



REPORT ON BLOOD BANK

COURSE NO : CSE 3218

COURSE TITLE : MOBILE COMPUTING LABORATORY

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1.Introduction:

In the world of blood donation, Bangladesh encounters both tough challenges and chances for improvement. The constant demand for a reliable and safe blood supply meets some big hurdles. The World Health Organization (WHO) suggests a sustainable national blood transfusion program that depends on volunteers who donate blood without getting paid (VNRBD). Yet, Bangladesh deals with unique issues that affect how blood donation works regularly and especially during crises. Our innovative mobile application, designed with the distinct needs of Bangladesh in mind, strives to be a beacon of hope in ensuring a consistent and safe blood supply.

1.1. Background Information:

The routine situation in Bangladesh unveils a struggle to maintain an adequate and safe blood supply. The call for voluntary donors echoes across the nation, yet the stark reality remains: out of 193 WHO Member States, only 62 countries, a mere 32%, report receiving more than 99% of their blood supply through VNRBD. Rural areas, in particular, bear the brunt of multifaceted challenges experienced by blood banks. The scarcity of continuous electricity supply becomes a major concern for blood storage, threatening the quality of stored blood and leading to significant wastage.

Compounding these challenges is the difficulty in obtaining blood from voluntary donors on short notice. Poor networking, the absence of donor databases, and transportation hurdles contribute to the struggle. Professional donors exploit this gap, selling blood frequently and compromising its quality. The risk of transmissible infections, such as HIV, hepatitis, syphilis, and malaria, looms large.

In the context of thalassemia, a major health concern in Bangladesh, the demand for blood is acute. Beta-thalassemia carriers constitute about 10% of the total population, translating to 16 million carriers. Approximately 67% of the 60,000–70,000 thalassemia patients in Bangladesh are dependent on blood, requiring transfusions every 2–4 weeks for survival. However, the stark reality is that against an expected demand of 800,000 blood units in 2016, only 600,000 were collected, with merely 31% coming from voluntary donors.

The situation takes a more dire turn during crises such as the COVID-19 pandemic. Prolonged lockdowns and strained healthcare systems present an insurmountable challenge to ensuring a safe blood supply to critical patients within the existing framework.

Research on the motivational factors and barriers affecting blood donations in Bangladesh is notably scarce. Existing drives, often tied to various occasions, suffer from inadequate networking, resulting in a significant portion of collected blood becoming unusable.

By delving into the specific challenges faced by Bangladesh, we aspire to contribute insights that foster a transformative change—creating a culture of safe, quick, and voluntary blood donation across the nation.

1.2.1.Objectives:

- To automate blood bank operations for efficient management of records.
- To make instant searching capabilities in the app.
- To develop a user-friendly web-based portal for seamless coordination between blood supply and demand.
- To ensure accessibility to good quality, safe blood, and other components.
- To provide blood in an ethical manner consistent with community well-being.
- To actively encourage and motivate voluntary blood donation.
- To maintain a well-indexed record of blood donors.
- To educate the community on the benefits of blood donation.
- To serve as a platform for sharing best practices in blood utilization.
- To assist the state in working towards self-sufficiency in blood supply.

1.2.2.Goals:

- **User-Friendly Features:**
 - Allow users to view details of the existing Donor List.
 - Enable users to search for donors based on their blood group and address.
 - Provide the option for users to add themselves as blood donors.
- **Telegram Group Integration:**
 - Integrate with Telegram to create a dedicated group for blood donation.
 - Allow users to join the group for quick communication and coordination.
- **Blood Request Feature:**
 - Enable users to request blood within the app.
 - Provide a platform for urgent blood needs and emergencies.
- **Accident News Updates:**
 - Regularly update users on accident news to highlight the immediate need for blood.
 - Keep the community informed and engaged in responding to emergencies.

2.Methodology:

2.1. 3 examples of Detailed description and explanation of the methods and procedures used to conduct the project:

AddViewController (Add Data):

- **Description:**
 - The AddViewController is responsible for adding donor information to the Firebase database.
- **Methods and Procedures:**
 - **ViewDidLoad:**
 - Initializes the view.

- **DonorBtn Action:**
 - Validates user input.
 - Creates a dictionary representing donor information.
 - Gets a reference to the 'donor_info' branch in the Firebase database.
 - Generates a new child node with a unique key.
 - Sets the donor information under the new child node in the database.

