**A Project Report**

**On**

**“Blood Bank Management”**

**[BIT378CO]**

in partial fulfillment of the requirement for the ‘BIT378CO’ of Bachelor in Information Technology, V semester.

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**November 2016**

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# ACKNOWLEDGEMENT

We express our profound gratitude and indebtedness to our project guide Mr. Kiran Khanal who directed us from time to time with valuable guidance, constant encouragement, and suggestions throughout the project. Without the help of our guide this project would never been realized.

We would like to express our sincere thank to Mr. Saroj Pandey, for giving us this opportunity to undertake this project and also for whole hearted support.

We are also grateful to our teachers for their constant support and guidance.

Our hearty thanks to our fellow students, seniors that made our time at Kantipur City College an enjoyable experience. The quality time spent with friends and teachers will remain forever in our mind and heart.

Last but not least, we would like to express our sincere thanks to all our friends and others who helped us directly or indirectly during this project work.

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**ABSTRACT**

Blood Bank Management is a web database application that enables the public to make online session reservation, to view nationwide blood donation events online and at the same time provides centralized donor and blood stock database. Blood Bank Management is a software application to maintain day to day transaction in a blood bank. This software help to register all the donors, Blood collection details, blood issued details etc. This project aims at maintaining all the information pertaining to blood donors, different blood groups available in each blood bank and helps them manage in a better way. This application is developed using php language.

The main objective of the development of this application is to overcome the problems that exist in the current system, which are the lack of facilities for online session reservation and online advertising on the nationwide blood donation events, and also decentralized donor and blood stock database. Blood Bank donation system can collect blood from many donators in short from various sources and distribute that blood to needy people who require blood. It provides the stock of blood for various groups in the various blood banks. It provides online registration to people who are willing to donate blood and also gives the details of blood donation camps.

It also provides a means for the blood bank to publicize and advertise blood donation programs and to allow the probable recipients to make search and match the volunteer donors, and make request for the blood. Blood bank management is an online platform where user makes the reservation of blood. In the world of information technology where whole world becomes global village, where end user can get the information just sitting at home on one click. Finally, “Blood Bank Management” is targeted for the public who is eligible to donate blood and also who require the blood.

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# CHAPTER 1: INTRODUCTION

## Background and Significance

Blood Bank Management is a web database application system that is to be used by the hospital blood bank or blood center as a means to advertise the nationwide blood donation events to the public in order to raise up the public awareness on the events and at the same time allows the public to make online reservation on their desired session. In addition, the system also provides functions for the hospital administrators to manage the appointments made by the donors, the blood stock and donor. This system also has the ability to keep track of the donor's donation records and the blood stock in the blood bank. This project intends to computerize the blood and donor management system in a hospital blood bank in order to improve the record management efficiency due to the grown size of records of data.

The significance of blood bank management are as follows:

* The blood bank can store as many data as it wants.
* It reduces time consumption.
* Easy access and retrieve of the stored data.
* Easy insert of the new data.
* Maintains integrity and consistency.
* Protects from loss of information.
* Provides information of expiry blood so that expiry blood cannot be distributed.

## Objective of the Project

The main objectives of this project are:

1. To provide a means for the blood bank to publicize and advertise blood donation

programs.

2. To allow the probable recipients to make search and match the volunteer and make request for the blood.

3. To provide an efficient donor and blood stock management functions to the blood bank by recording the donor and blood details.

4. To improve the efficiency of blood stock management by alerting the blood bank staffs when the blood quantity is below it par level or when the blood stock has expired.

5. To provide synchronized and centralized donor and blood stock database.

6. To provide immediate storage and retrieval of data and information.

## Scope of the Project

The system is used for maintaining all the process and activities of blood bank management system. The system can be extended to be used for maintaining records of hospital, organ donation and other similar sectors. While developing the system, there shall be space for further modification. There shall be a proper documentation so that further enhancement becomes easy.

As a whole the system is focused to work with blood bank management system and on additional modification it can be also used as management systems of similar organizations.

## Features of Project

The features of blood bank management are as follows:

* Online reservation of blood.
* Blood requisition and issuance of blood.
* Blood Donation Camp & Camp Organizer Management.
* Access to the system secured by login.
* Search facility for finding blood donors based of various search criteria.
* Easy addition and updating of donor's details.
* Easy addition and updating of details of acceptors.
* Acceptors can easily get the blood through online.

