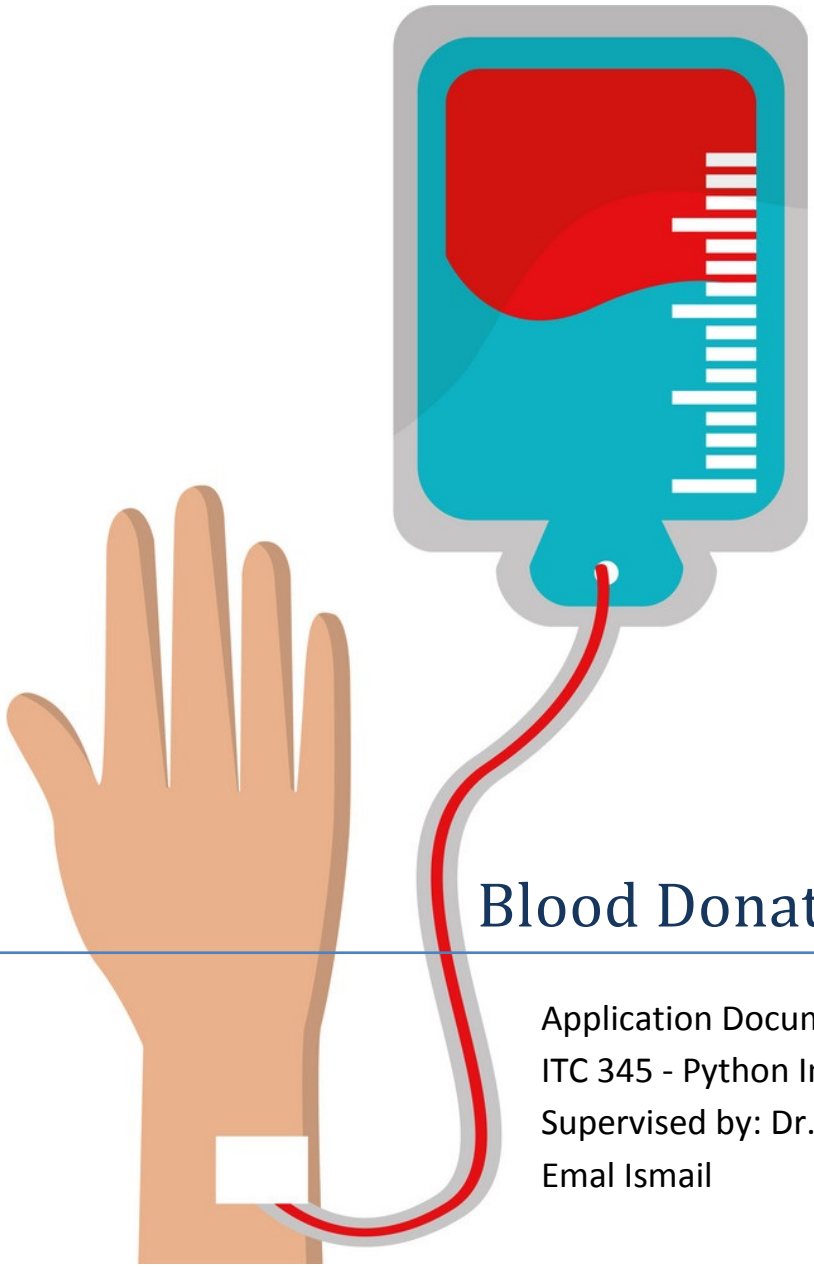

Blood Donation Eligibility

Application Documentation

ITC 345 - Python Introduction

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Emal Ismail

YouTube video link: https://youtu.be/cWlvaBTfIaY

Table of Contents

Introduction

Donating blood is a vital way to help save lives. Additionally, there are a number of reasons why donating blood is important. First, Blood cannot be manufactured. Despite medical and technological advances, blood cannot be made, so donations are the only way we can give blood to those who need it. Donating blood is one of the most common ways people choose to give back to their communities, and the demand for blood in hospitals is always high. Many people are not aware of just how important blood donations can be. Approximately one of every seven people admitted to the hospital need blood and also researchers have proven that a single donation can save up to three lives.