LastViewController (Show Data):

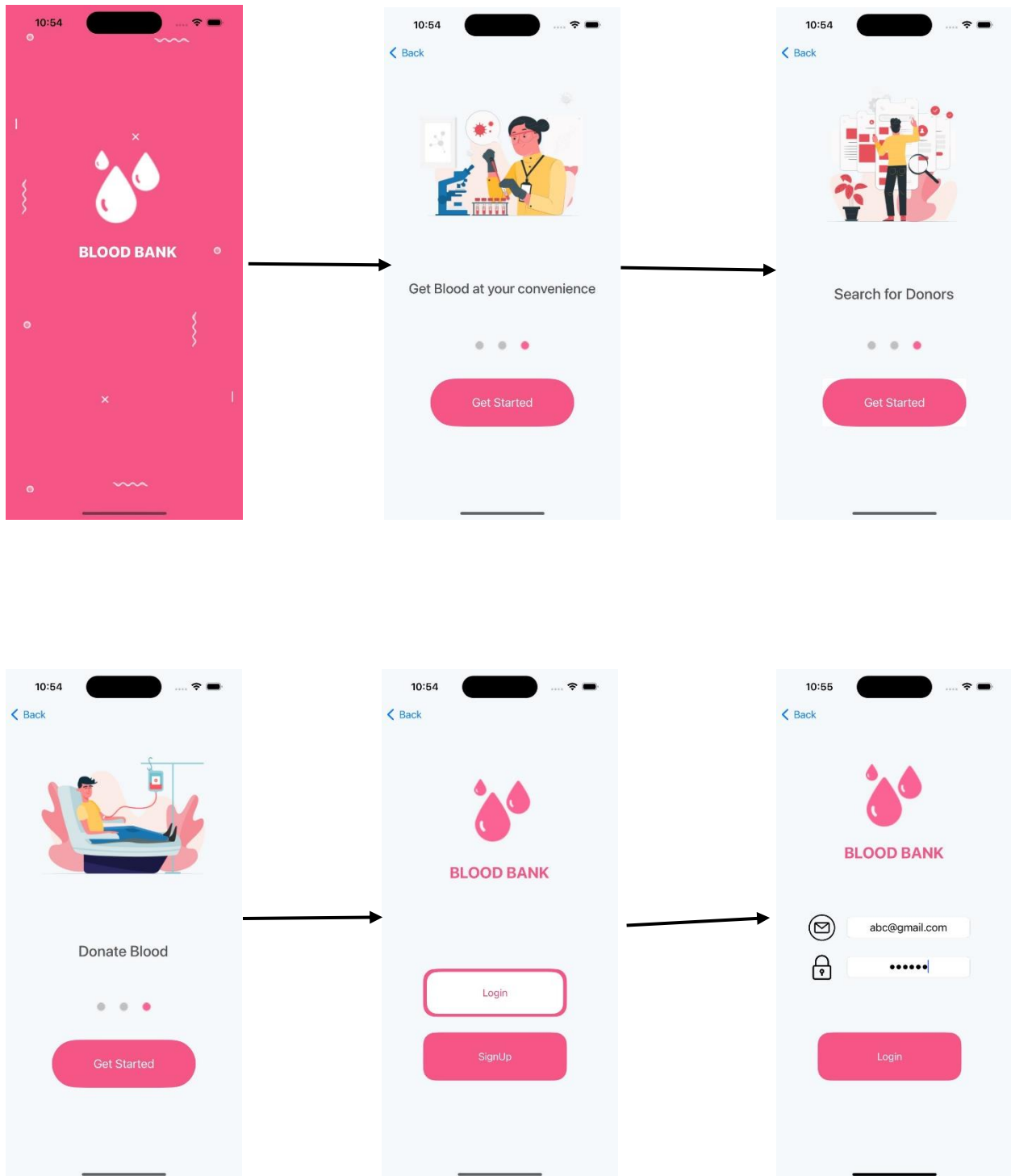
- **Description:**
 - The LastViewController displays donor information in a table view by fetching data from the Firebase database.
- **Methods and Procedures:**
 - **ViewDidLoad:**
 - Configures Firebase and prints the blood group and address.
 - Calls fetchDataFromFirebase to fetch donor data.
 - **FetchDataFromFirebase:**
 - Observes changes in the 'donor_info' branch of the Firebase database.
 - Clears existing data.
 - Iterates through the snapshot, extracts donor information, and filters based on blood group and address.
 - Creates BloodData objects and adds them to the listBlood array.
 - Reloads the table view to reflect updated data.

