



E-RAKT

Every drop of blood
is a gift of life.

Share the miracle of life
with the world.
The blood you give can help someone live.

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Every two seconds, someone needs blood.

A
Project Report
On
E-Rakt

Submitted by

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In partial fulfilment for the award of the degree

Of
DIPLOMA ENGINEERING
In
Information Technology



Government Polytechnic, Gandhinagar
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Gujarat Technological University, Ahmedabad
November, 2020

GUJARAT TECHNOLOGICAL UNIVERSITY
AHMEDABAD
GOVERNMENT POLYTECHNIC
GANDHINAGAR

Certificate

This is to certify that Mr. Sharma Sushant RajeshBhai from Government Polytechnic, Gandhinagar College having Enrolment No: 186230316547 has completed Final Project Report having title E-Rakt. In a group consisting of 3 persons under the guidance of the faculty guide Mr. Kirti. B. Jadhav.

The mentor from industry for the project:

Name: Sejal Jadav

Industry: TECHinfinity

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Institute Guide – IDP

Industry Guide – IDP

Head of Department

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This is to certify that Ms. Vasava Khanjna RajeshBhai from Government Polytechnic, Gandhinagar College having Enrolment No: 186230316119 has completed Final Project Report having title E-Rakt. In a group consisting of 3 persons under the guidance of the faculty guide Mr. Kirti. B. Jadhav.

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This is to certify that Ms. Tailor Shivam Jitendrabhai from Government Polytechnic, Gandhinagar College having Enrolment No: 186230316112 has completed Final Project Report having title E-Rakt. In a group consisting of 3 persons under the guidance of the faculty guide Mr. Kirti. B. Jadhav.

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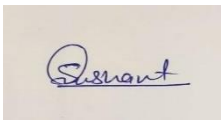
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COMPANY PROFILE

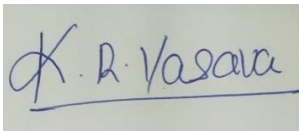


Company Name	TECHInfinity
About	<p>TECHInfinity is providing IT solution, Training and Placement Services. TECHInfinity involved in providing best quality talent to meet the needs of IT companies. It provides development service in different areas like Product Development (I.T Development), Skill Development (Training) and Career Development (Placements). It also create customize projects on the basis of client requirement and need. TECHInfinity is the recruiting partner of more than 100+ companies. It acts as a bridge between the companies and employees. It provides trained employees to the company which is more beneficial for the company in comparison to hire unskilled fresher.</p> <p>TECHInfinity has created a talented Candidate who is dedicated to creating and supporting high quality products and services. TECHInfinity is a global IT services company that creates, provides and supports software, Website and mobile app.</p>
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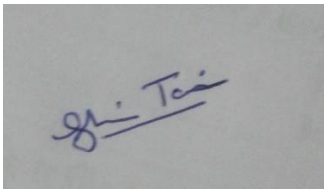
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Date:-

Sharma Sushant Rajeshbhai,

Vasava Khanjna Rajeshbhai,

Tailor Shivam Jitendrabhai

Abstract

This project is aimed to developing an online blood donation information. The blood donation agent is to create an e-information about the donor and organization that are related to donating the blood. Through this application any person who is interested in donating the blood can register himself in the same way if any organization wants to register itself with this site that can also register.

Admin is the main authority who can do addition, deletion, and modification if required. The project has been planned to be having the view of distributed architecture, with centralized storage of the database.

The application for the storage of the data has been planned. Using the constructs of xampp server and all the user interface have been designed using the android technologies. The database connectivity is planned using the "SQL connection" methodology.

The standards of security and data protective mechanism have been given a big choice for proper usage. The application reports, which are produced as per the applicable strategies and standards that are put forwarded by the administrative staff.

The entire project has been developed keeping I view of the distributed client server computing technology.

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1. INTRODUCTION

1.1 Project Introduction

1.2 Project Profile

1.3 Purpose

1.4 Scope

1.1 Project Introduction:

- Our project name is E-Rakt. In our project when any hospital need blood they can send request to their nearest donor via website. Donor receive request from hospital via android application.
- An Android Mobile Application where blood donors can install the application and register with their name, E-Mail, valid ID, phone number, providing them Navigation for hospitals.
- Web-application where hospitals request blood bank for blood and blood banks with admin. In some critical situation if hospital provide special vehicle .if hospital not providing special vehicle then user can book themselves an ambulance by our ambulance page, where we provide ambulance detail like current location, contact number, driver number, ambulance id and vehicle number.
- Admin will send notifications to the users with Hospital details for the user to locate the hospital in their nearby area. The application also keeps a record of the donor's health record for future reference.
- In our project user can give feedback and also do the complaint. And if user have any kind of query then they can easily contact us.
- So was basic introduction of our project E-Rakt.

1.2 Project profile:

Project Title	E-Rakt
Project category	Java/php /android
Objective	The Main Objective of this System is to design an Android Application to maintain considerable information of the Patients, Donors, and report details for any blood-related organization.
Front-End	Android Studio
Back-End	MySQL
Tool	Android Studio, Adobe xd
Server	Xampp
Documentation Tool	Microsoft Office 2016
Internal Guide	Sejal Jadav
Developed By	Sushant Sharma, Khanjna Vasava, Shivam Tailor.

1.3 Purpose:

Our project is E-Rakt. It's dipped on blood donation. My closest friend's uncle is dead because of blood siking. So, we think to solve the problem. and we start to analyse and we get 12000 death cases every day in India.

1.4 Scope:

E-Rakt. Basically, it's dipped on blood donation. get 12000 death case every day in India and web-application where hospitals request blood bank for blood and blood banks with admin. Admin will send notifications to the users with Hospital details for the user to locate the hospital in their nearby area. The application also keeps a record of the donor's health record for future reference.

2. SYSTEM REQUIREMENT ANALYSIS

2.1 Current System Study

2.2 Weakness of Current System

2.3 Problem Identification

2.4 Requirement of new System

2.5 Feasibility Study

2.5.1 Technical

2.5.2 Operational

2.5.3 Economical

2.6 Development model used (Software Process Model)

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2.12 Activity Diagram

2.12.1 User Activity Diagram

2.12.2 Hospital activity diagram

2.1 Current System Study:

2.1.1 Friends2support.org:



<https://play.google.com/store/apps/details?id=com.alen>

- Register
- Login
- Donation details
- Blood donation facts
- Refer the app
- About us

2.1.2 Bloodline:



<https://play.google.com/store/apps/details?id=com.sandhani.badhan.bloodbankbd>

- Ambulance
- number list
- Organization
- blood chat info
- Request(every can send)
- Helpline call

2.1.3 ERaktKosh:



<https://www.eraktkosh.in/BLDAHIMS/bloodbank/transactions/bbpublicindex.html>

- Blood availability
- Camp search
- Blood bank search
- Blood bank user login
- Donor login
- Donor now get e-pass
- Thalassemia login
- About us

2.2 Weakness of Current System:

2.2.1 Friends2support.org:

- This application not provide ambulance to user in critical situation.
- User have to insert manually donation details so it is not authentically or donor can fill incorrect details.
- This application not provide location map or don't show distance of hospital.
- This application not receive any request.
- This application is not connected to hospital or organization.