The high demand of blood in medical centers needs information systems to manage the process of blood donation wither the process has been done inside a blood bank or remotely through an ambulance. Therefore, The Blood Donation Application functionalities facilitate processes of blood donation management for the medical stuff of an ambulances and Blood Donation Banks.

Proposed System

Blood Donation App is a small light weight application for blood donation processes management for ambulances and blood donation camps. The aforementioned, application is able to create an admin account for the user, check donors eligibility for blood donation, store the information of the donor and generate report for the donor wither they are eligible or not. The proposed system can play a vital role in blood donation management process simplification and it can make decision based on the predefined conditions for donor's eligibility condition.

Purpose of the proposed system

Blood donation application main purpose is to manage the information regarding blood donation process through creating an admin account for the user, check donors eligibility for blood donation, store the information of the donor and generate report for the donor wither they are eligible or not.

Objectives

- Creating an account for the user of the application through **Sign Up page**.
- Check the validation of the user through **Login In page**.
- Checking Eligibility of the donor for blood donation Through **Eligibility page** by matching them with pre-conditions that are **inside Eligibility Table in blooddonation.db database**.

- Show the **full report** of the eligible donor.
- Show the Blood Type Distribution in the world through **matplotlib.**
- Show the **details of the donors** by retrieving query from donor's table and showing it inside the application.

