Mini-Project for CS207

Project Report

Title of the Project: Blood Bank Management System.

GROUP- 13

Group members:

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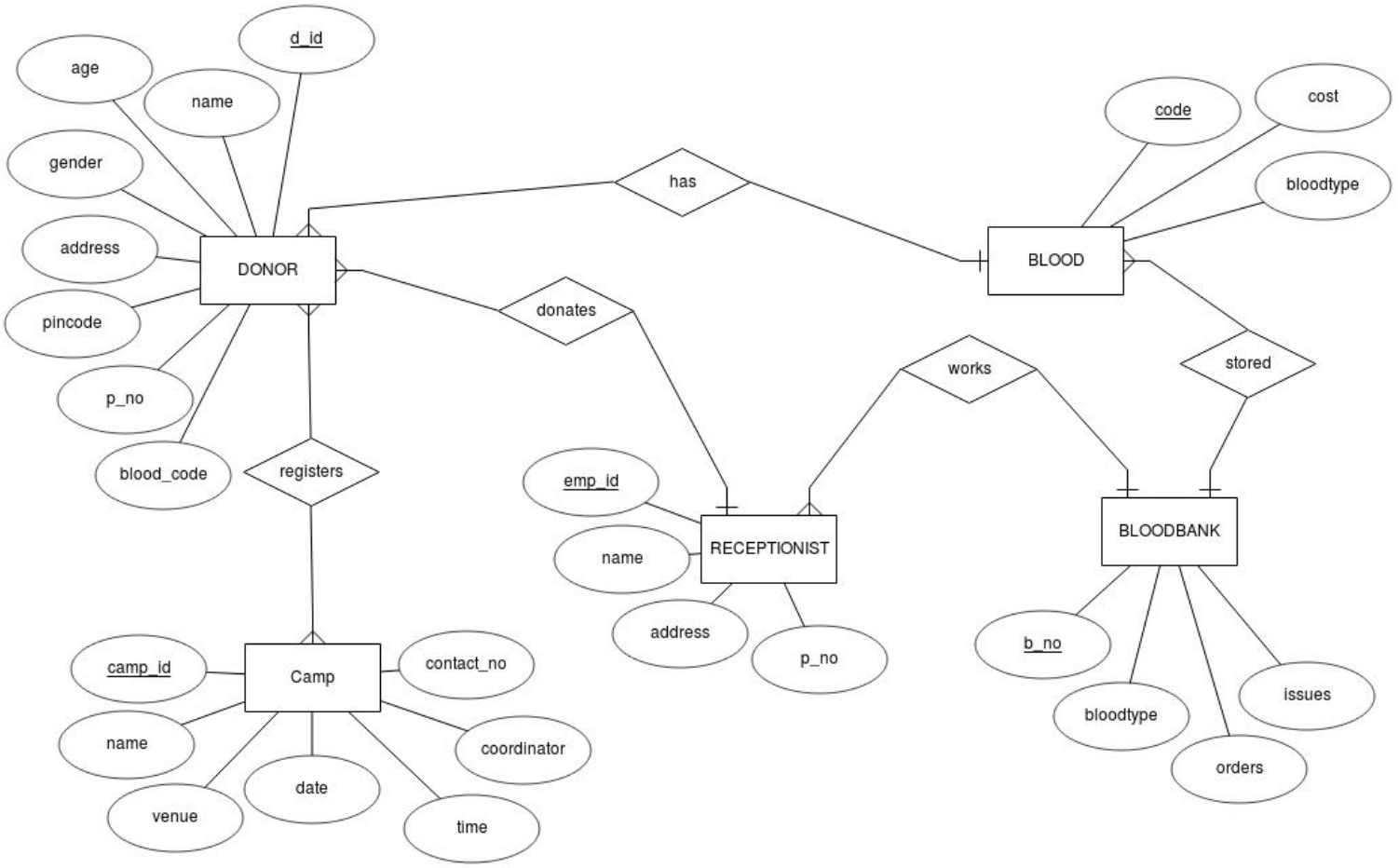
Project Statement :

At present, only conventional media such as radio, news paper or television advertisements can convey about the blood donation events. 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. Sometimes errors may 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 search donors manually in the donor list , match them and then call 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, previous records can not be traced except if the donor brings donation certificate. Hence, the donor is considered to be a new donor if they make blood donation at a new place. Without an proper web-based database management system, there are lots of problems in keeping record of the actual amount of each and every blood type in details in the the blood bank.