2.2.2 Bloodline:

- This application doesn't show you location wise ambulance numbers.
- This application doesn't claim that mentioned organization / NGO are 100 % authenticated or trustable.
- This application doesn't provide ambulance service in critical situation.
- This application only provide hospital numbers and don't provide location of hospital.
- In this application User have to insert manually donation details so it is not authentically or donor can fill incorrect details.
- In this application search engine is not working well it is take 5 to 10 second then automatically reallocate to home page.

2.2.3 ERaktKosh :

- In this application location map is not given.
- This application does not provide Ambulance.

- This application does not provide hospital information in detail.
- This application ask for three times login while using the application.
- In this application there are lot's of issue to the reset password.
- Sometime this application shows wrong details or not show data properly.
- In this application issue with the login page.

2.3 Problem Identification:

Problem Identification consists of: Clearly **identifying** the root cause of a **problem**.

- Time consuming
- Not provide ambulance to user in critical situation.
- Does not provide hospital information in detail.
- User have to insert manually donation details so it is not authentically or donor can fill incorrect details.
- Not connected to hospital or authentic organization.

2.4 Requirement of New System

- We provide both Android Application and Website Application.
- An Android Application for Donner and a Website for hospitals. Both parts are work simultaneously.
- We provide navigation to donner.
- Hospitals can send request to Donner with details of hospital.
- User can quickly register in Application and easily login into app.
- Our application provide ambulance in critical situation.
- If hospital does not provide ambulance we have ambulance contact for user in critical situation.

2.5 Feasibility Study:

- Does the system contribute to the overall objectives of the organization?
- This system would contribute to the overall objectives of the organization as under:
- Create an Office Automation System
- Enhance Productivity o Enable Prioritization of work.
- Use IT as an enabler to help in daily work
- Design an efficient workplace
- Enable Business Rules based Processing
- Access Controls at all levels.
- Efficient & Transparent administration.

- Generation of Report
- Generation of Standard Reports
- Analysing and monitoring of data.
- Can the system be implemented using the current technology and within the given cost and schedule constraints?
- The part of the system can be implemented using the current technology although some modifications have to be done at various places. Some alterations with the prototypes and functionalities would be done in order to work out the cost constraints and to cope with the scheduling constraints.
- In the Parameterized report some validations like selecting at most up to eight fields, etc would be implemented. This is done to get optimum balance between the requirements and cost factors.
- Moreover, in Query based Parameterized Report the conditional field would be configured and only one query however long it may be with any number of conjunctions could be evaluated.
- Can the system be integrated with other systems which are already in place?
- Integrated Workflow & Document Management System (IWDMS) provides Document management, Workflow, Collaboration environment and Knowledge Management in an integrated fashion and delivers as Electronic Workplace that will result in productivity improvement in an Organization. Hence, this Application can be integrated with other systems which are already in place.
- Various types of Feasibility study are identified as under:

2.5.1 Technical Feasibility

- The technical Feasibility test involves questions like
- Is the current Computer's configuration adequate for Usage?
- Is the selected technique sufficient for future enhancements?
- Is the skill set available with proper manpower for development and maintenance?
- IWDMS uses J2EE technology for development of applications. J2EE is a powerful technology suitable for MVC model 2 architecture. Also UNIX server is used at client side to make the system more economical, so being a platform independent language java serves as most suitable application development language.

- Also as this system is going to be used by a large organization, it is likely to deal with a large number of data. Security of data is also another important requirement. So, Oracle 10g is more suitable at back-end.

2.5.2 Operational Feasibility

- The users of the client organization should be able to operate the software easily, for whom the software is developed, to gain the advantages of the software. This demands good user interface. During the software development process prototypes of the application are developed initially and are shown to client, so the client can give some additional changes as per their requirements in the operating software. As the software is developed and modified as per the comments of the users, there is very little possibility that there will be resistance from end users.
- Users may not be highly adept at the technical aspect of computer skills so will required some training sessions. After that they are expected to be familiarized with the application. System has been developed considering user characteristics to make it user-friendly.

2.5.3 Economic Feasibility

- The questions put forward in economic feasibility are:
- Are there sufficient cost benefits in creating the system?
- Are the costs of implementation of current system so great that the task of project development is required?
- This feasibility study measures the cost effectiveness of project. It takes into consideration cost and benefit.
- Hardware-Software Cost:
 - This feasibility is of paramount importance in development of any software for any particular company. TCS is having license versions of software required for the development of IWDMS. (Oracle JDeveloper, PLSQL Developer, Microsoft Visual SourceSafe, Oracle 10g). Hardware cost includes the cost of the four servers required for running the application.
- Maintenance Cost:
 - This includes application and database maintenance cost.
- Conclusion:
 - It is economically feasible to develop and implement IWDMS.2.6

2.6 Development Model Used:

We have used V-model for developing our project because V-Model is best for beginner. V-Model Improves the quality and reliability of the software. It reduces the amount of re-work because of the early detection of defects and issues. It provides better management for project risks. Verification and validation of the product in the early stages of product development ensures better quality.

- **V-model:**

The V-model is an SDLC model where execution of processes happens in a sequential manner in a V-shape. It is also known as Verification and Validation model.

The V-Model is an extension of the waterfall model and is based on the association of a testing phase for each corresponding development stage. This means that for every single phase in the development cycle, there is a directly associated testing phase. This is a highly disciplined model and the next phase starts only after completion of the previous phase.

- **Design**

Under the V-Model, the corresponding testing phase of the development phase is planned in parallel. So, there are Verification phases on one side of the 'V' and Validation phases on the other side. The Coding Phase joins the two sides of the V-Model.

- **Verification Phases**

There are several Verification phases in the V-Model, each of these are explained in detail below.

- **Business Requirement Analysis**

This is the first phase in the development cycle where the product requirements are understood from the customer's perspective. This phase involves detailed communication with the customer to understand his expectations and exact requirement. This is a very important activity and needs to be managed well, as most of the customers are not sure about what exactly they need. The **acceptance test design planning** is done at this stage as business requirements can be used as an input for acceptance testing.

