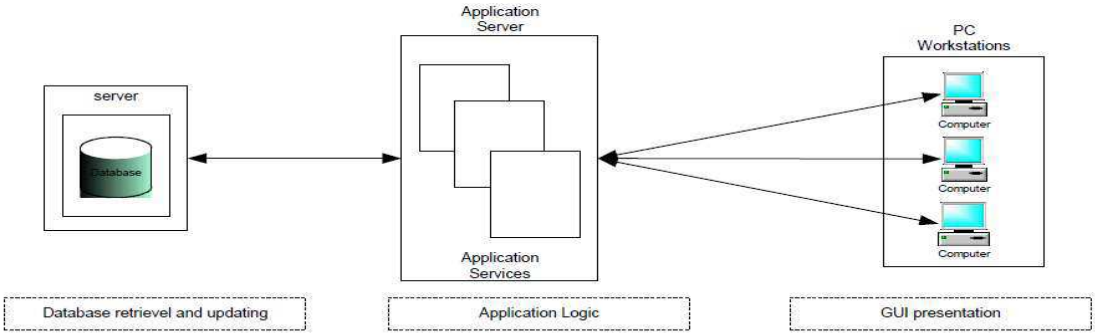


Figure 3.1 Client/Server 3-Tier Model

SYSTEM DOMAIN

Technologies to be used:

- **HTML –** *Hyper Text Markup Language, used for creating static web pages.*

- **J2EE –** *Java 2 Enterprise Edition is a programming platform and is a part of java for developing and running distributed java applications.*

- **RSA –** *Rational software Architect is a designer toolkit which is designed for develop for more complex projects by providing fully dynamic web service applications.*

- **DB2 –** *Database 2 is the database management system that provides a flexible and efficient database platform to erect on strong on demand business applications.*

- **XML –** *Extensive Markup Language used for data transfer and XML is stored naturally in DB2.*

- **HTTP –** *Hyper Text Transfer Protocol is a transaction oriented client/server protocol between web browser and web server.*

- **TCP/IP –** *Transmission Control Protocol/internet protocol is the communication protocol used to connect hosts on the internet.*

- **WSAD -** *It stands for WebSphere Studio Application Developer. It is a designer toolkit which is designed to develop more complex projects by providing a complete dynamic web service.*

- **Java -** *Java is an object-oriented programming language developed by Sun Microsystems. Java programs (applet and application) can run on any machine that has the Java virtual machine (JVM) installed. Platform-independent Java is used with server-side applications, such as Web Services, Servlets, and Enterprise java beans, as well as with Embedded system.*

- **J2EE -** *Java to enterprise edition has been used as a part of java platform enabled with eclipse platform to use technologies like java servlets, JSP and EJB to provide server side scripting.*

- **DB2 –** *DB2 Database is the database management system that delivers a flexible and cost effective database platform to build robust on demand business applications and supports the J2EE and webservices standards.*

- **WASCE -** *WebSphere Application Server Community Edition (from now on WASCE) is a free, certified Java EE 5 server for building and managing Java applications. It is IBM's supported distribution of Apache Geronimo that uses Tomcat for servlet container and Axis 2 for web services. Over 15WASCE developers are committers in the Apache Geronimo project.*

- **Lotus –** *Lotus offers products for messaging, calendaring, application development, real-time and team collaboration, content management, mobile and wireless devices, and social networking that help organizations to work more productively, to communicate more effectively.*

- **Web 2.0 -** *It is associated with web applications which facilitate interactive information sharing, inter operability, user- centered design and collaboration on the World Wide Web.*

- **RAD –** *IBM Rational Application Developer for WebSphere Software (RAD) is an integrated development environment (IDE), made by IBM's Rational Software division, for visually designing, constructing, testing, and deploying Web services, portals, and Java Enterprise Edition (JEE) applications.*

- **RSM –** *IBM Rational Software Modeler, (RSM) made by IBM's Rational Software division, is a Unified Modeling Language UML 2.0-based visual modeling and design tool. Rational Software Modeler is built on the Eclipse open-source software framework and includes capabilities focused on visual modeling and model-*

