Blood Donation App

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VEHARI – PAKISTAN

SESSION 2018-2022

Blood Donation App

Undertaken By:

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A DISSERTATION SUBMITTED AS A PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF BACHELORS IN COMPUTER SCIENCE

DEPARTMENT OF COMPUTER SCIENCES
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CERTIFICATE OF APPROVAL

It is to certify that the final year project of BS (CS) "Project title" was developed by **Abdul Rehman(CIIT/FA18-BCS/010)** and **Bilal Khan (CIIT/FA18-BCS/026)** under the supervision of "Sir Deewan Qaseem" and that in his opinion; it is fully adequate, in scope and quality for the degree of Bachelors of Science in Computer Sciences.

Supervisor

External Examiner

Head of Department

(Department of Computer Science)

DEDICATION

ACKNOWLEDGEMENT

PROJECT BRIEF

PROJECT NAME	/* Save life */
ORGANIZATION NAME	/* COMSATS University Islamabad, Vehari Campus */
OBJECTIVE	/* Blood Donation*/
UNDERTAKEN BY	/* Abdul Rehman, Bilal Khan */
SUPERVISED BY	/* Sir Dewan Qaseem */
	/* Computer Science */
	/* COMSATS University Islamabad, Vehari Campus */
STARTED ON	/* October 7,2021 */
COMPLETED ON	/* June 10,2022 */
COMPUTER USED	/* HP */
SOURCE LANGUAGE	/* Dart */
OPERATING SYSTEM	/* Android */
TOOLS USED	/* Android Studio */

ABSTRACT

Our App helps to find blood for needy ones and it also helps to those who are willing to donate or want to sale their blood. Both seller/donor and buyer/needy one can contact each other. The users will provide their information such as age, name, contact no., gender, blood group, address etc. The google map is also available in the application so that users will provide their location on it and the users can easily approach each other.

Contents

Introduction

System Introduction:

The name of this application is "***Save Life***". Users can access the application by creating an account and using this application the users can either register for blood donation or can raise a request to receive blood. The users can see the location of other users on google map. The users can view the donors' profile & can request the donors for help and can also chat with the donors. The users can accept or reject a request. The users will also receive notifications of chats and blood donation requests. In this way, this user-friendly blood donation application can help people save lives. This app is a hope for people to save their life.

Background of the System:

Every day, at least 2,000 donations are needed on average, but the remainder are not enough. Things such as traffic crashes, hospitalization, birth of children etc. still want external blood supplies in an emergency. The barrier between individuals in need of blood would be reduced by blood-base applications like this. Blood is vital for human life as there's no substitute for human blood. No major operation will be performed while not the utilization of blood in any hospital or clinic.

Our blood donation app is mainly uses for helping the patient who need blood. This app connects users to communicate each other easily and resolve all issues i.e., traffic crashes, weather issues, there is no proper awareness and communication between people.

Objective:

- This task is defined for people who are eager to give away their portions of blood to the patients in need.
- With the help of this framework, we can discover a contributor for the correct blood classification and it becomes simpler to make the association among give
- away/donor

Our App helps to find blood for needy ones and it also helps to those who are willing to donate or want to sale their blood.

Significance of the system:

This application provides a reliable platform to connect local blood donors with patients. This app creates a communication channel through authenticated clinics whenever a patient needs blood donation. It is a useful tool to find compatible blood donors who can receive blood request posts in their local area.

Overall Description

Product Perspective:

Blood Donation is considered one of the most valuable contributions to the medical industry, when a patient loses blood a blood transfusion must be done to save the life of the patient. But in the

present, though there are so many donors who are willing to donate blood there is no such mechanism to keep touch with the donors and to inform them when there is a need. This system allows solving this problem and it will create a practical and efficient way of communicating with Donors, Patients, and Hospitals. The blood Donor registering system is created to facilitate the donors who are willing to donate blood. This system is intended to function with the help of the World Wide Web (www) and the system will register blood donors and it will maintain a database with donor information and donation history, and it will inform the donors via e-mail and SMS when there is the patient who needs blood. All the data of donors will be stored in a database, and the system will be able to directly to the blood bank database and other selected databases of selected hospitals.

Product scope:

In recent days, it is noticed the increase in blood request posts on social media such as Facebook, Twitter, and Instagram. Interestingly there are many people across the world interested in donating blood when there is a need, but those donors don't have an access to know about the blood donation requests in their local area. This is because that there is no platform to connect local blood donors with patients. This application can resolve these issues by connecting patients promptly with a large number of donors in the same region through this application. When a patient needs a blood donation, he can use the application to contact the blood donors in the vicinity or nearby city based on their location. The registered donors will get notification about the blood donation needed to a patient where they can go and donate. The purpose of this application is to simplify and automate the process of searching for blood in case of emergency.