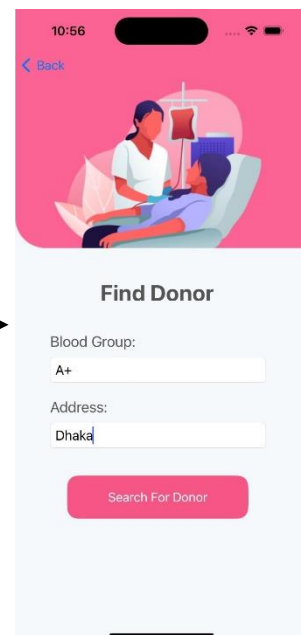
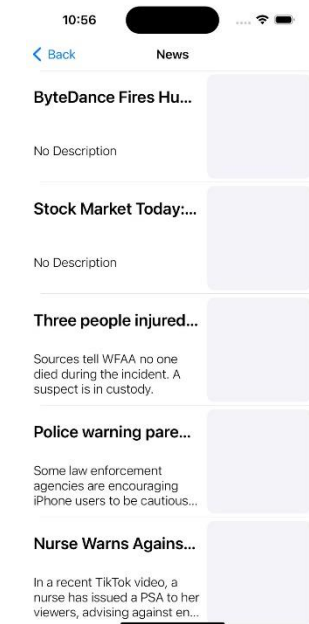
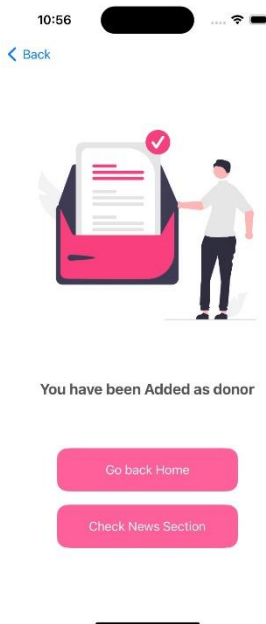
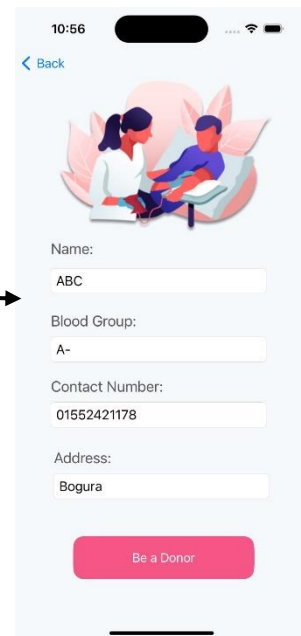
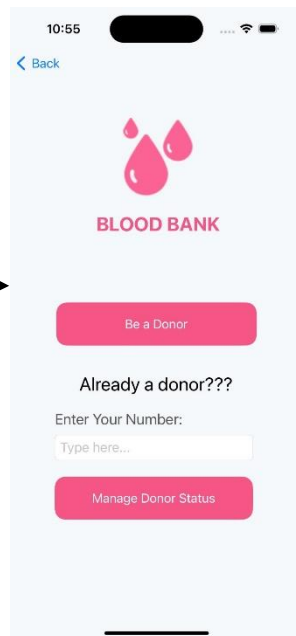
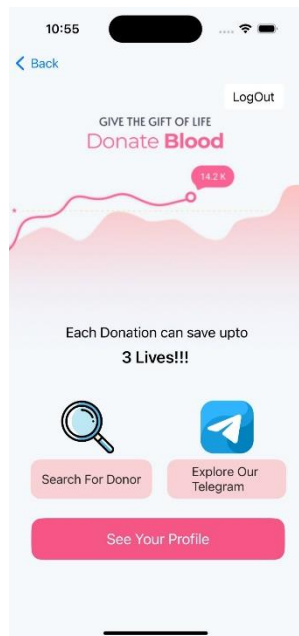
SearchViewController (Search Data):

- **Description:**
 - The SearchViewController allows users to search for donors based on blood group.
- **Methods and Procedures:**
 - **ViewDidLoad:**
 - Sets up the view and adds a target for the text field for live searching.
 - **SearchRecord Action:**
 - Called when the text in the search field changes.