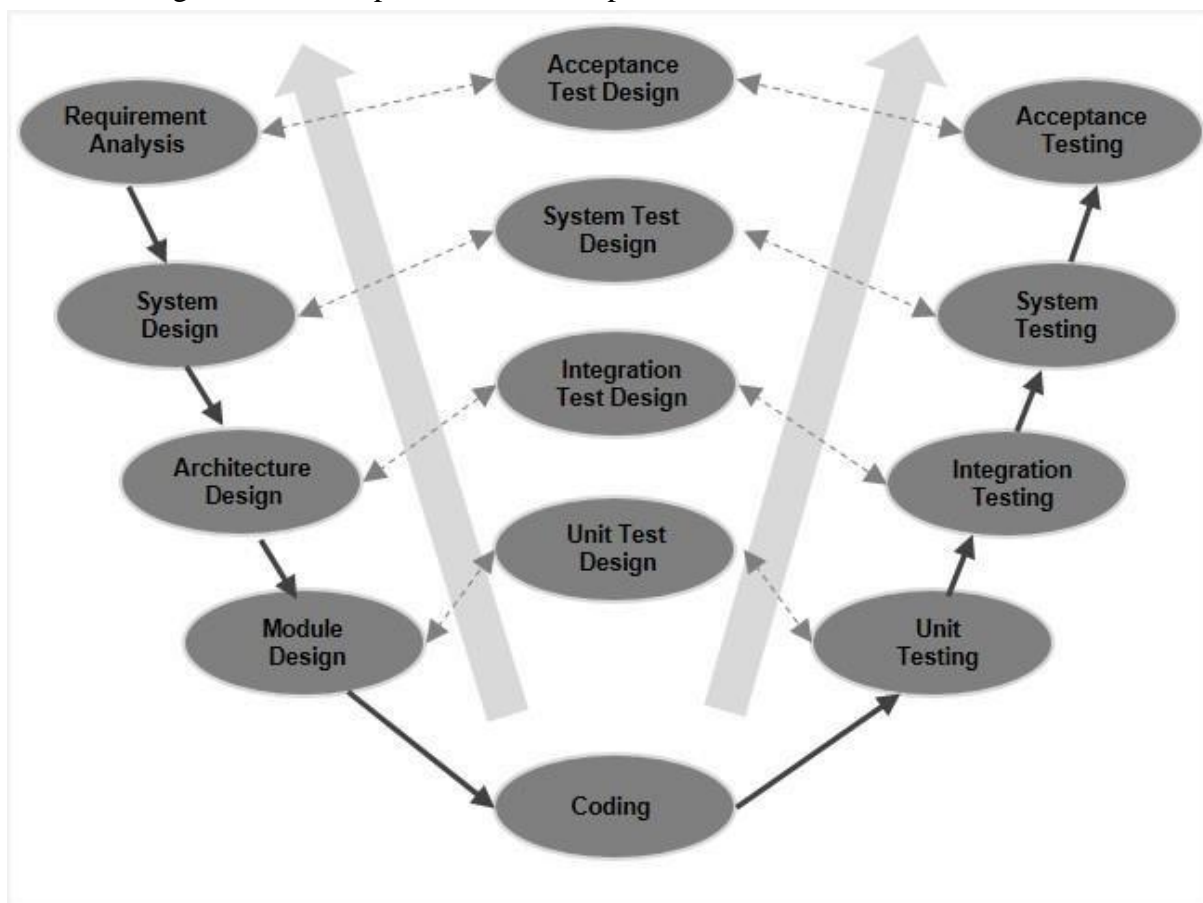
- **System Design**

Once you have the clear and detailed product requirements, it is time to design the complete system. The system design will have the understanding and detailing the complete hardware and communication setup for the product under development. The system test plan is developed based on the system design. Doing this at an earlier stage leaves more time for the actual test execution later.

- **Architectural Design**

Architectural specifications are understood and designed in this phase. Usually more than one technical approach is proposed and based on the technical and financial feasibility the final decision is taken. The system design is broken down further into modules taking up different functionality. This is also referred to as **High Level Design (HLD)**.

The following illustration depicts the different phases in a V-Model of the SDLC.



(Fig. 2.6 V-Model)

The data transfer and communication between the internal modules and with the outside world (other systems) is clearly understood and defined in this stage. With this information, integration tests can be designed and documented during this stage.

- **Module Design**

In this phase, the detailed internal design for all the system modules is specified, referred to as **Low Level Design (LLD)**. It is important that the design is compatible with the other modules in the system architecture and the other external systems. The unit tests are an essential part of any development process and helps eliminate the maximum faults and errors at a very early stage. These unit tests can be designed at this stage based on the internal module designs.

- **Coding Phase**

The actual coding of the system modules designed in the design phase is taken up in the Coding phase. The best suitable programming language is decided based on the system and architectural requirements.

The coding is performed based on the coding guidelines and standards. The code goes through numerous code reviews and is optimized for best performance before the final build is checked into the repository.

2.7 Requirement Validation Phases:

The different Validation Phases in a V-Model are explained in detail below.

- **Unit Testing**

Unit tests designed in the module design phase are executed on the code during this validation phase. Unit testing is the testing at code level and helps eliminate bugs at an early stage, though all defects cannot be uncovered by unit testing.

- **Integration Testing**

Integration testing is associated with the architectural design phase. Integration tests are performed to test the coexistence and communication of the internal modules within the system.

- **System Testing**

System testing is directly associated with the system design phase. System tests check the entire system functionality and the communication of the system under development with external systems. Most of the software and hardware compatibility issues can be uncovered during this system test execution.

- **Acceptance Testing**

Acceptance testing is associated with the business requirement analysis phase and involves testing the product in user environment. Acceptance tests uncover the compatibility issues with the other systems available in the user environment. It also discovers the non-functional issues such as load and performance defects in the actual user environment.

- **Application**

V- Model application is almost the same as the waterfall model, as both the models are of sequential type. Requirements have to be very clear before the project starts, because it is usually expensive to go back and make changes. This model is used in the medical development field, as it is strictly a disciplined domain.

The following pointers are some of the most suitable scenarios to use the V-Model application.

- Requirements are well defined, clearly documented and fixed.
- Product definition is stable.
- Technology is not dynamic and is well understood by the project team.
- There are no ambiguous or undefined requirements.
- The project is short.

- **Pros and Cons**

The advantage of the V-Model method is that it is very easy to understand and apply. The simplicity of this model also makes it easier to manage. The disadvantage is that the model is not flexible to changes and just in case there is a requirement change,

which is very common in today's dynamic world, it becomes very expensive to make the change.

The advantages of the V-Model method are as follows –

- This is a highly-disciplined model and Phases are completed one at a time.
- Works well for smaller projects where requirements are very well understood.
- Simple and easy to understand and use.
- Easy to manage due to the rigidity of the model. Each phase has specific deliverables and a review process.

The disadvantages of the V-Model method are as follows – □ High risk and uncertainty.

- Not a good model for complex and object-oriented projects.
- Poor model for long and ongoing projects.
- Not suitable for the projects where requirements are at a moderate to high risk of changing.
- Once an application is in the testing stage, it is difficult to go back and change a functionality.
- No working software is produced until late during the life cycle.

2.8 Tools and Technology:

Icon	Tool	Usage
	Android	Frontend
	Xampp	Database
	Ms Word	Document
	PHP	Admin side Webwide
	Adobe xd	Ui design

2.8.1 Hardware:

- The most common set of requirements defined by any operating system or software application is the physical computer resources, also known as hardware, a hardware requirements list is often accompanied by a hardware compatibility list (HCL), especially in case of operating systems.
- An HCL lists tested, compatible, and sometimes incompatible hardware devices for a particular operating system or application.

- There are many hardware requirements for any software or application. In the case of Smart Bus Pass the hardware requirements are as follow:
 - **Recommended Donner Side Hardware requirements:**
 1. **RAM:** 500 MB
 2. **Processor:** Octa-Core Max 1.40GHz
 3. **Hard Disk Space:** 1 GB minimum required.
 4. Mobile with internet connection.
 - **Recommended Server-Side Hardware requirements:**
 1. **RAM:** 4 GB.
 2. **Processor:** Octa-Core Max 1.40GHz.
 3. **Hard Disk Space:** 1 GB minimum required.
 4. Computer with internet connection.

2.8.2 Software Requirement: -

Software requirements deal with defining software resource requirements and prerequisites that need to be installed on a computer to provide optimal functioning of an application. These requirements or prerequisites are generally not included in the software installation package and need to be installed separately before the software is installed.

1 Recommended Client-Side Software requirements:

1. Web browser:

- **Chrome:** 69.0.3497 or above
- **Internet explorer:** Internet explorer 7 or above

2. Android application:

Android 4.4(Kit-Kat) or above

2 Recommended Server-Side Software requirements:

- 1. OS:** - Windows, Linux.
- 2. Host:** -Apache Tomcat

2.9 System Architecture

Modules:

- Login
- Hospital
- Donner details
- Blood Information
- Request
- Organization / NGO
- Ambulance
- Testimonial
- Feedback
- About Us

Login:

- **Registration:**
 - Users create their profile by register.
 - If a user already created their profile then they can login by entering their id and password.
- **Change password:**
 - User can change their password
- **Forget password:**
 - If a user forgot their password, they can reset their password.

Hospital:

- **Search hospital:**
 - Users can search hospitals by name.
- **Hospital details:**
 - You can get hospital details like hospital location, photos, performance, and specification.

Donner Details:

- **Profile:**
 - Users have to fill details like User name, gender, occupation, blood group, Residential address, age, number, profile photo, email address, birth date etc.
- **Medical history:**
 - Some allergy / illness.
- **Blood information:**
 - Basic information about blood, blood type and match of blood.

Request:

- **View request:**
 - Applications provide notification so that users see request details.
- **Accept request:**
 - view request details like address, Number, photos.
 - Users can see maps to get the hospital's location.
 - If user need ambulance in critical situation
- **Share request:**
 - Users can share requests to family and friends who match requirements.
 - If a friend/family member doesn't have a profile (account) on E-Rakt then the user can share the request by SMS.

Ambulance:

- For critical situations at that time we provide ambulances to reach hospitals to donate blood.

Organization/NGO:

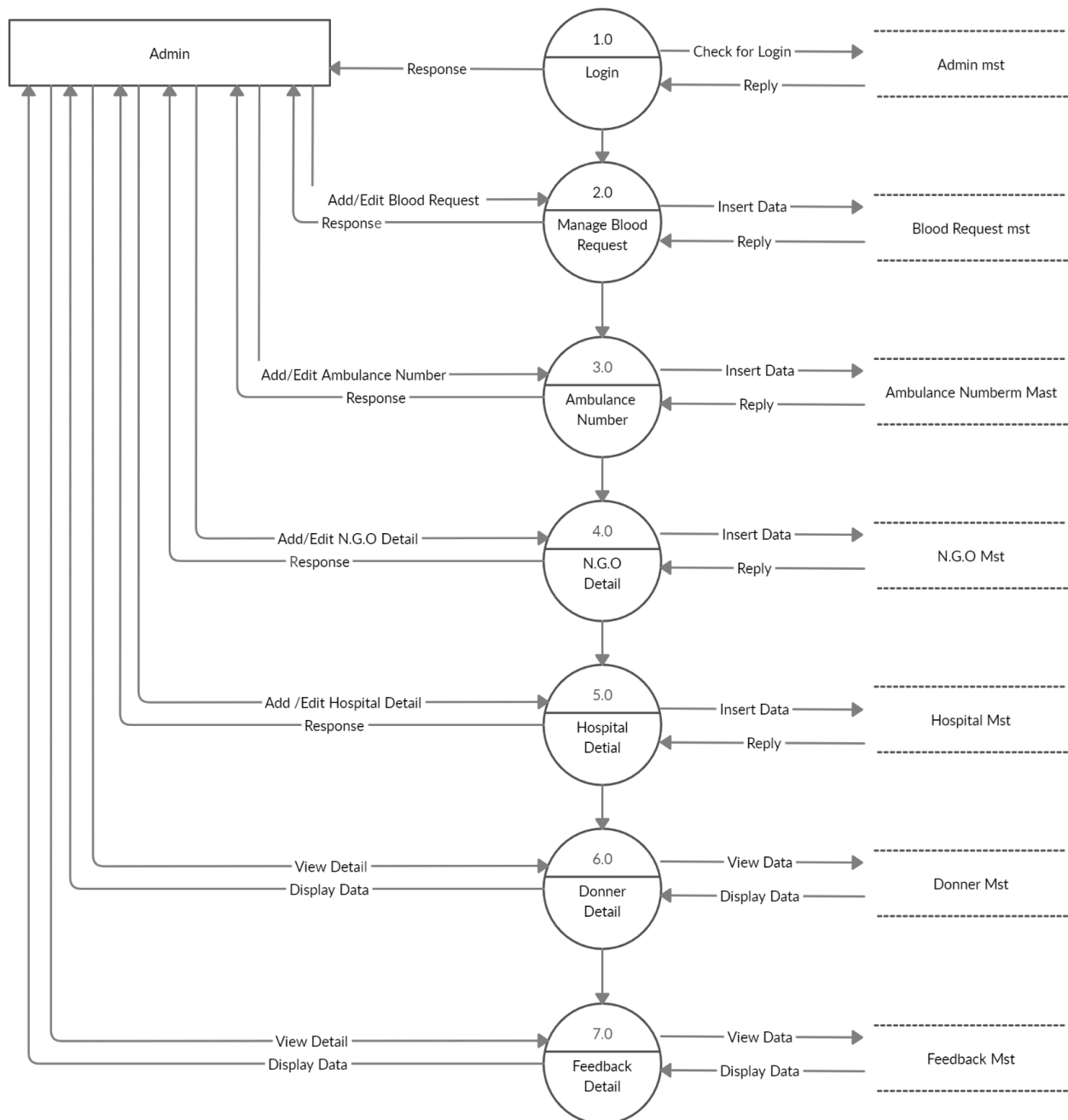
- **Search Organization/NGO:**
 - Users can search Organization/NGO by name.
- **Organization/NGO details:**
 - You can get Organization/NGO details like hospital location, photos, performance, and specification.