ERD Diagram

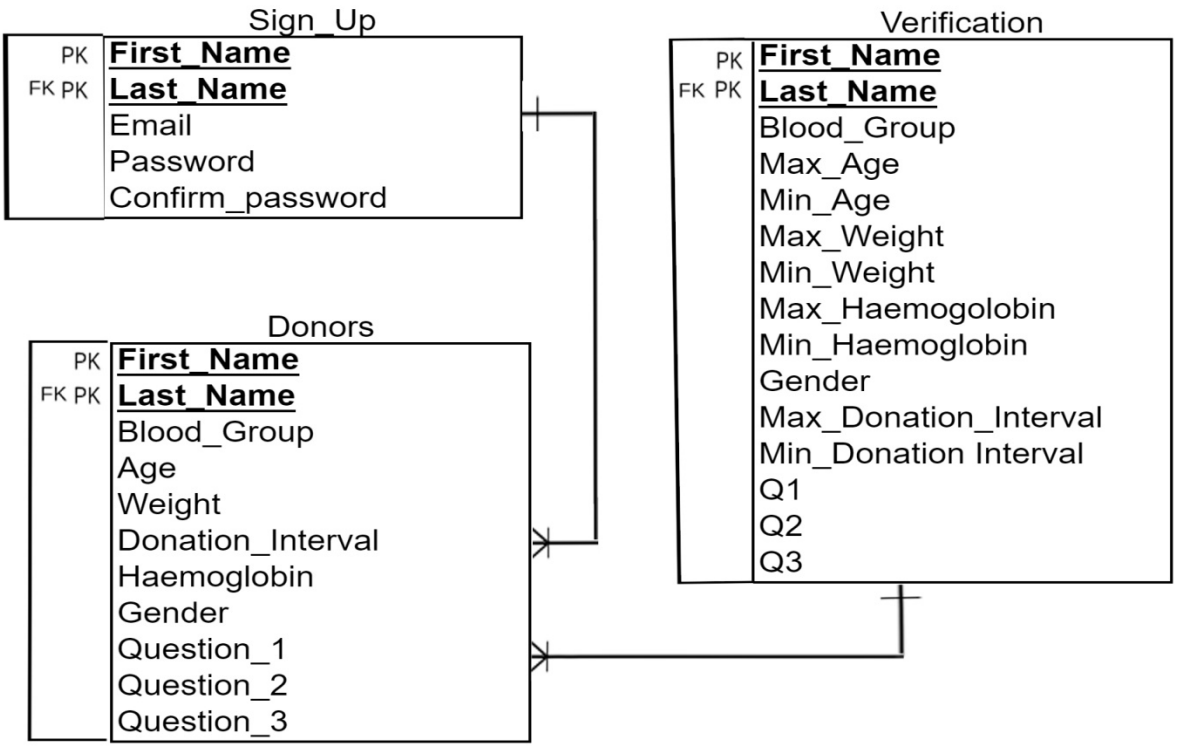
Business Rules

Each User can have many blood donation eligibility reports
Many blood donation eligibility reports can belong to only one user

Many blood donation eligibility reports follow a set of predefined conditions
A set of predefined conditions can be applied on many blood donation eligibility reports