3.Result:

Here are the screenshot result of the application “Blood Bank” :





5:26

< Back

Donor: 1

Name:

Blood Group:

Contact no:

Address:

Donor: 2

Name:

Blood Group:

Contact no:

Address:

Donor: 3

Name:

Blood Group:

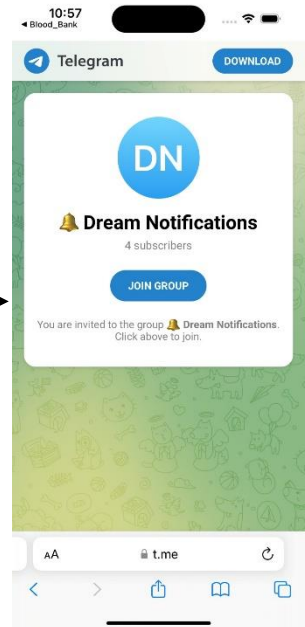
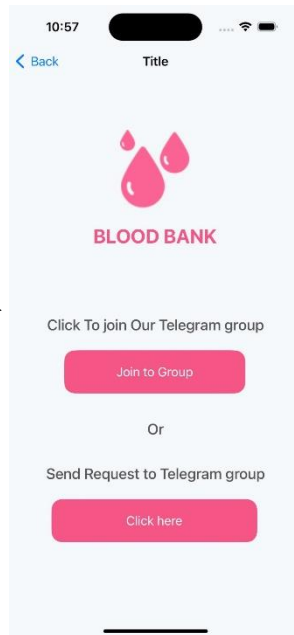
Contact no:

Address:

Donor: 4


Name:

Blood Group:



10:58

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Send Request

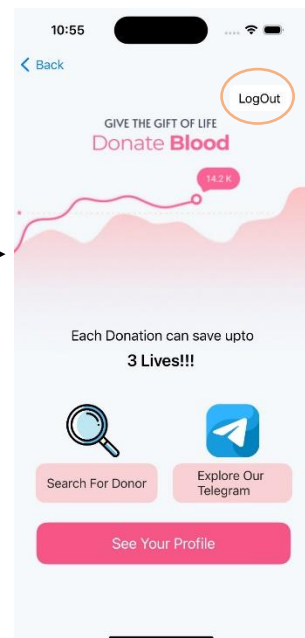
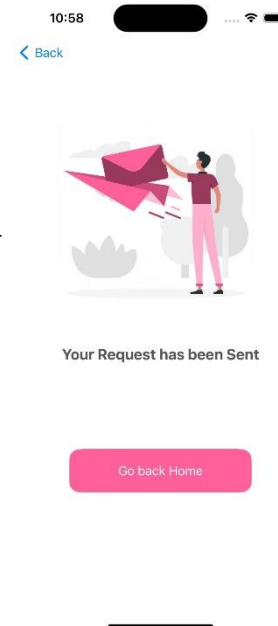
Name:

Phone Number:

Blood Group:

Address:

[Send Request Message](#)



4.Discussion:

Acknowledging the prevalent challenges associated with blood donation, the "Blood Bank" app takes a distinct approach to encourage and facilitate regular blood donation. One of its pivotal features is the creation of a comprehensive and user-friendly platform that seamlessly connects donors with recipients based on blood group compatibility and geographical proximity. This unique functionality ensures that individuals in need of blood can efficiently locate and contact potential donors in real-time. Moreover, the app's innovative integration with messaging platforms, such as Telegram, serves as a vital communication hub. Donors can be added to dedicated groups, streamlining the process of broadcasting urgent blood requests and pertinent information. This immediate and direct communication mechanism significantly reduces response times during emergencies, contributing to a more rapid and effective mobilization of blood donation efforts. So, the "Blood Bank" app goes beyond traditional methods by leveraging modern technology to establish a dynamic network of donors and recipients. Through its emphasis on real-time connectivity and communication, the app plays a crucial role in addressing the time-sensitive nature of blood donation, ultimately making a substantial impact on saving lives in critical situations.

5.1.Conclusion:

In conclusion, the "Blood Bank" app stands as a valuable and innovative tool in addressing the challenges associated with blood donation in Bangladesh. By providing a user-friendly interface that fosters real-time connectivity between donors and recipients, the app significantly contributes to overcoming the prevalent issues of unawareness, fear, and communication gaps in the blood donation process.

5.2.Future Works:

- In future we will update our system continuously.
- We will develop live chat feature.
- Track location of the donor.
- Integrate interactive educational modules to inform users about regular blood donation benefits and dispel myths.
- Extend app coverage to collaborate with more blood banks, healthcare facilities, and organizations for a broader donor network.
- Explore integrating the app with individuals' health records for personalized and targeted donation campaigns.
- Introduce gamification elements and incentives to motivate users for consistent blood donation, fostering community engagement.
- Stay updated with technological advancements, implementing AI-driven matching algorithms, predictive analytics, and process streamlining.

6.References:

- <https://bdrcs.org/donate-blood/>
- <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2920470/>
- <https://ccsenet.org/journal/index.php/ijbm/article/view/0/40122>
- <https://www.who.int/bangladesh/news/detail/14-06-2017-bangladesh-is-still-to-meet-the-demand-of-safe-blood-supply>