Product functionality:

Our App helps to find blood for needy ones and it also helps to those who are willing to donate or want to sale their blood. Both seller/donor and buyer/needy one can contact each other. Donor will create a post of donating blood with all required information i.e., age, blood group, phone number, location, gender. Receiver will read these posts and access the donor in chat box or with

phone number and see his location. Admin will control all settings off app and can remove all bug and errors. The google map is also available in the application so that users will provide their location on it and the users can easily approach each other.

- Chat Box
- Google Map
- Donor Posts
- Notification
- Registration

Users and Characteristics:

Donor

donor will create a post of donating blood with all required information i.e., age, blood group, phone number, location, gender.

Receiver

Receiver will read these posts and access the donor in chat box or with phone number.

Admin

admin will control all settings off app and can remove all bug and errors.

Operating Environment:

Software Configuration:

Flutter: Framework

Canva: Designing

Android Studio: Development

Firebase: DBMS

Adobe: Prototyping

Hardware Configuration:

Device: Mobile phone

RAM: 4GB

ROM: 128GB

Operating system and versions:

Operating system: Windows10

Flutter version: 2.5.2

Specific Requirements

Functional Requirements

Chat Box

This is the very important function of our App. When a donor adds a post with all information and receiver wants that type of blood, he/she uses this chat box to communicate with donor.

Google Map

The google map is also available in the application so that users will provide their location on it and the users can easily approach each other. The receiver will search the type of blood and location then the nearest donors will appear.

Donor Posts

Donor will create a post of donating blood with all required information i.e., age, blood group, phone number, location, gender. Receiver will read these posts and access the donor in chat box or with phone number and see his location.

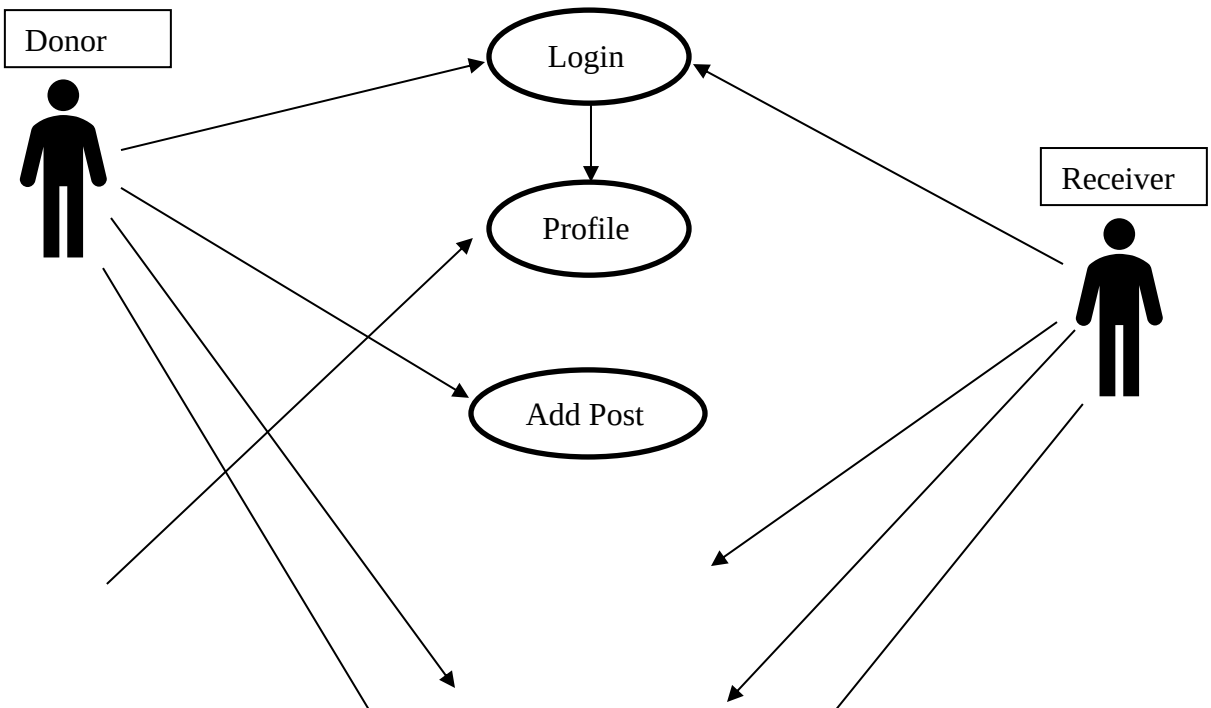
Notification

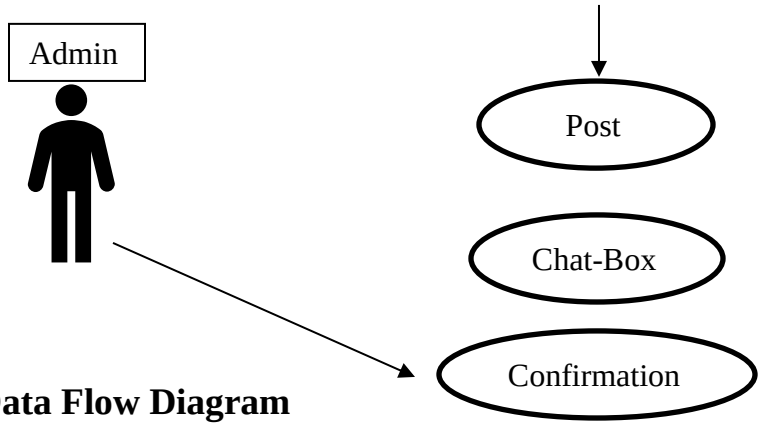
When a receiver send message to donor, the donor receives a notification on his/her device.