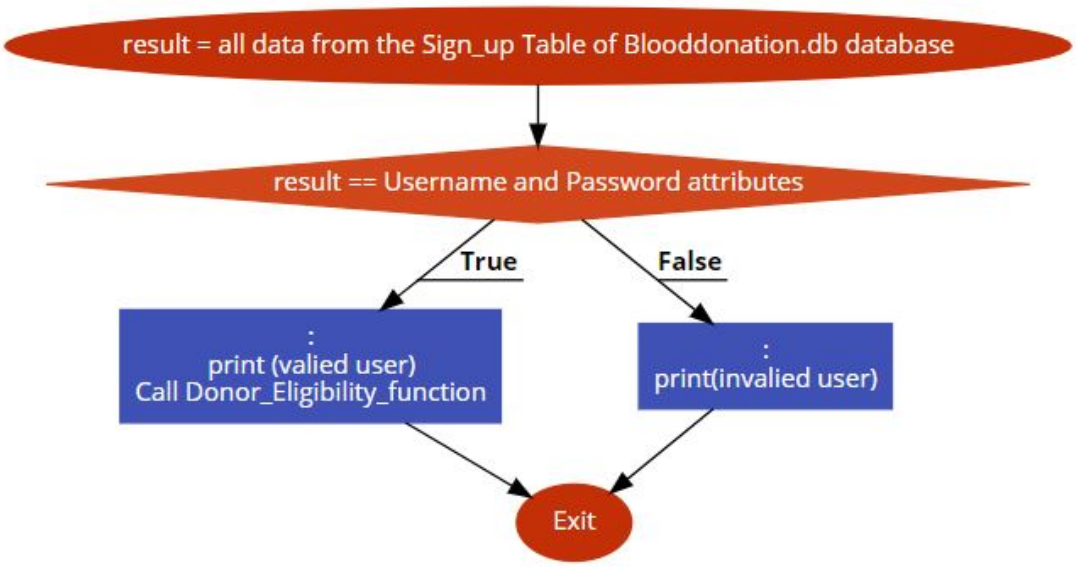
ERD

BloodDonation.db

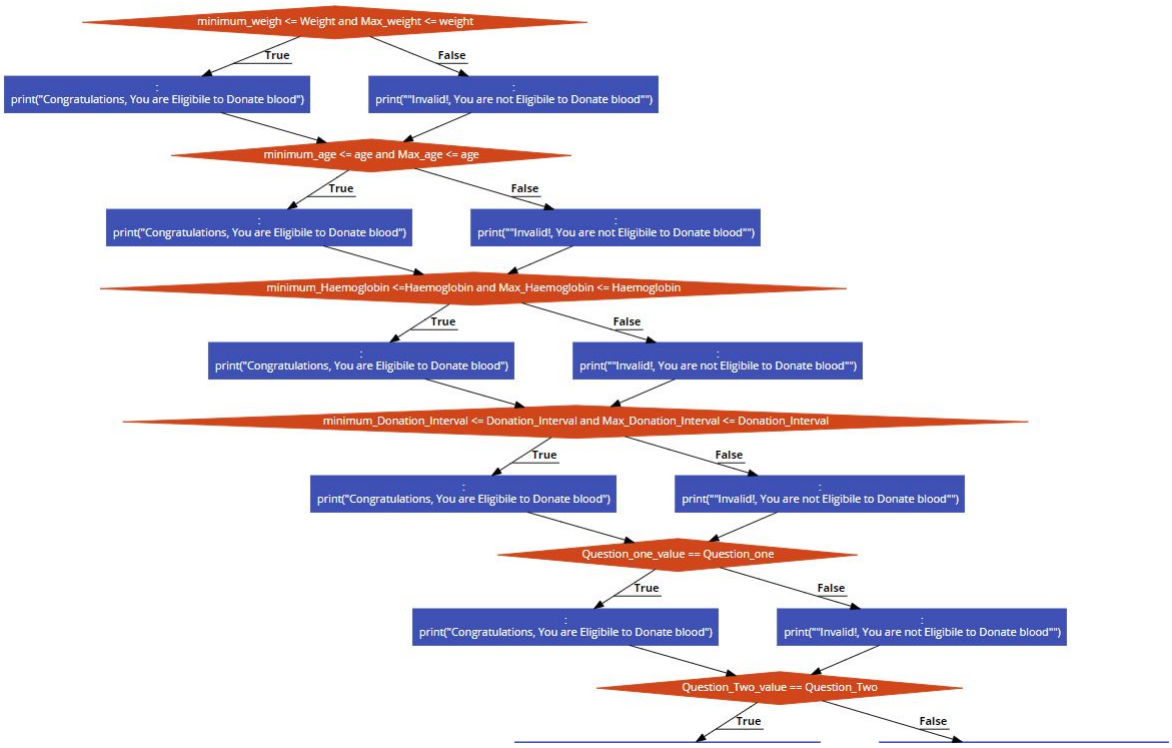


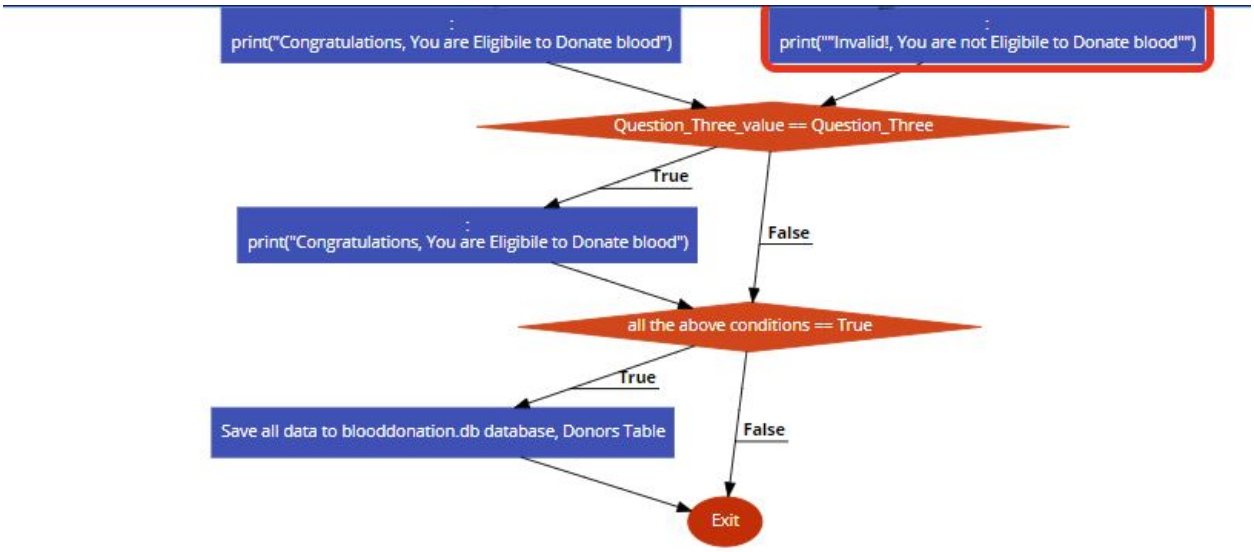
Flowcharts

Login function Flowchart:



