GEETANJALI COLLAGE-RAJKOT

Blood Bank Management System Documentation

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**Abstract:**

The Blood Bank Management System is a software solution designed to streamline and automate the processes involved in managing blood donations, blood recipients, blood collection camps, and stock details within a blood bank. Implemented in C#, this system provides a user-friendly interface for efficient management of critical blood bank operations.

**Key Features:**

**1. Blood Donor Management:**

- Register new blood donors including their personal information, contact details, blood type, and donation history.

**2. Blood Recipient Management:**

- Record details of blood recipients including their personal information, medical history, and blood requirements.

**3. Blood Collection:**

- Schedule and organize blood donation camps at various locations.

**4. Camp Management:**

- Create, schedule, and manage blood donation camps with ease.

**5. Stock Details:**

- Monitor the stock levels of different blood types available in the blood bank.

**System Modules:**

**1. User Management:**

- Admin: Has full access to all functionalities of the system including managing users, donors, recipients, camps, and stock details.

**2. Donor Management Module:**

- Tracks donor eligibility, donation history, and contact details.

**3. Recipient Management Module:**

- Facilitates the recording of transfusion details and medical history.

**4. Blood Collection Module:**

- Manages the scheduling and organization of blood donation camps.

- Records blood collection details including donor information, blood type, and quantity collected.

**5. Stock Management Module:**

- Monitors and maintains the stock levels of different blood types.

**Technology Stack:**

- Frontend: C# Windows Forms for the user interface.

- Backend: C# for business logic implementation.

- Database: SQL Server for data storage and retrieval.

**Database Table Details**

|  |  |  |
| --- | --- | --- |
| **Donors Table** | | |
| **Column Name** | **Data Type** | **Description** |
| Donor ID | int | Unique identifier for each donor |
| Name | varchar(50) | Donor's name |
| Blood Group | varchar(2) | Donor's blood group (e.g. A+, A-, B+, B-, AB+, AB-, O+, O-) |
| Gender | enum('M', 'F') | Donor's gender |
| Date of Birth | date | Donor's date of birth |
| Contact Number | varchar(20) | Donor's contact number |
| Email | varchar(50) | Donor's email |
| Address | varchar(100) | Donor's address |
| Last Donation Date | date | Date of donor's last blood donation |
| **Blood Inventory Table** | | |
| Blood ID | int | Unique identifier for each blood unit |
| Donor ID | int | Foreign key referencing the Donor ID in the Donors table |
| Collection Date | date | Date of blood collection |
| Expiry Date | date | Date of blood expiry |
| Blood Group | varchar(2) | Blood group of the unit (e.g. A+, A-, B+, B-, AB+, AB-, O+, O-) |
| Volume in ML | int | Volume of the blood unit in milliliters |
| Status | enum('available', 'eserved', 'expired') | Current status of the blood unit |
| **Blood Needs Table** | | |
| Need ID | int | Unique identifier for each blood need |
| Recipient Name | varchar(50) | Name of the blood recipient |
| Hospital Name | varchar(50) | Name of the hospital requesting blood |
| Blood Group | varchar(2) | Blood group needed (e.g. A+, A-, B+, B-, AB+, AB-, O+, O-) |
| Quantity in ML | int | Quantity of blood needed in milliliters |
| Needed By Date | date | Date by which the blood is needed |
| Status | enum('pending', 'fulfilled', 'cancelled') | Current status of the blood need |

**Benefits:**

- Efficient management of blood donors, recipients, camps, and stock details.

- Improved tracking and monitoring of blood inventory.

- Simplified donor and recipient information management.

- Facilitates timely and accurate blood transfusions for patients in need.