## Summary and Project Organization

File management system has many benefits and it can be used to organize large amount of user data that’s why this project can keep the record of many customers who has donated the blood, received the blood and the information about the stock of blood in the blood bank. It has also the additional features that could be very beneficial and practical to be used. This project aims at maintaining all the information pertaining to blood donors, different blood groups available in each blood bank and helps them manage in a better way. Project Aim is to provide transparency in this field, make the process of obtaining blood from a blood bank hassle free and corruption free and make the system of blood bank management effective.

# CHAPTER 2: LITERATURE REVIEW

## 2.1 Introduction to Traditional file system used in Blood Bank Management

### 2.1.1 Paper-based data

The person concerned with the data had to manually check the data from the paper which could be really time consuming as well as there is high chance of losing confidentiality of the data, also no security of the data at all.

### 2.1.2 Checkout process

It would be very complex to check the data every time whether the new entry made to the data is correct or not. The concerned person had to manually go through every data to reach to the data he or she wants to check. It ends up taking a larger time of user.

### 2.1.3 Review of Previous Studies

File management system in the past has always been in used not even in the Blood Bank management but also in large organization. This system may have many drawbacks. In the past people didn’t know the concept of blood donation and the blood receipts and people may die due to the deficiency of sufficient blood. But nowadays there are many social sites, different mediums to share the information related to blood donors and seekers which has made people save their life. It can be easily available at the nearby blood banks.

# CHAPTER 3: ANALYSIS OF ISSUE AND SOLUTION

## 3.1System Overview

System Overview enables investigating a system, find errors in the system and develop a system that delivers remedies to those errors. During this phase, the system that previously existed is surfed and errors are discovered. Taking these problems in account, a news system is proposed that could solve the errors and difficulties that were associated with the existing system. The proposed system is designed with various tools in structured analysis.

### 3.1.1 Study of the Existing System

Our first step was to study the existing system that was file management system. We throughly studied the existing system and came to know all of its drawbacks that were making the work of the users very complex and time consuming. Likewise, it was bit confusing regarding the transactions made in this kind of system. The user couldn’t properly keep record of the exact transactions also. Similarly, the process of updating, inserting the data as well as retrieving the data was very complex too. Therefore, we came up with an idea to replace such system with a project that could cover up all those drawbacks.

### 3.1.2 Proposed System Overview

The purpose of the blood bank management system is to simplify and automate the process of searching for blood in case of emergency and maintain the records of blood donors, recipients, blood donation programs and blood stocks in the bank. Our project Blood Bank Management is aimed to provide the advanced features to any user who has to store and manage records. Some of the beneficial features include the following points:

* The blood bank can store as many data as it wants.
* Updating data as well as retrieving and deleting the existing data is very simple and less time consuming.
* Seeker can get the information of the desired blood group from the central inventory.
* All the users can be able to access the records without any permissions and the blood bank would be able to store the data.
* Report can be generated of donors, seekers, total consumption of the blood units and overall report monthly, bi-monthly, quarterly, half yearly, annually.
* Blood bank in charge can get the information which blood is in demand but rarely available and which blood group is rarely in demand but plenty in stock.
* Blood bank in charge can get the information which is maximum cause for which the blood units are required like accidental cases, heart surgery, delivery cases.

## 3.2 Issues

At present, in many parts of the country the public can only know about the blood donation events through conventional media means such as radio, news paper or television advertisements. There is no information regarding the blood donation programs available on any of the portal. The current system that is using by the blood bank is manual system. With the manual system, there are problems in managing the donors' records. The records of the donor might not be kept safely and there might be missing of donor's records due to human error or disasters. Besides that, errors might occur when the staff keeps more than one record for the same donor. There is no centralized database of volunteer donors. So, it becomes really tedious for a person to search blood in case of emergency. The only option is to manually search and match donors and then make phone calls to every donor. There is also no centralized database used to keep the donors' records. Each bank is having their own records of donors. If a donor makes donation in different hospital, no previous records can be traced except if the donor brings along the donation certificate. Hence, the donor is considered to be a first-timer if they make blood donation in a new place.