Registration

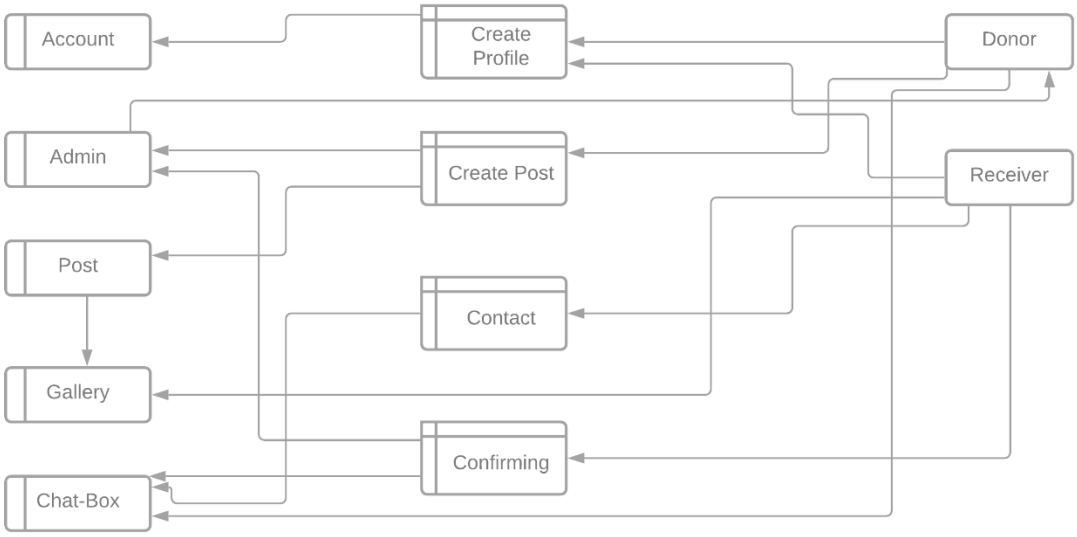
User will register it self with his phone number and receive an OTP on that number for the verification of account.

Use Case Diagram





Data Flow Diagram



Database Design or ERD

External Interface Requirements

User Interfaces

Software Interfaces

Communications Interfaces

NON-Functional Requirements

Performance required:

1) Should run on 500 GHz, 64MB machine.
2) Should have a proper internet connection.
3) The response time for occurs a change will be no more than 4 seconds.
4) The response time for accessing the database will be no more than 5 seconds.

Security

This system doesn't have a tight security system. Because people who log into the system are volunteers who like to donate blood for innocent patients. But the system consists of some security features. Some of them are as follows:

1) Any donor cannot see any detail of any other donor.
2) If a donor doesn't manage to provide his user's name & the password 3 times the user automatically will log out from the website.

Software Quality Attributes

- **Robustness**

The entire system includes every function which always helps the system to work correctly & strongly in all conditions.

- **Reliability**

The system can work all the time without failures apart from network failure. The donor can have faith in the system. The authorities will keep the privacy of all donors properly.

- **Interoperability**

Here the system will run on the blood donation Application. Therefore, the system includes the ability to work with the other applications which are also run on the same Application.

Design Description

Composite Viewpoint

Logical Viewpoint

Information Viewpoint

Interaction Viewpoint

State Dynamics Viewpoint

Algorithm viewpoint

Decision Tree algorithm A decision tree is a machine learning algorithm that has a tree structure, similar to a flowchart, with each internal node referred to as a non-leaf node. Each branch reflects a specific method outcome, and each leaf node, also known as a terminal node, contains a class label or distribution. In a tree, the root node is the highest node. The decision trees may quickly be modified to rules of grouping. The design of decision-tab classifications requires no domain awareness or parameter configuration, making it ideal for knowledge exploration and discovery. An analysis was Performed in user datasets using the J48 decision tree algorithm implemented in WEKA. However, there is an attempt in the blood donor Classification using sex, age and height to identify and predict the donor. J48 algorithm and WEKA tool have been Incorporated with B Door Application. This enables authorized institutions such as the hospital, non-governmental organizations and blood banks to check available donors based on donor input credentials. The problems encountered in finding the real-time donor can be solved by an analysis of J48 decision tree classification through the blood donor data sets.