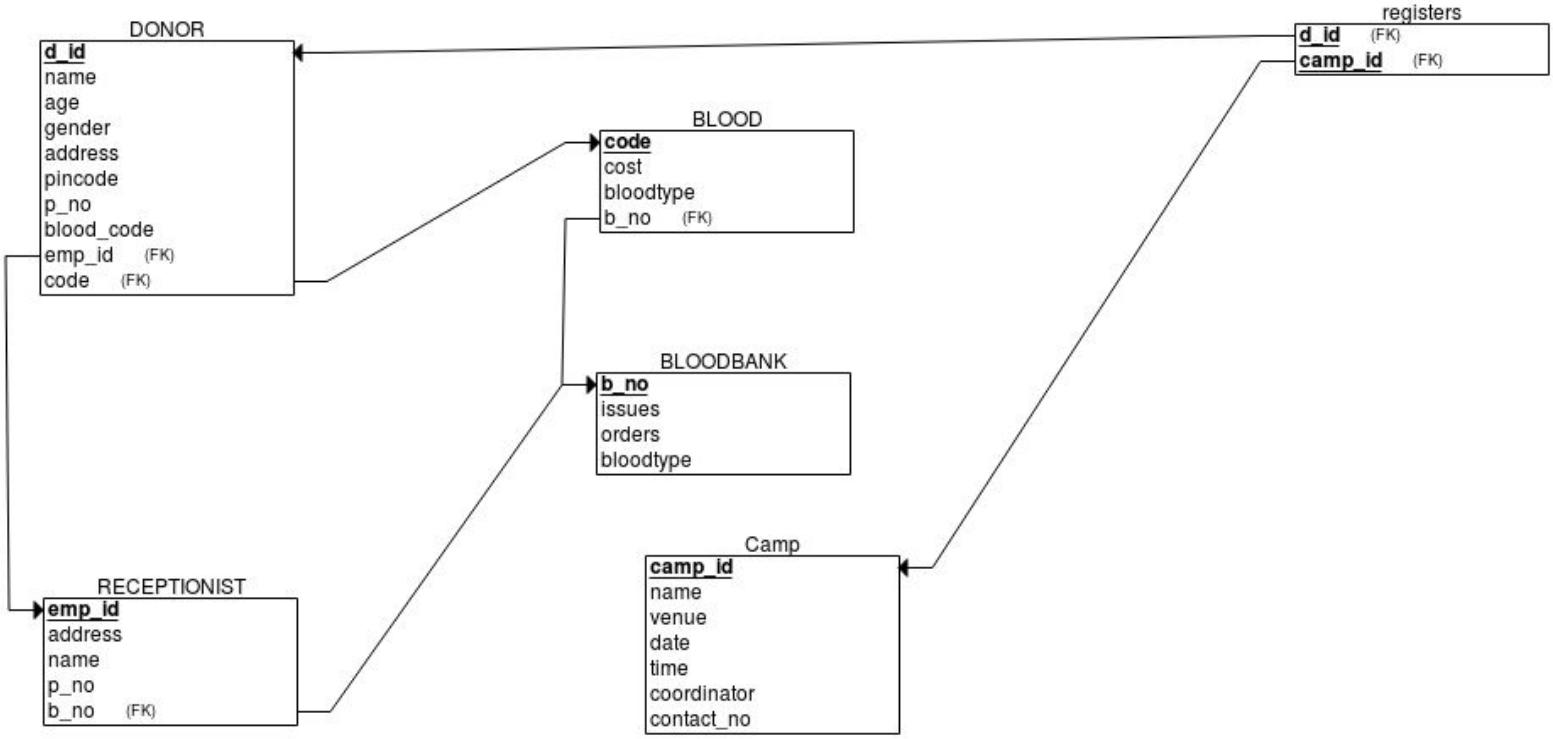
Project Description :

The system that we are going to be developed is Blood Bank Management System (BBMS). This is a web-based database application system that is to be used by the blood banks or blood centers. It can act as a means to advertise the nation wide blood donation events to the public and at the same time allow the public to make online reservation and request for the blood. One can register for the nearby camps. The system keeps the record of all the donors, recipients, blood donation programs. This system also keep track of the donor's donation records and the blood stock of different blood types in different blood banks. This project intends to computerize the blood and donor management system in a blood bank in order to improve the record management efficiency for the grown size of records of data.

ER Model:



Relational Schema:



- One donor can have only one type of blood and same type of blood can be of many donors so the relationship is many to one .
- Any donor can register in any camp similarly camp have many no. of donors then relation will be many to many.
- The received blood can be stored in any bloodbank and bloodbank contains many type of blood then the relationship is many to many.
- A no. of receptionist is working in a blood bank but one receptionist works only in one blood bank then relationship is many to one.
- A receptionist can handle a no. of donors and a donor is directed to only one receptionist then relationship is many to one.

Intended user groups:

- **Administrators:** Has full privilege on the system's functions.
- **Receptionist of Blood Bank:** Has privilege on the system's functions as assigned by the administrator.
- **Public:** Can view the blood donation events and donate or can make requests for donation (Donor and Recipients fall under this category).