Without an automated management system, there are also problems in keeping track of the actual amount of each and every blood type in the blood bank. In addition, there is also no alert available when the blood quantity is below its par level or when the blood in the bank has expired.

## 3.3 Solution to the Issues Raised

The blood bank management allows the blood bank staff to publicize the blood donation events online. The public can view the venue and time of the blood donation programs to be held. This allows the probable recipients to make online request to the donor. After the request has been filled, donors are matched and the request is sent via SMS with necessary details. The records of all donors/recipient and their history are kept in one centralized database and thus reducing duplicate data in the database. The record of donation is maintained by the system. The blood bank staffs can manage the blood stock starting from the blood collection, to blood screening, processing, storage, transference and transfusion through this system. Each process or work-flow can be traced from the database. The system will also raise alert to the staff whenever the blood quantity is below its par level or when the blood in

Stock has expired. The system is able to generate pre-defined reports such as the list of donors, recipients, staffs, the blood quantity in the bank and charts.

### 3.3.1 Methodology Used

Software methodology defines how the software is created rather than speaking about the software itself. Software engineering is a framework that is used to structure, plan, and control the process of developing a project.

During our time of project period, we had different roles for its development. We created a system design using ER Diagram. With the help of the ER Diagram, this system was developed using mysql for database as back end and php as frond end.

### 3.3.2 Activities and Methods of Solving

To design our project, we accumulated knowledge as much as we could about php and mysql for database. It not only helped on building the project but also increased our knowledge regarding these sectors for our future career as well. We also did many research on we could enhance our project features.

#### 3.3.2.1Research

For our research purpose, we studied similar projects online, and gather up the research process; this process helped us collect information that we have to set up in our system.

#### 3.3.2.2Requirements Specification and Analysis

The requirement analysis was done on the basis of the research we performed at the beginning if the software development, where we studied similar projects online. We gathered a set of requirements that we needed in our system, and was thoroughly examined by our project supervisor. After the requirement specification and analysis the feasibility study was done.

#### 3.3.2.3 Project Planning

The project planning involves planning and scheduling the activities in software project management using various approaches towards activity plan and using various scheduling techniques.

#### 3.3.2.4 Design and Implementation

The design and coding of the system was carried out as per the requirements of the project under the guidance of the supervising team and support of the fellow team members at the company. The system interface and database design was done at first and then coding was carried out.

#### 3.3.2.5 Interaction and Consultation

Regular interaction and consultation with project supervisor and team members has also proved to be very crucial to better understanding and development of the system.

# CHAPTER 4: DESIGN SPECIFICATION AND IMPLEMENTATION

During the phase of the design and implementation, we studied various blood bank management in Nepal. In order to study and analyze the true needs and actual facts, the collected information has been thoroughly analyzed by the team members and the following analysis has been conducted.

Feasibility Analysis and

Hardware and Software Requirements.

### 4.1 Feasibility Analysis

The system’s feasibility was analyzed in four ways such as technical, economical, legal and operational feasibility

### 4.1.1 Economic Feasibility

Economic Feasibility defines the feasibility related to economics. For this process, Cost/Benefit analysis is to be carried out. This tool helps determine the benefits that can be obtained with this system in comparison to various other costs. If the benefits are higher than the cost, then the system is considered to be economically feasible.

### 4.1.2Technical Feasibility

Technical feasibility ensured the better working of the system with fewer errors. We can strongly say that the system I technically feasible, since the resources needed for the development of the system as well as the maintenance scripts were available on study done off the internet.

### 4.1.3Legal Feasibility

This was done by going through all the legal requirements of the government of Nepal. Legal feasibility ensured that our system didn’t have any conflict with the outlaws of Nepal.

### 4.1.4Operational Feasibility

Operational Feasibility defines how well the system functions are in the operational level. The operational feasibility of the project was evaluated by testing its functions, modules and the whole shopping process with the database in hand.

### 4.1.5Time Feasibility

The estimated time for the completion of the project is 1 and half month as indicated in the following list:

System Study and Analysis – 1 weeks

System Design and Review – 1 week

Implementation – 2 weeks

Testing – 1 week

Documentation – 1 week

## 4.2Hardware and Software Requirements

### 4.2.1Development

The system has been developed using MYSQL as database, programming language as php; the following hardware and software were used.