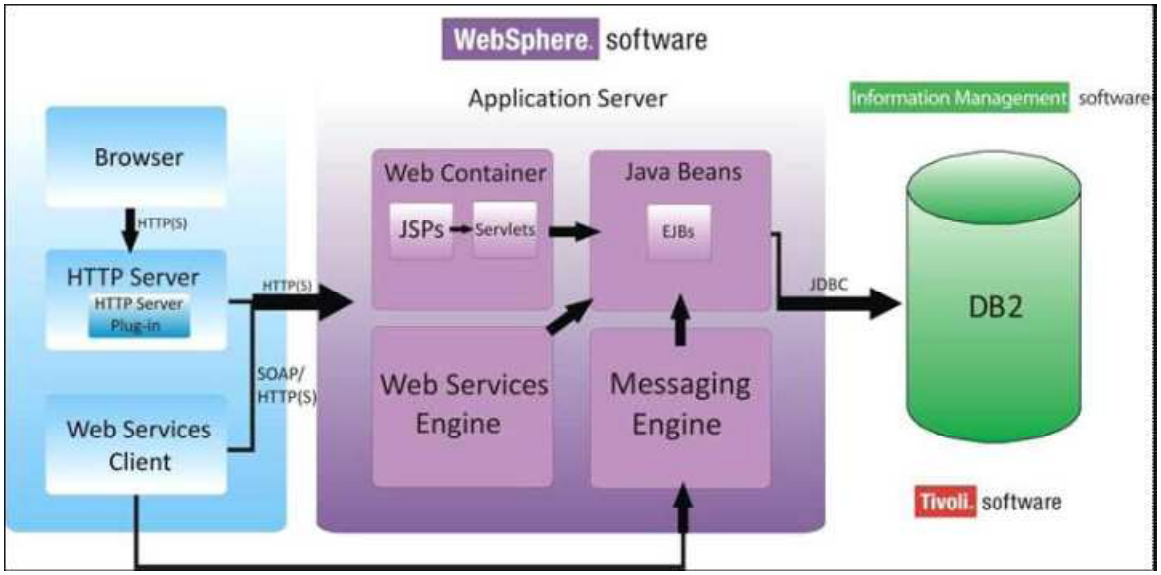
driven development (MDD) with the UML for creating resilient, thought-out applications and web services.

- **JDBC –** *Java Database Connectivity. It stands for Java Database Connectivity, Java API that enables Java programs to execute SQL statements. This allows Java programs to interact with any SQL-compliant database. Since nearly all Relational Database Management System support SQL, and because Java itself runs on most platforms, JDBC makes it possible to write a single database application that can run on different platforms and interact with different DBMS.*

- **TVM –** *IBM Tivoli Storage Manager (TSM or ITSM) is an IBM-owned company that develops software that allows a business to manage its computing environment. The software enables a user to insert objects not only via backup, but also space management and archive tools.*

- **AJAX –** *It stands for Asynchronous Java Script and XML. It is a technique for creating fast and dynamic web pages. Ajax asynchronously updates part of a web page, without reloading the whole page.*

Product Perspective:



Software Interface:

- **For Accessing the Application Online**

  » *Any web browser*

  » *Any operating System*

- **Web Server**

» Necessarily websphere

» Any operating system

- **Database**

» DB2

» Any operating system

- **At Development End**

» Eclipse

» jdk 1.6

- **Database Backup**

» IBM Tivoli storage manager

- **Report Creation**

» IBM Rational

» Microsoft Word

» IBM lotus Software

» Adobe Reader

Hardware Interface:

On the Client Side

	Processor	RAM	Disc Space	Modem
Any Web Browser	P2 or above	256 MB	100 MB	Any

On the Server Side

	Processor	RAM	Disc Space	Modem
DB2	P2 or above	512 MB	100 MB	Any
WebSphere	P2 or above	2GB	100 MB	Any

Communication Interface:

I. *Client (customer) on Internet will be using HTTP/HTTPS protocol.*
II. *Client (system user) on Internet will be using HTTP/HTTPS protocol.*

APPLICATION DOMAIN

- *Create different donor profiles with respective privileges.*
- *Maintain a centralized database of all donors and security to information which can be accessed by admin for any required*

updations and by hospital management for critical requirement of info regarding any donor for quick help.

