** Karakoram International University (KIU), Gilgit.**

**Department of Computer Sciences**

**Final Year Project Proposal**

Part-1 (Completed by the students):

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| Registration Number | 1. 2020-BS-KIU2070 2. 2020-BS-KIU2064 |
| Name of Supervisor | Ma’am Gul Sahar |
| Title of Project proposal | Blood Bank Management system |
| Signature of students:   * Adnan Ali Shah | * Wajid Ali |

**Introduction of Project:**

In the healthcare sector, the availability of safe and adequate blood supplies is critical for patient survival, especially in emergency situations. However, traditional methods of managing blood donations, inventory, and transfusions often suffer from inefficiencies, delays, and errors. To address these challenges, a Web-Based Blood Bank Management System offers a modern, secure solution that allows for seamless management of blood banks through an online platform. A Web-Based Blood Bank Management System provides real-time access to blood inventory, donor information, and transfusion requests from any internet-enabled device. The key objectives of the system include automating manual processes, reducing errors, and ensuring that hospitals and healthcare providers have immediate access to blood inventory data.

**Project Objectives:**

The primary objectives of this project are:

* **Development of a Blood Bank System:**

Create a user-friendly and secure blood bank management system to streamline donor management, including registration, donor management and receiver management.

* **Real-time Blood Availability:**

Implement a real-time tracking system for blood availability in the blood bank, ensuring the contact and address details of blood donor and receiver on urgent basis.

* **Emergency Response:**

Enable the user to quickly access donor information and blood receiver details with each other in emergency situations and save their time and resources to cure the disease.

* **Data Security and Privacy:**

Integrate robust security measures to protect sensitive donor and patient information in compliance with healthcare data regulations, such as HIPAA, ensuring confidentiality and integrity of all data processed.

* **User Training and Support:**

Implement features to engage donors, such as reminders for donation eligibility, incentives, and transparent tracking of how their donations are used, thereby increasing donor retention rates.

**Methodology:**

The project will be executed in the following stages:

* **Requirements Analysis:**
* Gather requirements through interviews with healthcare professionals, blood bank staff and other stakeholders.
* Analyze existing blood bank management software for benchmarking features like blood donor registration, inventory management, and transfusion requests.
* **System Design:**
* Design the overall architecture of the Blood Bank Management System, focusing on scalability, security, and performance.
* Develop the database schema tailored to manage blood donor information, blood types, donation records.
* **Development**:
* Develop the Blood Bank Management System using a suitable technology stack for a web-based platform (e.g., front-end and back-end frameworks, database management system).
* Implement features registration, donor management, receiver management and the health status of the patient.
* **Integration**:
* Integrate the Blood Bank module seamlessly into the other clinical management system (if necessary).
* Ensure real-time synchronization of blood inventory data across the system, allowing multiple users to access up-to-date information on stock levels, donor activity, and request statuses.
* **Testing:**
* Verify that all features (donor registration, inventory tracking, and transfusion requests) work as intended.
* Validate that data related to donors and blood units is secure and protected against unauthorized access.
* **Deployment**:
* Deploy the system in a controlled healthcare environment (e.g., a specific hospital or blood bank) to ensure it operates efficiently in real-world conditions.
* Train healthcare professionals and blood bank staff on how to use the system effectively, including key functionalities such as managing blood stocks and handling transfusion requests.
* **Maintenance and support:**
* Provide ongoing technical support, bug fixes, and updates.
* Monitor system performance and ensure data security.

**Expected Outcomes:**

On the completion of the project the possible outcomes will be:

* An efficient and user-friendly Blood Bank Management System.
* The system will enable real-time tracking of blood stocks, reducing the risk of shortages or overstocking.
* The system will provide accurate, real-time data on blood inventory, donor records, and transfusion activities.
* With features such as donor registration, appointment scheduling, and history tracking, the system will streamline the donor process, increasing donor retention and improving the overall management of blood donation activities.
* A valuable tool for healthcare facilities to streamline operations and improve patient outcomes.

**Timeline:**

The project will be completed approximately 10 to 12 months, the estimated timeline for completion of project is:

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| --- | --- |
| 1. Requirement Analysis | 2 months |
| 1. System Design | 2 months |
| 1. Development | 3 months |
| 1. Integration | 1 month |
| 1. Testing | 1 Month |
| 1. Deployment | 1 Month |
| 1. Maintenance and support | Ongoing |

**Budget:**

The budget for this project will include expenses for software development, hardware (if necessary), training materials, and ongoing maintenance and support costs. A detailed budget plan will be prepared during the project planning phase.

**Conclusion:**

The development of a Blood Bank Management System is crucial for enhancing healthcare services and improving emergency response in healthcare facilities. This project will contribute to the advancement of healthcare technology and ultimately save lives by ensuring the timely availability of blood products during critical situations.

We seek approval and support for the execution of this project, which promises significant benefits for healthcare providers and patients alike.

**Part-II (To be filled by concerned officials only)**

Recommendations/commitments by research supervisor:

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Signed by supervisory committee:

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| S.No | Name of committee member | Designation | Signature & Date |
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| **Approved by department FYPs/Thesis committee:**  Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Chairman/HOD: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | | |