GIVEBLOOD: A CROSS-PLATFORM BLOOD DONATION SYSTEM WITH DATA ANALYTICS AND VISUALIZATION IN IMUS CAVITE

An Undergraduate Thesis
Submitted to the Faculty of the
Department of Computer Studies
Cavite State University
Imus Campus, Cavite City

In partial fulfillment
of the requirements for the degree
Bachelor of Science in Computer Science

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July 2023

ABSTRACT

CATIPAY, ARISTON L., RAMOS, HARVI M., SILVA, JIESILLE M., GIVEBLOOD: A CROSS PLATFORM BLOOD DONATION SYSTEM WITH DATA ANALYTICS AND VISUALIZATION IN IMUS CAVITE. Undergraduate Thesis. Bachelor of Science in Computer Science, Cavite State University, Imus City, Cavite. July 2023. Adviser. Ms. Grace S. Ibañez

This study aimed to create a Cross-Platform Blood Donation System with Data Analytics and Visualization in Imus Cavite. The purpose of this project was to develop a system that assisted people in need of blood donations by connecting them with active blood donors. The system was designed to enable blood donors to create a personal social profile, which included their blood type and location. This profile facilitated more effective contact between donors and individuals requiring blood donations. Additionally, the system incorporated various techniques, such as Google Account verification, valid ID checks, and OTP (One-Time Password) verification, to ensure the user's identity was verified. To be able to gather the necessary requirements and functionalities for the system, the developers conduct a series of interviews and presented different prototypes to the client and prospective users.

In the development process of the study, a type of an evolutionary model, which is the spiral model is used by the developers to properly plan and execute the project from beginning to end. The spiral model consists of many different iterations, each focusing on improving the last iteration.

The proposed system featured an Account Component with donor and recipient user accounts, allowing users to switch between roles based on their preferences. Donors created labeling profiles, including valid identification and personal information, to assure recipients of their authenticity, while recipients established profiles to maintain transparency with donors. The Communication Feature enabled seamless interaction and discussion among users. The Data Manipulation Capability empowered users to modify their blood type and private details,

facilitating role swapping. The Transaction Functionality generated settlements and contracts, producing reports to validate contract quality. The Data Analysis and Visualization Feature monitored user statuses, ratings, and donation requests. Lastly, the Cross-Platform Integration ensured accessibility via both the website and Android application. Due to the cross-platform capabilities offered by Flutter, the developers made the decision to employ Flutter for both the frontend and backend components of the stack. Additionally, Firebase was chosen as the cloud storage solution.

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An undergraduate thesis manuscript submitted to the faculty of the Department of Computer Studies, Cavite State University Imus, Cavite in partial fulfillment of the requirements for the degree of Bachelor of Science in Computer Science with Contribution No. BSCS-THE-02-2023-000-015
Prepared under the supervision of Ms. Grace S. Ibanez.

INTRODUCTION

Social media platforms are among the most important in the daily lives of individuals in various areas of the country. Facebook, Twitter, and Instagram are examples of social media platforms, and Tiktok is the current enthusiasm of today's population, especially younger generations, not to mention that everyone possesses a smartphone; even youngsters have this kind of electronic device since numerous companies and manufacturers compete with one another, particularly in terms of product costs. These social media platforms provide entertainment, alleviate boredom, and enable users to connect with others from all over the country (Caparas, 2023). However, as time passes, social media platforms become more sophisticated. the contents; it already has other functionalities that are not yet entertainment but like advocacy. Since it is complex and these media platforms have many users, the advocacy postings are overpowered by so many entertainment clips and posts that do not make sense, including memes, that they fail to focus significantly on such important aspects as needs and advocacy. The influence of social media on Filipino citizens is tremendous; the Philippines is one of the world's most active users of social media. However, the Philippines has only entertainment platforms; there is no social media platform for a cause. Perhaps if there were a platform such as this, many people would be benefited, and they would be saved,

since the platform is entirely focused on helping individuals in critical need, such as blood donors.

Statement of the Problem

Blood serves as the most vital substance in the body. It functions as fuel for the human body's organs, transporting oxygen, nutrients, and so forth. Whenever a human body starts to lose a large amount of blood or the blood supply is insufficient, this can put the individual at risk. Depending on the circumstances, the organs will start to fall as well as the brain will not function effectively due to insufficient blood supply. A blood bag is typically used in surgeries, other illnesses, and diseases that require other cells in the blood to keep the individual's body stable. Fortunately, although they possess an inventory of both common and rare blood types, it is expensive, especially for uncommon blood types like A, B, and AB.

This study aims to answer "How to develop a cross-platform for blood donation system with data analytics and visualization." Specifically, this study attempts to answer the following problems:

People who have friends or family members who require immediate blood donations in an emergency frequently look for blood donors through their friends and family members. In certain circumstances, this strategy is straightforward and successful, but it is not the most efficient way to find potential blood donors. "*How can we design a system that enables people in need of blood donations to find blood donors?*"

People who want to donate blood frequently wait for notices about blood-letting events or go to Red Cross blood donation centers. However, in an emergency situation where a patient needs blood immediately, there is no practical means to reach these eager blood donors. "*How can we design a system that allows interested blood donors to develop a personal social profile that includes their location, blood type, and contact information so that we can make more effective contact in an emergency?*".