- *Maintaining history of every profile to know when did he/she first made the donation of blood and for what period of time he is not allowed to donate blood again in near future.*

- *Track all the donors and their contact details regularly.*

- *Regular monitoring of blood of people who are entitled under the database so that they withstand the liabilities and to keep it upgraded that they are free to donate blood and are free from any disease that don't allow blood donation like diabetes, AIDS, thalassemia etc.*

- *All registered users are authenticated to avail this service.*

- *Conformation link will be sent to all those who are registered in the portal.*

- *Special preferences will be given to those who are registered in this social welfare when they themselves (to be very unfortunate) are at the receiving end.*

- *Chat facility available for working officers for the entire portal.*

- *Java client facility for working officers.*

- *FAQ section will be also there for user benefits in case of any misunderstanding or doubt regarding any details in the portal.*

FEASIBILITY STUDY

Introduction to feasibility study:

A feasibility study's main goal is to assess the economic viability of the proposed business. The feasibility study needs to answer the question: ***"Does the idea make economic sense?"*** *The study should provide a thorough analysis of the business opportunity, including a look at all the possible roadblocks that may stand in the way of the cooperative's success. The outcome of the feasibility study will indicate whether or not to proceed with the proposed venture. If the results of the feasibility study are positive, then the cooperative can proceed to develop a business plan.*

If the results show that the project is not a sound business idea, then the project should not be pursued. Although it is difficult to accept a feasibility study that shows these results, it is much better to find this out sooner rather than later, when more time and money would have been invested and lost.

Purpose:

Before developing a product or software, it is an essential step that one does feasibility study in some or all the areas mentioned which would help in developing and maintaining the software efficiently and effectively within budgeted cost.

Economic Feasibility:

Built on the information provided in the feasibility study, a business case is used to convince the audience that a particular project should be

implemented. It is often a prerequisite for any funding approval. The business case will detail the reasons why a particular project should be prioritized higher than others. It will also sum up the strengths, weaknesses and validity of assumptions as well as assessing the financial and non-financial costs and benefits underlying preferred options. Our project i.e. online blood donor database is an economically successful venture as it does not require humungous amount of investment in case of time as well as money.

Technical Feasibility:

Online Blood Donor Database is technically feasible as it can be upgraded for providing public utilities along with online registration and open browsing. Even the admin has got the write to make authentication online making full use of the server and technologies available. It is user friendly as the GUI (Graphical User Interface) assists the donors and end users who are not from IT background. It is also OS compatible and supports multiuser environment.

Behavioral Feasibility:

This is an estimate of how strong a reaction the users staff is likely to have towards the development of a computerized system. The users without much frustration accepted the system. Users can use the project without any training because of the user friendliness. Here, in blood donor database all the end users and hospital managers are free to give heir feedback about the behavioral aspect of the scenario and states if the requirement of staff and the working staff at present are in co-relation and thus ensuring the behavioral stability in the system.

Time Feasibility:

In this part of the feasibility study what we need to do is to have a proper check over the fact that whether or not the project is being completed on time. What else we need is have a sound knowledge of the deadline assigned to the project and to get it completed on time and to move further. The time schedule required for the developed of this project is very important since more development time affects machine time, cost and causes delay in the development of other systems. The system is compatible for all the latest browsers and servers, hence the time requirement for processing would not be an issue. Thus, online blood donor database is time feasible project to implement.

Resource Feasibility:

It is also an essential part of a feasibility study. It includes questions regarding time required to complete the project, type and amount of resources required and dependent factors. It also takes care whether the project is interrupting any current business activity. So it takes care of optimum utilization of the resources available. Time is considered as money, and as we understand its value significantly, we always look forward to complete the project in a time efficient way. While carrying out any new project our experts always take care that it's not affecting any other current business activity. We have a strong team who has the ability to finish a project in a given time frame with a definite output. We always take care of all the resources necessary to complete any project. All the important resources like human resource, artificial resources, financial resource etc. are taken care of. You do a complete research on feasibility of the resources needed to complete the project.

EXPECTED OUTCOME

- *The project will ensure that there is no scarcity of blood at the time of emergencies.*
- *It will take care that whether the donor is available at the nearby area or not.*
- *It provides the facility to have a proper check on the factor that the donor is liable to vote if and only if he/she has not donated blood for last 3 months.*
- *Check of blood group is not required as the information of donor was made authenticated by the admin at the time of issuing him profile.*
- *Online web portal will be so managed that it provides information of donors regarding how many times he/she had donate the blood in the form of preference rating.*
- *Online blood donor database also ensures that person below 18 years of age and above 6 years of age are not being provided the chance of participation in blood donation campaign.*