CS 5200 - Database Management Systems

Project Proposal

Blood Bank Management System

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Top Level Project Description:

Blood is the essence of life and often referred to as the 'liquid gold' that flows within us. It is a critical component for saving millions of lives every year, especially during emergencies and surgeries. However, the process of managing blood supply and demand can be complex, challenging, and time-consuming for blood banks and hospitals. This is where our Blood Bank Management System comes into play, providing a comprehensive solution for managing blood inventory, donor details, and blood requests. With our system, blood banks can ensure that they have an adequate supply of blood at all times, and hospitals can easily request blood units as needed. Our system provides a user-friendly interface, allowing authorized personnel to access and manage the system's data with ease, thus improving the efficiency of the entire blood management process. By implementing our Blood Bank Management System, we aim to streamline the blood supply chain, saving time, resources, and ultimately, lives.

Database Description:

The database contains information about the blood banks operating in the city of Boston. We keep track of the bank's name, address, and the hospital it is affiliated with. Multiple blood banks could be associated with one hospital. The names and addresses of these hospitals are also recorded.

Each donor's details get stored in the database once they register on the system. The donor has to book an appointment at his choice of blood bank and the details of the appointments such as the bank's name, date and time are saved.

The staff that works in these blood banks consists of the lab technicians and the admins whose details are stored in the database. Each blood bank has many technicians working for it and only one admin as its manager. The banks also have inventories to keep track of the blood groups and their amounts available till date. The lab technicians test every potential donor and record their hemoglobin which is then included in the donor's details.

The hospitals can make requests for blood to any of these blood banks as per their need. We store the name of the hospital making the requests, the blood group, and its amount to help admin fulfill the demands.

Finally, we store the information related to various blood donation camps organized by these blood banks. It contains the organizer's name, location, and date. The donors can view this information to make donation appointments as per their convenience.

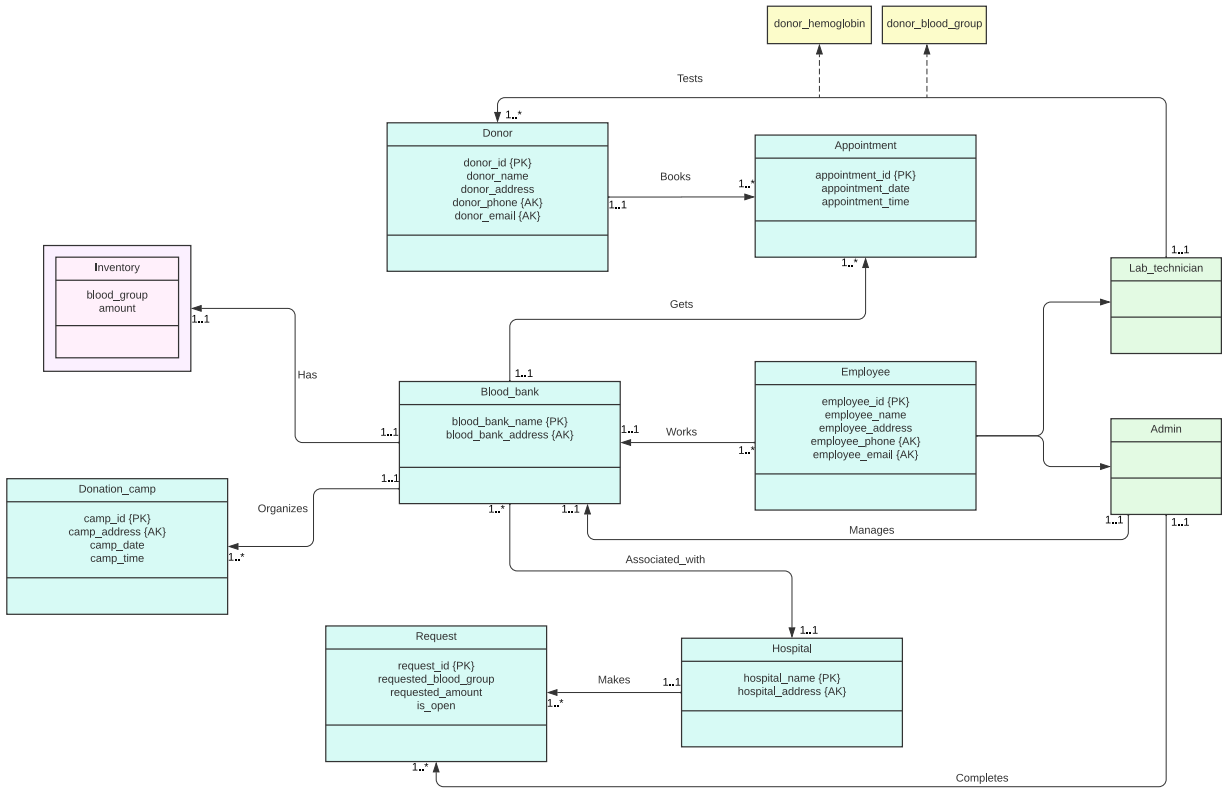
Software Used:

1. MySQL: MySQL is an open-source relational database management system that is widely used for web-based applications. It is scalable, reliable and supports many programming languages. We use this to create our databases from the schema.
2. Python: In python, we use MySQL-connector to connect to the database created.
3. Flask: Using the Flask framework, we will create a Python application that will handle HTTP requests from clients and interact with the database.

Motivation:

An efficient and effective system for record-keeping is crucial for blood banks, where thousands of people donate blood every year. It enables the bank to keep track of the available units of each blood type, their expiry dates, and other essential details that aid in quality control measures. The donor's information is stored in the blood bank database, which can be quickly accessed to fulfill any emergencies and blood transfusion requests. Having such a system in place guarantees that the blood bank is well-equipped with sufficient blood units to fulfill the demand. Additionally, the system facilitates communication between blood banks, hospitals, and other healthcare providers, ensuring that blood units are transferred to where they are needed promptly and efficiently. Given these important benefits, we have decided to develop a blood bank management system as our project.

UML Diagram: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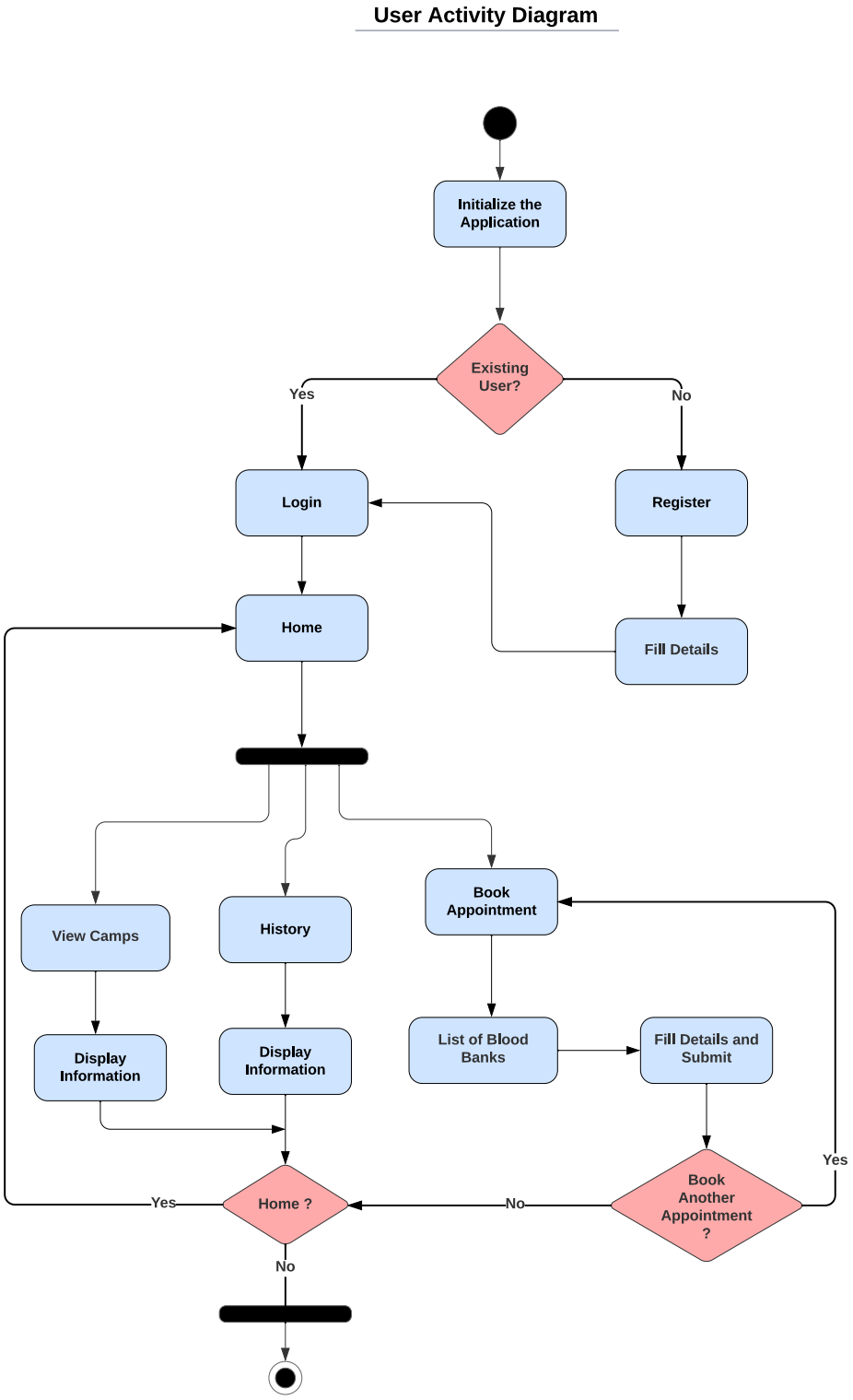
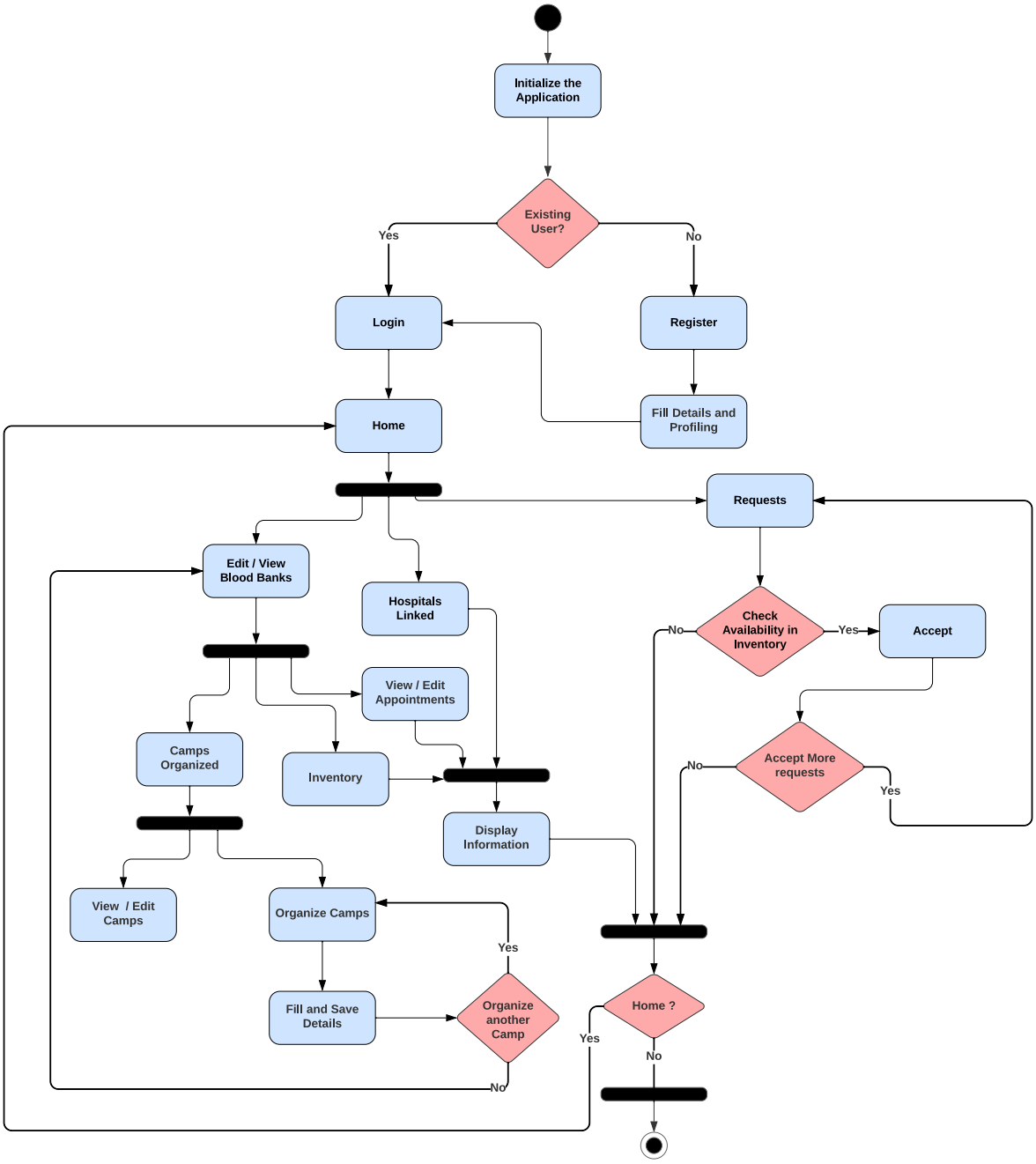
Completes

Activity Diagram:



Admin Activity Diagram



Hospital Activity Diagram