2.10 Data Flow Diagram

A **data-flow diagram** is a way of representing a flow of data through a process or a system.

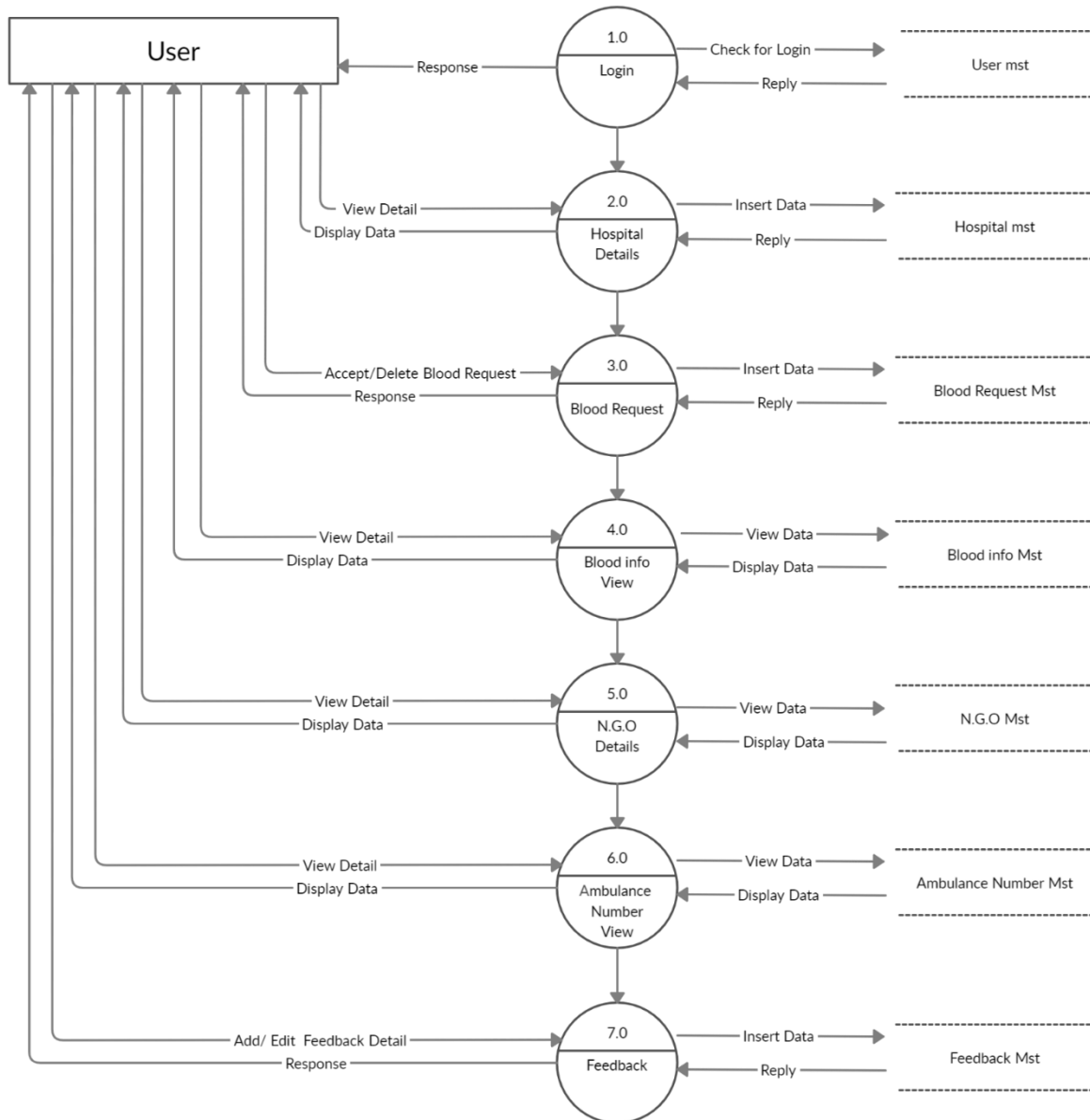
The DFD also provides information about the outputs and inputs of each entity and the process itself.

Admin Side DFD



(Fig.2.10.1 Admin side DFD)

User DFD



(Fig.2.10.2 User Side DFD)

2.11 Use Case Diagram:-

- A **use case diagram** at its simplest is a representation of a user's interaction with the system that shows the relationship between the user and the different use cases in which the user is involved.

