Project Title : Centralized System for Managing Blood Banks

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Miniworld
- The proposed system is a digital platform to centrally manage and display real time data about blood banks and donors of a particular city.
- The environment consists of blood banks ,donors,guest users, operators,administrators.
- The proposed systems can consist of at least 1 or upto N numbers 'Blood Banks entity'.
- Every blood bank can have branches and may have 1 or all types of blood groups.
- Donor data is centrally managed (i.e. across all blood banks) and the donor is allowed to donate blood at any branch of any blood banks.

Purpose of Application/database and intended Users

Centralised system managing information about,
- Available blood units across different branches.
- Donor's donation history.
- Expiring blood units in the near future.
- To notify donors about emergency requirements in the neighborhood.

This application will be used by,
- Blood banks
- Guest user (Guest can be any individual, or any entity like hospital, government offices etc.)

Objects/Actors/Roles
- Admin
- Operator
- Guest

Planned Functionality
- The management system tracks all the blood types available in health care facilities(Blood Bank entity) such as Hospitals, Red-Cross centers, Military hospital, Urgent Care, small Clinics etc….
- Guest users can see real-time information about current stocks of the blood distributed according to the different blood bank branches.
- Each blood bank branch can have multiple blood types but not necessarily all blood types. Each branch has an operator who has the right to update, insert or delete the stock of a particular entity.

- Each Blood bank can have 1 or more branches. Blood bank GUI displays collective information about current stock as well as stock for each particular branch. Blood bank operators can update stock for all its branches but not for other banks.
- A donor is a person that has attributes blood-type, contact information including phones, email-id, contact address and emergency contact information.A donor can be paid or unpaid donors. Each donor can subscribe to an update for the notification or not. Each donor has the right to remove his information from the donor list.
- An operator has a right to send notifications to all donors, branches to indicate deficiency or abundance of a particular blood type. Notification can be of the type message or email.An operator can organize a blood drive resulting in a notification to donors and a notification will be added to event tab on the website.
- An administrator has a right to update, insert or delete entries from all blood branches and donor information.Administrative dashboard is another GUI that displays information about donors from a particular area and whether the last time he donated he was paid for the donation or it was charity.

- System will evaluate the current count of all blood groups and will notify the specific blood type donor if the blood type goes beyond a certain limit. Limit is set by the administrator. System will automatically notify the donors 3 months after their last donation. System will send notification about moving specific blood types among different branches to maintain optimum availability.

Operations

Admin
- Add / Update / Delete blood bank
- Add / Update / Delete operator
- Decide minimum limits for blood type notifications
- Maintaining optimum availability among branches

Operator
- Search donor.
- Add / Update donor.
- Add donations.
- Delete expired units.
- Update used units.
- Send notification to donors for emergency.
- Blood drive organization.

Guest
- Can check the blood unit in any/every blood bank online.

Scenarios
1. **Donor comes to blood bank for donation**
   ○ System operators can search for blood donors using first name, last name, email, and phone in existing data.

- ○ If a donor is not found in the system, the operator can make a new entry with first name, last name, email, phone, date of birth and blood group.
- ○ Based on the birth date or last donated date, the system determines if the donor is eligible to donate at a particular time.
- ○ The operator can view the full donation history of a particular donor from the search results.
- ○ If a donor is eligible, the operator can make an entry in the system with the date and unique id of the blood unit.

2. **Inventory Management**
- ○ The operator can search for blood availability in their own blood bank.
- ○ Based on the blood unit acquired date, the operator can get a list of the oldest of the oldest blood units which have not expired to give it to patients who need blood.
- ○ The operator can search for blood units expiring in the near future.
- ○ Scheduler will run every night and update the expired flag against the blood unit.
- ○ The operator is notified about the expired unit and a flag is tagged to ensure that the expired unit is removed.
- ○ The operator can update used(distributed) blood units in their own blood bank.
- ○ The operator can also search for blood availability in other blood banks.
- ○ System will be tasked to notify the operators to ensure optimum blood availability across branches.

3. **Blood requesting Scenario**
- ○ Authorized personnel can visit the web portal to check the availability of blood units in nearby branches.
- ○ They can request the blood bank operator to notify the available donors in case of deficiency.