Features:

- The software is designed to handle the daily transactions of the blood bank and search the details when required.
- It also helps to register the details of donors, blood collection details.
- To provide a means for the blood bank to publicize and advertise blood donation programs.
- To allow the probable recipients to make search and match the volunteer donors.
- To provide synchronized and centralized donor and blood stock database.
- To provide immediate storage and retrieval of data and information.
- To give the details of valid donors only.
- The software application is designed in such a manner that it can suit the needs of all the blood bank requirements in the course of future.

Front end design (Technology used):

The technologies used for the development of the system are as follows:

- **Operating System**: GNU/Linux
- **Database Management System**: mysql Ver 14.14 Distrib 5.7.20
- **Programming Language:** HTML , CSS , PHP 7.0.22,JavaScript.
- **Browser**: Mozilla Firefox, Chromium,Internet Explorer.

Few complex SQL queries :

This query will print storage of different types of blood in different Blood Banks.

- select bloodbank.name,blood.type,store.quantity from store inner join bloodbank on store.bb_id=bloodbank.bb_id inner join blood onstore.code=blood.code

This query will print donor details according to the last date of their Blood Donation.

- selectdonorlogin.name , donorlogin.email , donorlogin.num , donorlogin.age , donorlogin.gender , blood.type , donorlogin.pincode , donorlogin.address , donorlogin.ldate FROM donorlogin INNER JOIN blood ON donorlogin.bldid=blood.code ORDER BY donorlogin.ldate ASC.

This query will update the camp details by Admin.

- Update camp set title='$title' , venue= '$venue' , date='$date' , time='$time' , cordinator='$cordi',num='$num' where c_id='$cid'

This query will search blood donors.

- select * from donorlogin where bldid='$grp' && ldate < DATE_SUB('$date',INTERVAL 2 MONTH) ORDER BY ldate ASC

This query will show total storage of blood in a single blood bank.

- select distinct bloodbank.name,store.quantity,bloodbank.address from store inner join bloodbank on store.bb_id=bloodbank.bb_id inner join blood on store.code='$grp'

This query will print donor list for Admin Page.

- select donorlogin.name , donorlogin.email , donorlogin.num , donorlogin.age ,donorlogin.gender , blood.type,donorlogin.pincode,donorlogin.address ,donorlogin.ldate FROM donorlogin INNER JOIN blood ON donorlogin.bldid=blood.code && ldate < DATE_SUB('$date',INTERVAL 2 MONTH) ORDER BY donorlogin.ldate ASC

This query will print blood storage in different blood bank.

- select bloodbank.name,blood.type,store.quantity from store inner join bloodbank on store.bb_id=bloodbank.bb_id inner join blood on store.code=blood.code where bloodbank.bb_id=$bid

Trigger created to update the last donated date of user.

- create trigger t1 before insert on transaction for each row update donorlogin SET donorlogin.ldate=new.date where(donorlogin.d_id==new.d_id)

Trigger created for updating the quantity.

- create trigger t2 before insert on transaction for each row update store SET store.quantity=store.quantity+new.units where store.bb_id=new.bb_id and store.code=new.bldid

- Queries for the Transaction used-
  mysqli_autocommit($conn,FALSE);

  mysqli_commit($conn);

  mysqli_rollback($conn);

Performance checks:

For different queries the average running time is coming out to be 0.03 seconds for a data with 1000 entries.

Ex. select bloodbank.name,blood.type,store.quantity from store inner join bloodbank on store.bb_id=bloodbank.bb_id inner join blood on store.code=blood.code –>for 1001 rows 0.02 seconds.

selectdonorlogin.name , donorlogin.email , donorlogin.num , donorlogin.age , donorlogin.gender , blood.type , donorlogin.pincode , donorlogin.address , donorlogin.ldate FROM donorlogin INNER JOIN blood ON donorlogin.bldid=blood.code ORDER BY donorlogin.ldate ASC. → for 1001 rows 0.01 seconds.

select donorlogin.name , donorlogin.email , donorlogin.num , donorlogin.age , donorlogin.gender , blood.type , donorlogin.pincode , donorlogin.address , donorlogin.ldate FROM donorlogin INNER JOIN blood ON donorlogin.bldid = blood.code && ldate < DATE_SUB('$date',INTERVAL 2 MONTH) ORDER BY donorlogin.ldate ASC

- -->0.04 seconds 1001 rows in set.

Work planned but could not do:

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. We planned to send email to donors if they can donate blood in camps. Also we try to upload the donors image in our webpage , it was not uploading in ubuntu but same image it can upload in windows so we are not able to sort this problem in given duration.
As a whole our 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.

Your experience of doing mini-project :

It was a great experience of doing this mini-project as searching for new things creates a lot of fun. Also division of work in group creates some mutual understanding amongst us. Asking questions to TA's and getting new ideas that we can implement in our project is really useful since we can explore more with subject. We had used almost every idea that we had told in labs such as triggers,transaction,inner join etc. On overall basis we had learned a lot from ourself and it was a good experience.