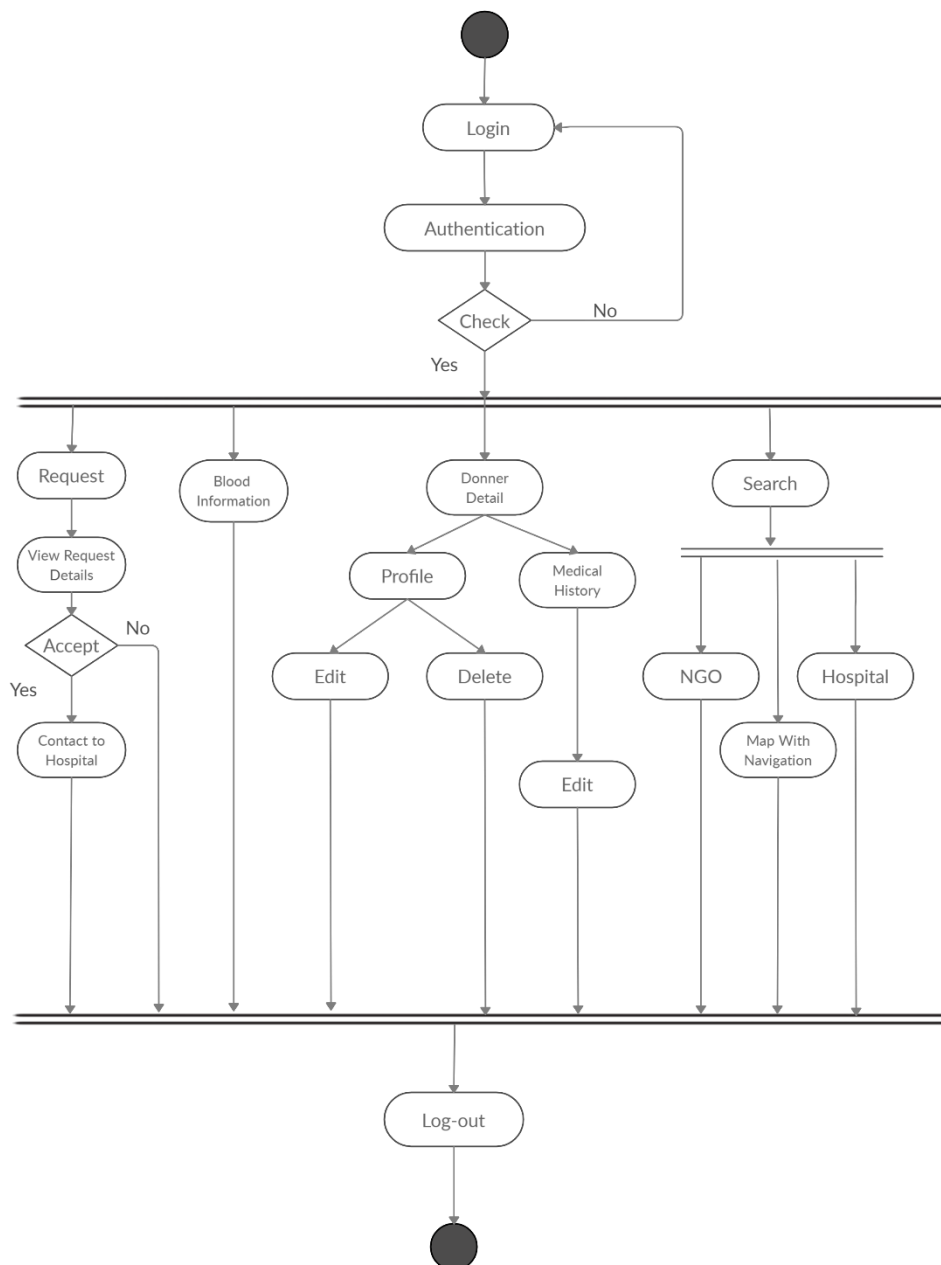


(Fig. 2.11 use case diagram)

2.12 Activity diagram:

2.12.1 User activity diagram

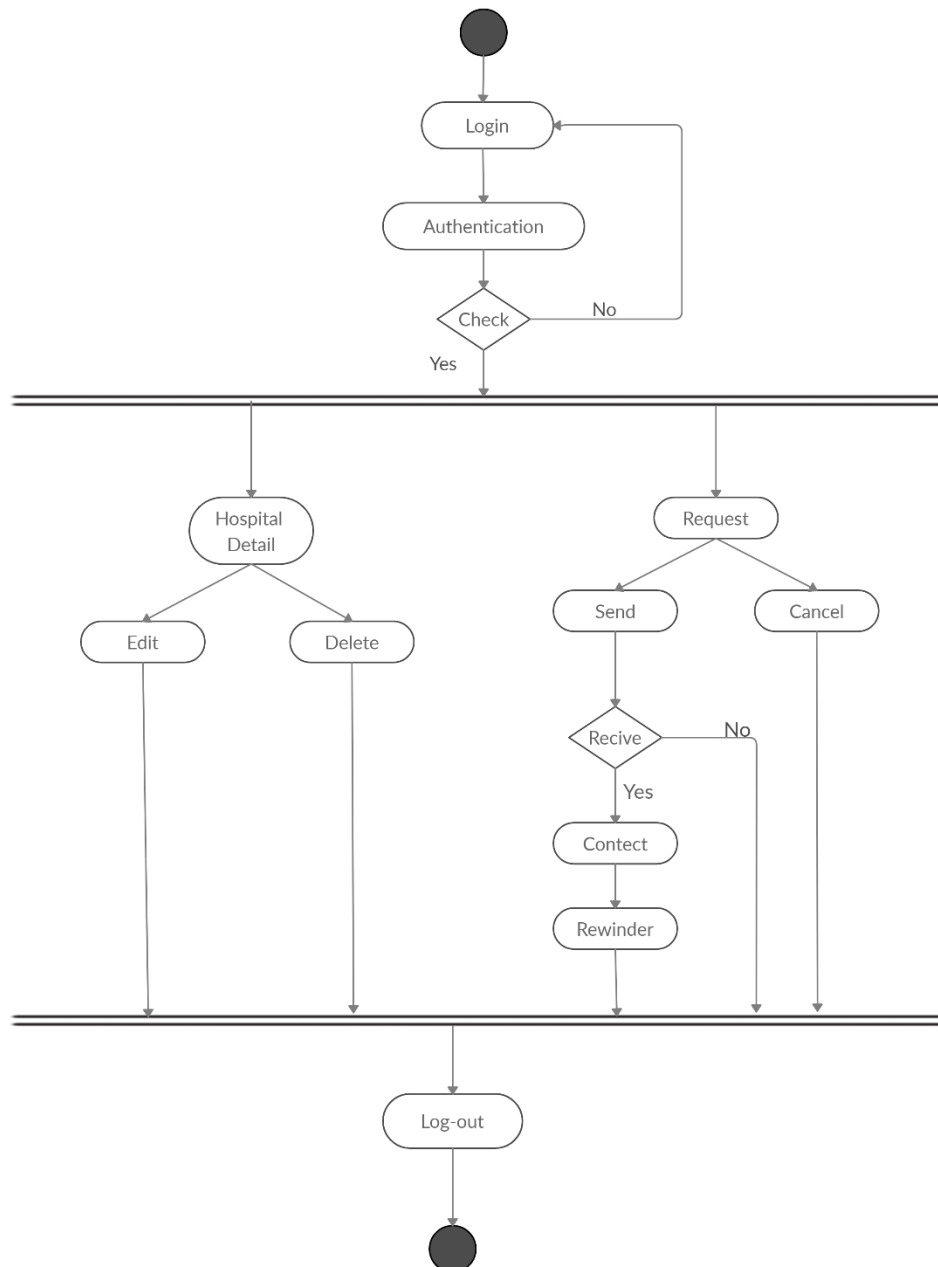
Donner Activity Diagram



(Fig.2.12.1 user activity diagram)

