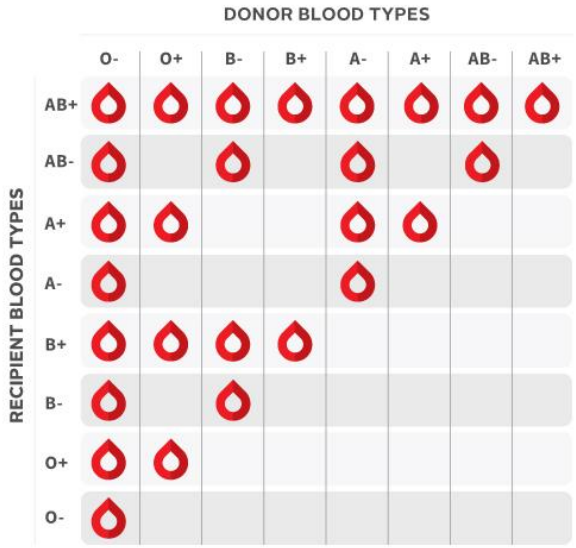
ICS 321 – Database Systems
Project Assignment (PHASE 1)

High-Level Requirements

You are required to develop a database application for managing blood donations. The following are the requirements of the database application. Read the requirements and submit the conceptual and logical designs as the Phase 1 of the project. Phase 2 is implementation of the Phase 1 outcomes as a software application.

A blood donation management system is an important tool used by hospitals, clinics, and blood banks to keep track of inventory levels, donor records, recipient records and other relevant information. This system would require administrators to efficiently manage collecting, storing, and distributing blood products.. The compatibility chart for blood types is as follows:



Your system would implement the following:

- Store recipient and donor information with sufficient details such as name, address, contact number, email etc.

- Eligibility for donation is necessary as per the following rules:
  - Should be at least 17 years old
  - Weigh at least 114 lbs
  - Be free of major diseases

- Maintain information of blood types with sufficient details as outlined in the figure above

- Your system should store sufficient data for the following requirements:
  - keep track of donors' and recipient medical history;
  - schedule blood collection drives every three months;
  - monitor expiration dates of stored blood;
  - keep track of any incidents that may occur due to failure of the process; and
  - produce reports on usage trends.

Phase 1:

- **Draw a conceptual EER and a logical Relational schema diagram of your design.**
- **Due: Sunday, October 29, 2023.**
- Use draw.io, Visio or ERDPlus or any other tool to draw the conceptual diagram. Hand drawn diagram will not be accepted.
- Submit one pdf file called **P1-Group-xx.pdf** (where xx is your group number) which contains the following four pages:

    - **Page1:** A cover page which contains
        - Project title, phase number, and date.
        - Group number
        - Group members IDs and names
    - **Page 2:**
        - Your conceptual diagram (**EER** Model)
    - **Page 3:**
        - Your logical diagram (**Relational** Schema)
    - **Page 4:**
        - **State** clearly any assumptions that you added to the above requirements.
        - **List** clearly the semantic requirements that cannot be captured in your EER model.
        - **State** the contribution of each group member.

Note: Only one member per group should submit the pdf file. No need for all of you to submit.

ICS 321 – Database Systems
Project Assignment (PHASE 2 – Functional Requirements)

Ensure that the following outcomes are included in your design:

1. Describe constraints, including business related, and technical constraints, such as primary keys, foreign keys, check constraints, and not null constraints, for the tables and attributes, etc.
2. Design the database, following an EER approach; then go through the normalization process to come up with a collection of tables that are in Third normal forms.
3. Use any SQL database to create the normalized tables
4. Find out how the most recent version of your database implements the concept of triggers and then create at least one trigger for your database. For example, one such trigger could be that someone wants to send a package; your trigger must create a package id automatically (optionally).
5. Populate the database by using SQL insert statements or with some GUI interface such as PhpMySQLAdmin in case you are using MySQL.

Each project group should go through the following steps in completing the project:

Functions of an Administration/Employee

1. Add/Remove/Edit Donor/Recipient information.
2. Search for donor and recipient history.
3. Add/Remove/Edit system user information.
4. Process request for Blood for a recipient.
5. Initiate Blood Collection Drive in a given period.
6. Generate dashboards/reports using your system.
7. Sending appropriate notifications through email etc.

Functions of a Donor/Recepients

1. Search for own (as donor or recipient) history.
2. Agree for blood donation/receiving (as donor or recipient).
3. Update personal information of Donor and Recipient including medical history. This should then be approved by system administrator before actual database update.
4. Do payments as charges only for receiving blood.

General Function (for all users)

- Login and Logout
- Browse as Guest

Reports (as system output)

1. List of all blood donations received in a week or a month.
2. List of all blood donations received in a week or a month
3. List the aggregated amount available for each blood type.
4. List all Collection Drive and total blood collected during each drive.
5. All Payments that have been confirmed as completed.

Phase 2 Deliverables

Implement the project application using any language of your choice and submit a pdf report which contains the following:

1. Cover page (Title, Group Number, IDs & Names, Date)
2. All what you have submitted in Phase 1.
3. How you implemented Phase 2.
4. All the tools and resources that you used.
5. All the problems you faced.
6. All the things that you learned from the project.
7. A table which lists the percentage completion of each required operation.
8. A table of all the extra things done. (For bonus points)
9. A table which lists the tasks done by each group member.
10. Suggestions to improve ICS 321 future projects.

Best of Luck