### 4.1.2 Standard Hardware Requirement

Computer or Laptop (Pentium-IV or Above, 1GB or 2GB RAM, 80GB Hard Disk) – 2 Nos. Monitor LCD - 2 Nos.

### 4.1.3 Standard Software Requirements

Operating system: Windows OS 10

Programming Language: PHP Version 1.0

Database: MYSQL Version 5.6.8

## 4.2 System Architecture

Another important phase of the system development life cycle is the system design. During this phase, for the interpretation of the findings of the study and analysis, the following designs and diagrams have been developed and thoroughly reviewed by the team members as development in the designated time frame.

### 4.2.1 Top Level Data Flow Diagram (DFD)

Figure: Zero Level DFD

**Figure: 1 level DFD**

## 4.3 System Design

### 4.3.1 Database design

#### 4.3.1.1E**ntity relationship Diagram (ERD)**

An entity relationship diagram, also called entity relationship model, defines the relation between various entities present in the system. ER diagram often use symbols to represent various types of information.

**Entities:** It is a class of person, place, object, events or concept about which we need to capture and store data. Rectangles are used to represent entities.

**Attributes:** An attribute is a property or descriptor of an entity. Ovals are used to represent attributes.

**Relationship:** A Relationship is an association among several entities. Diamonds are user to represent relationships.

The ER Diagram for Blood Bank Management is given below:

Figure: Entity relationship(ER) Diagram

### 4.3.2 User case diagram

**Figure: User case diagram**

# CHAPTER 5: EXPERIMENT, RESULT AND ANALYSIS

There might be various other systems or project that also helps the user to record the data. We established or build our project in such a way that the normal functions such as inserting new data, updating and retrieving existing data, providing easy access to the data as well as responding quickly to the user request is very simple and less time consuming.

## 5.1 Scenario

For the testing of our software, we needed to check by using it ourselves as a user. Then we let our friends and teacher use the software to know their feedbacks regarding the project.

## 5.2 Experiment

We search about the different kinds of blood and its durability that can be stored to be used .We even made public users of blood bank management to use our project to manage all the kind of records and surprisingly they were very satisfied with the work of our project and also provided us with some more suggestions that could enhance the project feature.

## 5.3Result with Analysis

The objective of this project is to reduce the searching time of required blood. Our main objective is to improve the record management efficiency due to the grown size of records of data. Though, our project has many benefits, there are still some limitations to our project which can be solved or further be enhanced. The file management system has various drawbacks such as occurrence of redundancies, loss of data confidentiality and more.

# CHAPTER 6: CONCLUSION

6.1

## **Recommendation**

After the completion of this project we came to knowabout the PHP language, HTML tags, JavaScript Language, implementation of CSS and its different properties. This project has given us much more confidence in dealing with problems. Our project is a simple version using database, CSS, and its properties. In the near future we will try our best to make it more advanced.

Hence, the project “Blood Bank Management” is being developed with group effort gaining practical knowledge about CSS and its powerful properties. We also develop program that fulfills user need by analyzing existing problem in blood bank management. This project has huge upgrade possibilities with new feature and functionalities and it can work as a competitive application of its range in a current world market. Finally, we enjoy working in this project a lot as well as facing and solving the problems in the occurrence of creating this project. Last but not least we would like to thank our teacher for our guidance in accomplishment of this project.

We would like to recommend our project not only to the blood bank but it can also be helpful to any of the user who wants to donate and receive and manage large data. There are still many things that could be added to our project but we are also in learning phase so we could not make our project as efficient and enhanced as it could probably be.

## **6.2 Limitation of the Proposed System**

Some of the limitations of our project are listed below

* If donors and seekers are long distance apart then this application would not work.
* Multiple users couldn’t access the system at the same time.
* Our project only provides limited options to the user.
* Sometimes the required blood may not be available and sometimes it might be available excessively.

## 6.3 Future Enhancement

We tried our best to make the project and its entire feature to be very attractive as well as effective but since we are also in the learning phase we couldn’t fulfill all kind of features as we wanted to add on our project. Therefore, some of the future enhancement that could be done in our projects includes:

* Blood camp management, blood component issue.
* Blood transfusion and timely notification.
* Provide a connection with hospitals where blood request will find all donors.
* This system will be linked by internet, so the other hospitals can use this data.

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# ANNEXES

## Snapshots

Root Admin Home Page:

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