2.12.2 Hospital activity diagram:-

Hospital Activity Diagram

**(Fig. 2.12.2 hospital activity diagram)**

Ch.3:-SYSTEM DESIGN

3.1 Database Design

3.1.1 Entity-Relationship Diagram

3.1.2 Data Dictionary

3.2 GUI Design (Self-Created GUI Screen shot)

3.2.1 Opening screen

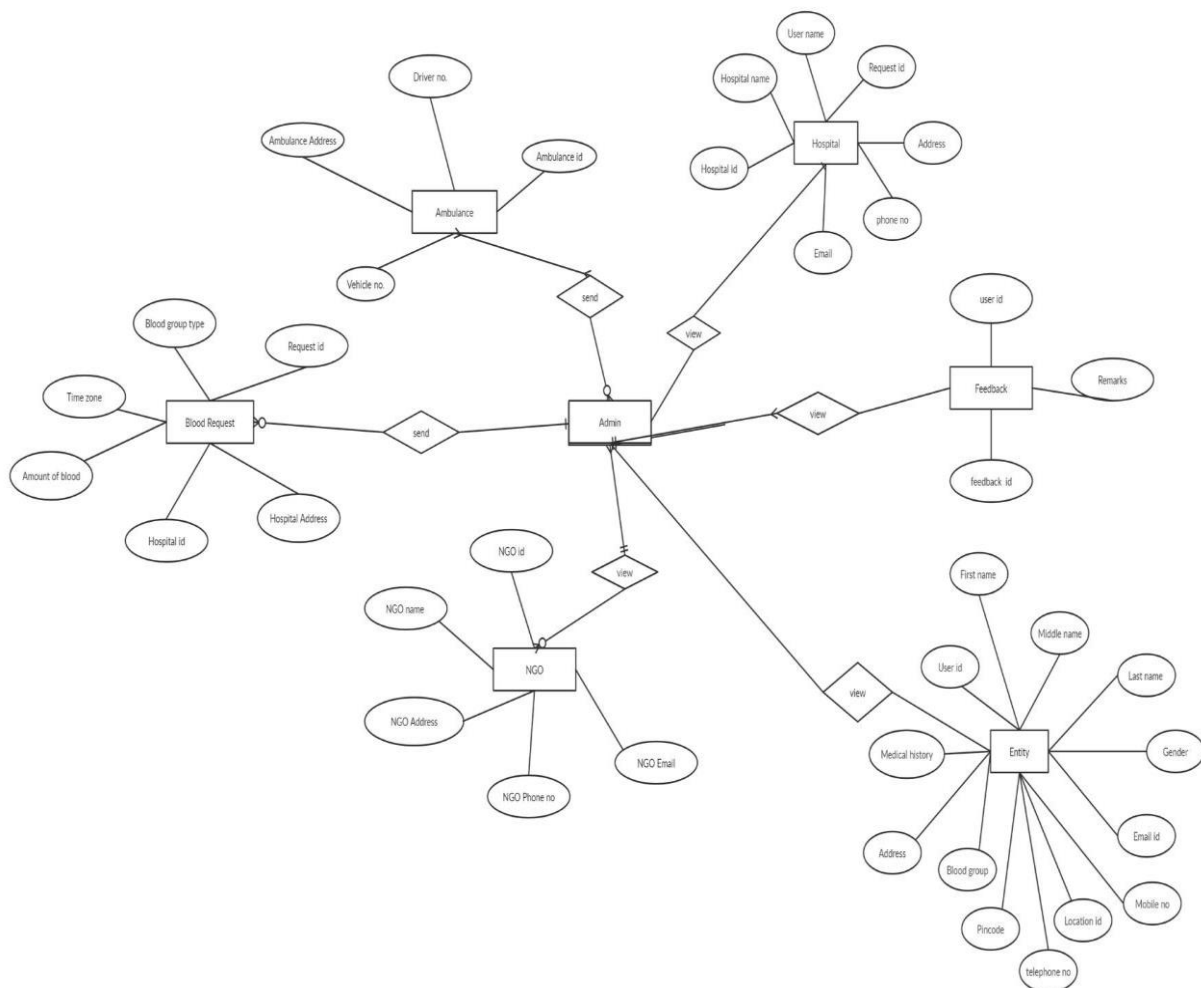
3.2.2 Signup screen

3.2.3 Login screen

3.1 Data Base Design:

3.1.1 Entity-relationship diagram:-

- An **entity-relationship model** describes interrelated things of interest in a specific domain of knowledge.
- A basic ER model is composed of entity types and specifies relationships that can exist between entities.



(Fig.3.1.1 entity-relationship diagram)

3.1.2 Data dictionary: -

- A data dictionary contains metadata i.e. data about the database.
- The data dictionary is very important as it contains information such as what is in the database, who is allowed to access it, where is the database physically stored etc.
- **TABLE NAME:-** User detail master

FIELD NAME	DATA TYPES	SIZE	CONSTRAINT	DESCRIPTION
User id	Varchar 2	50	PK (not null)	Uniquely identifies the user
First name	Varchar 2	20		first name of user
Middle name	Varchar 2	20		Middle name of user
Last name	Varchar 2	30		Last name of user
Gender	Yes / No			User gender like male or female
Email id	Varchar 2	50	(Not null)	User email-id
Mobile no	Number	10	(Not null)	User mobile number
Location id	Number	100	(not null)	Uniquely identifies the location
Tell.no	Number	12		User telephone number
Pin code	Number	10	(Not null)	Pin code number
Blood group	Varchar 2	7	(NOT null)	Blood group of user
Address	Varchar 2	100		Address of user
Medical history	Varchar 2	100	(Not null)	Medical history of user

- **TABLE NAME: - FEED BACK**

FIELD NAME	DATA TYPE	SIZE	CONSTRAINT	DESCRIPTION
User id	Number	50	FK (Not Null)	Uniquely identify the user
Feedback id	Number	50	PK (Not Null)	Uniquely identification the feedback
Remark	Varchar 2	100		

- **TABLE NAME: - AMBULANCE**

FIELD NAME	DATA TYPE	SIZE	CONSTRAINT	DESCRIPTION
AMBULANCE ID	Varchar 2	20	PK (Not null)	Unique identification ambulance
AMBULANCE Address (Hospital)	Varchar 2	100	Not null	Ambulance address Hospital
VIHICAL NO.	Varchar 2	20		Ambulance vehicle No.
DRIVER NO.	Varchar 2	20		Ambulance driver phone no.

- **TABLE NAME: - HOSPITAL**

FIELD NAME	DATA BASE	SIZE	CONTAINT	DESCRIPTION
Hospital ID	Varchar	50	PK (not null)	Unique identification hospital
Hospital Name	Varchar	50		unique identification name
Request ID	Varchar2	100	FK (not null)	Unique identification request
User ID	Varchar2	50	FK (not null)	unique identification user

Address	Varchar 2	100		Hospital address
Phone No.	Number	12		hospital phone number
Email id	Varchar2	50		hospital e-mail id

• **TABLE NAME: NGO/ORGANIZATION**

FIELD NAME	DATA TYPE	SIZE	CONTAINT	DESCRIPTION
NGO ID	Varchar 2	50	PK (not null)	Unique identification ngo
NGO Name	Varchar 2	50	Not null	Unique identification name
Address	Varchar 2	100	Not null	Ngo adderss
Email id	Varchar 20	50		Ngo email id
Phone No.	Number	12	Not null	Ngo phone number

• **TABLE NAME: - BLOOD REQUEST**

FIELD NAME	DATA TYPE	SIZE	CONSTRAINT	DESCRIPTION
Request id	Varchar 2	100	PK (not null)	Unique id identification pf request.
Blood Group Type	Varchar 2	10	Not Null	Unique identification blood group
Time zone	number	10	Not null	Time limit of blood request
Amount of blood	number	10	Not null	
Hospital id	Varchar 2	50	Fk	Unique identification of hospital
Hospital Address	Varchar 2	100	Not null	Uniquely identification of hospital address

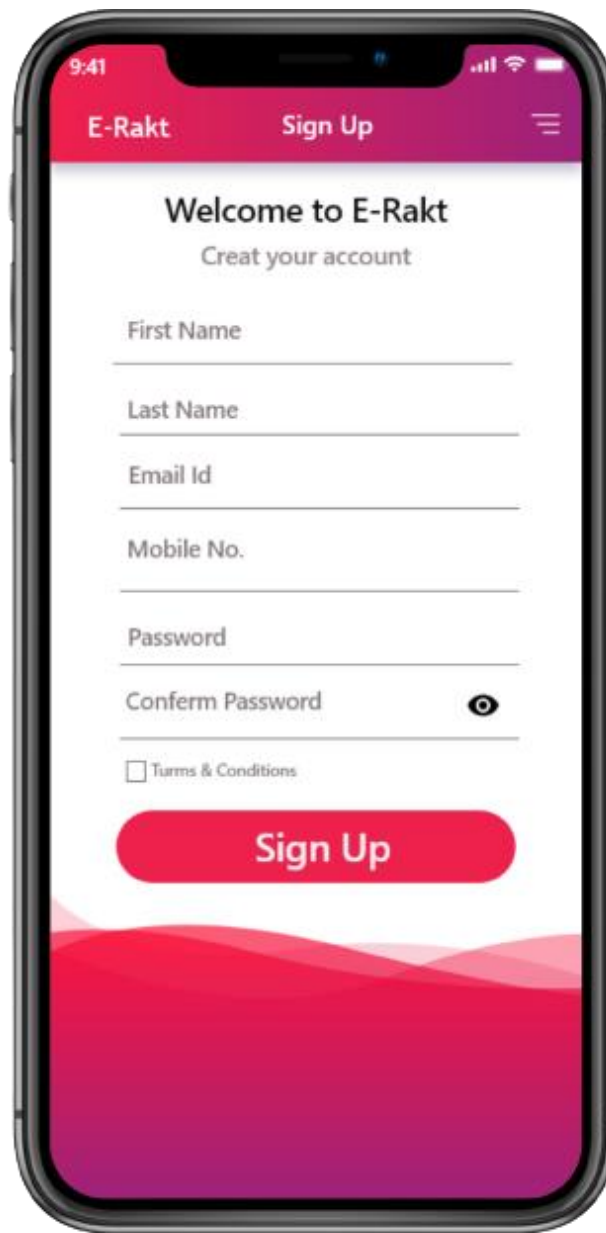
3.1 GUI (Graphical User Interface):

3.2.1 Opening screen:



(Fig.3.2.1 opening screen)

3.2.2 Signup page:



9:41

E-Rakt Sign Up

Welcome to E-Rakt

Creat your account

First Name

Last Name

Email Id

Mobile No.

Password

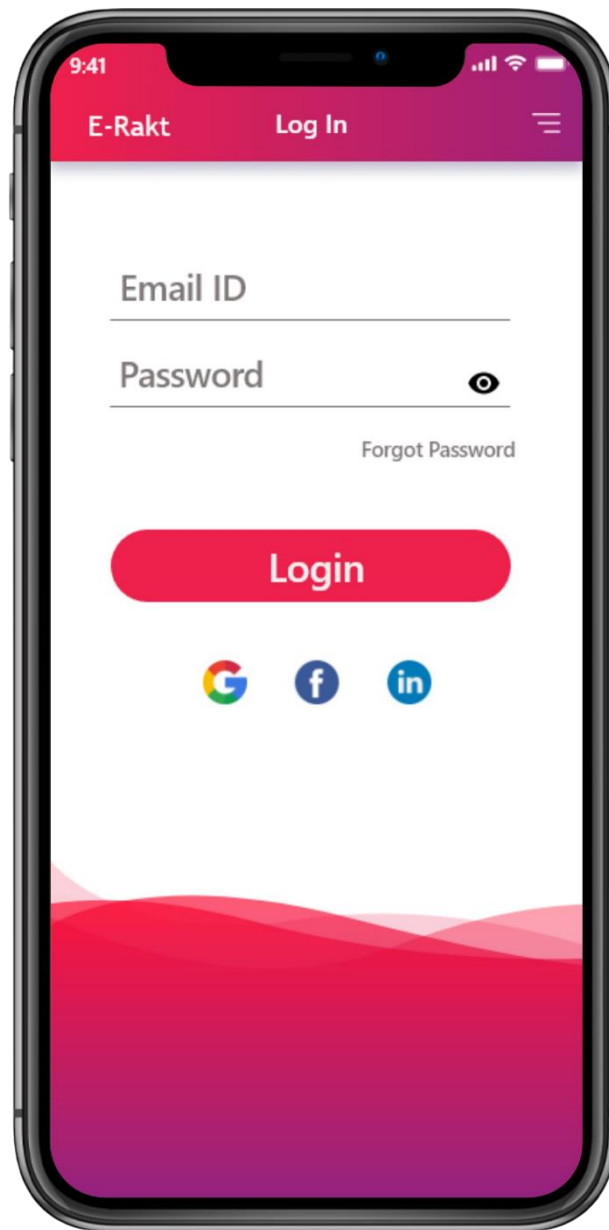
Confirm Password

☐ Terms & Conditions

Sign Up

(fig. 3.2.3 signup page)

3.2.3 Login screen:



(Fig.3.2.2 login screen)