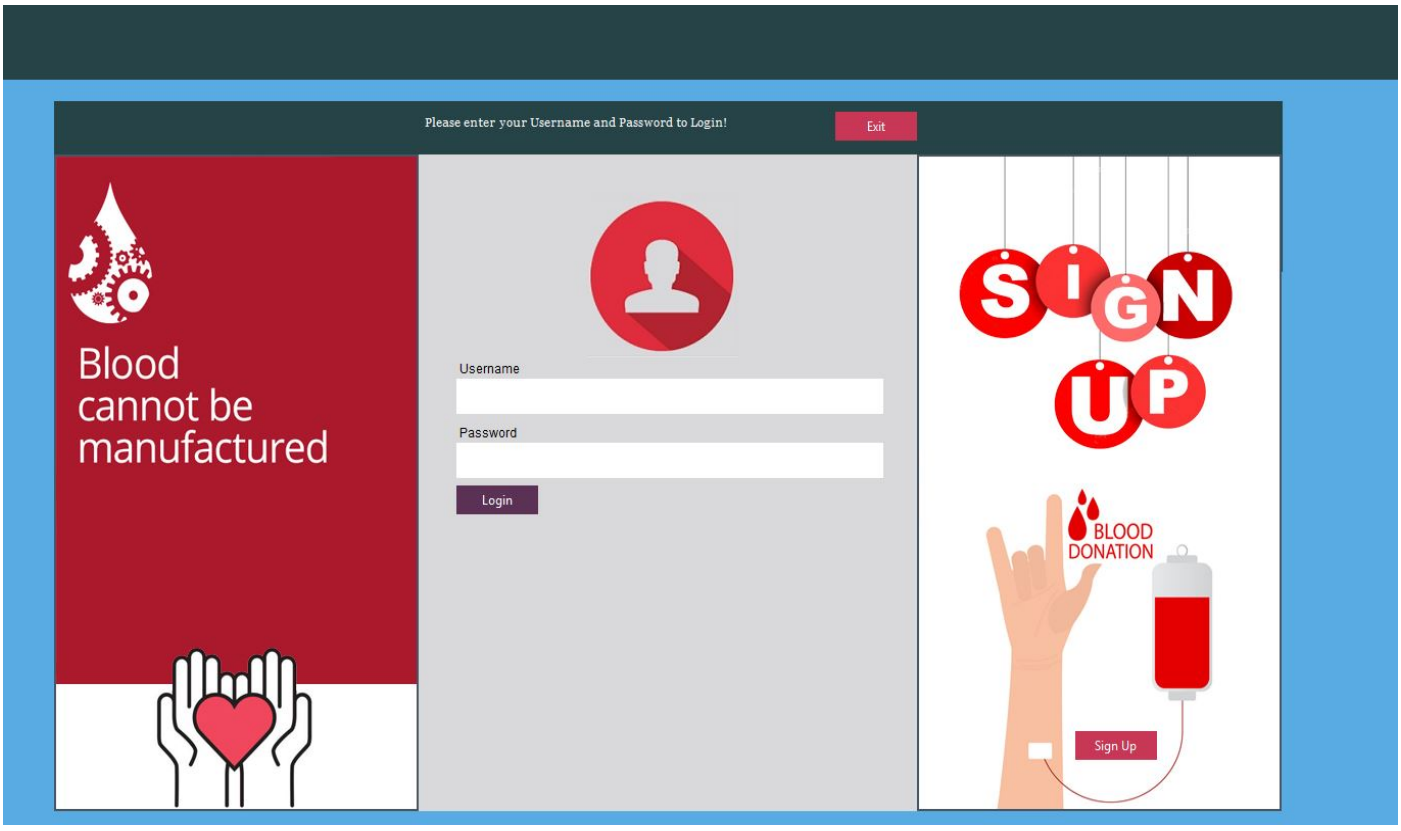
Eligibility Submit Function Flowchart:



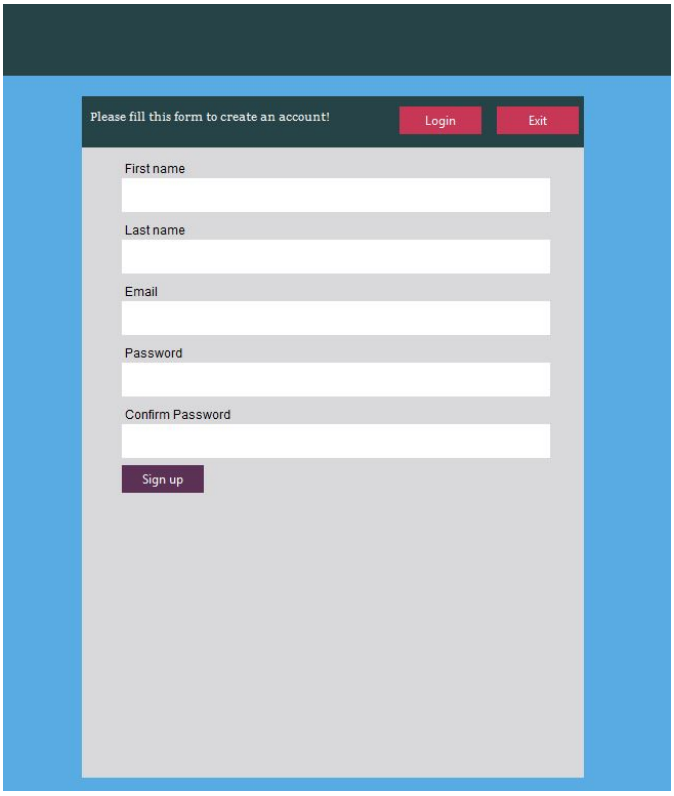


Application's Screenshots

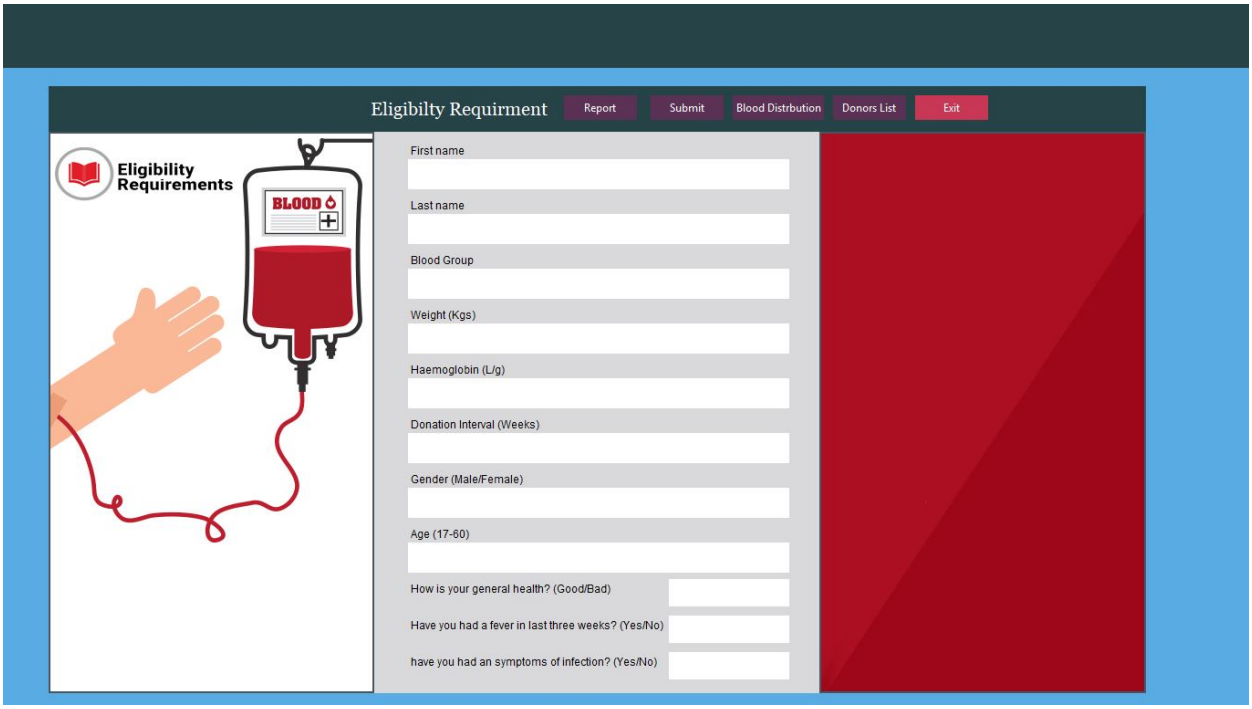
Login page:



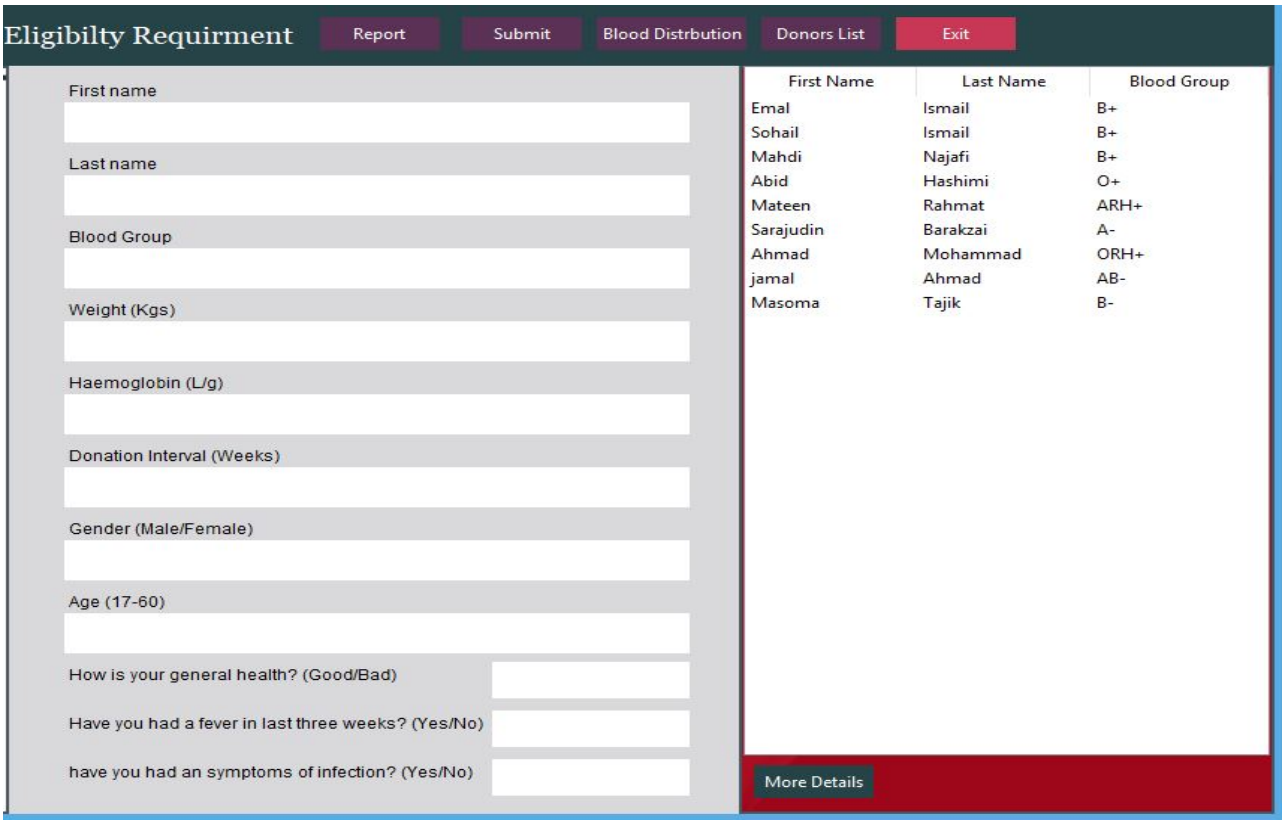
Sign Up page:



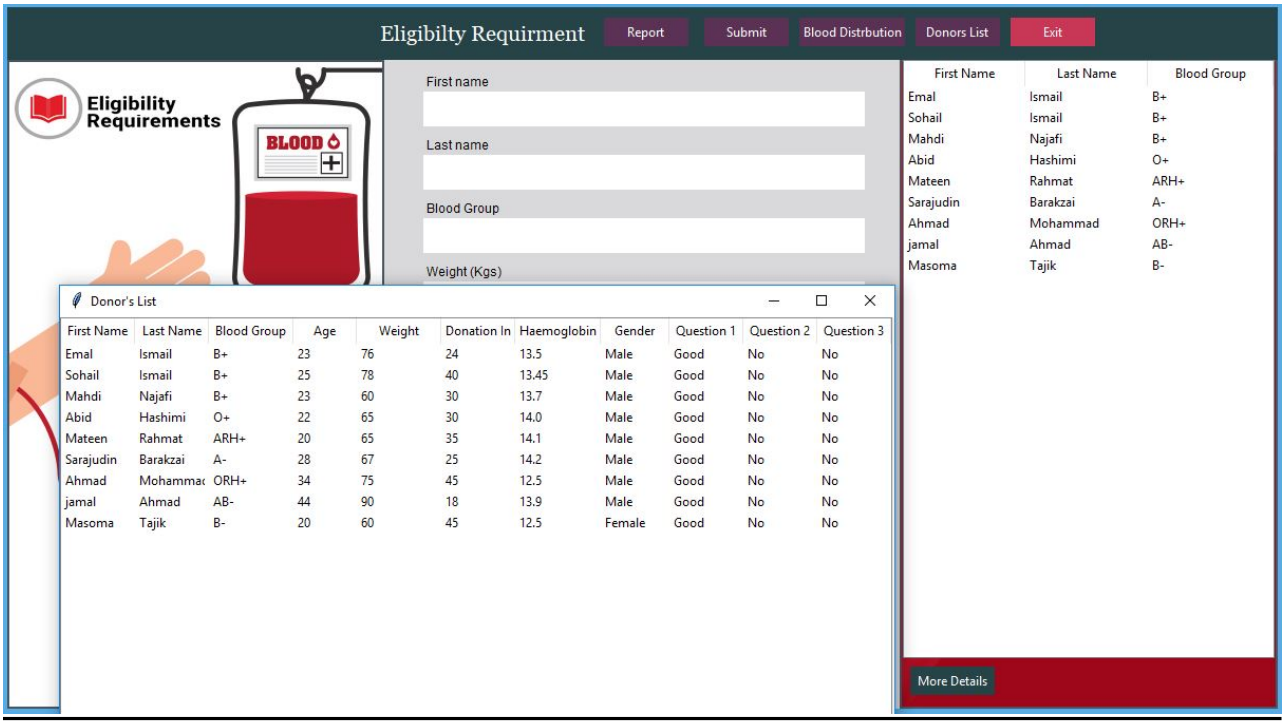
Eligibility Requirement Page:



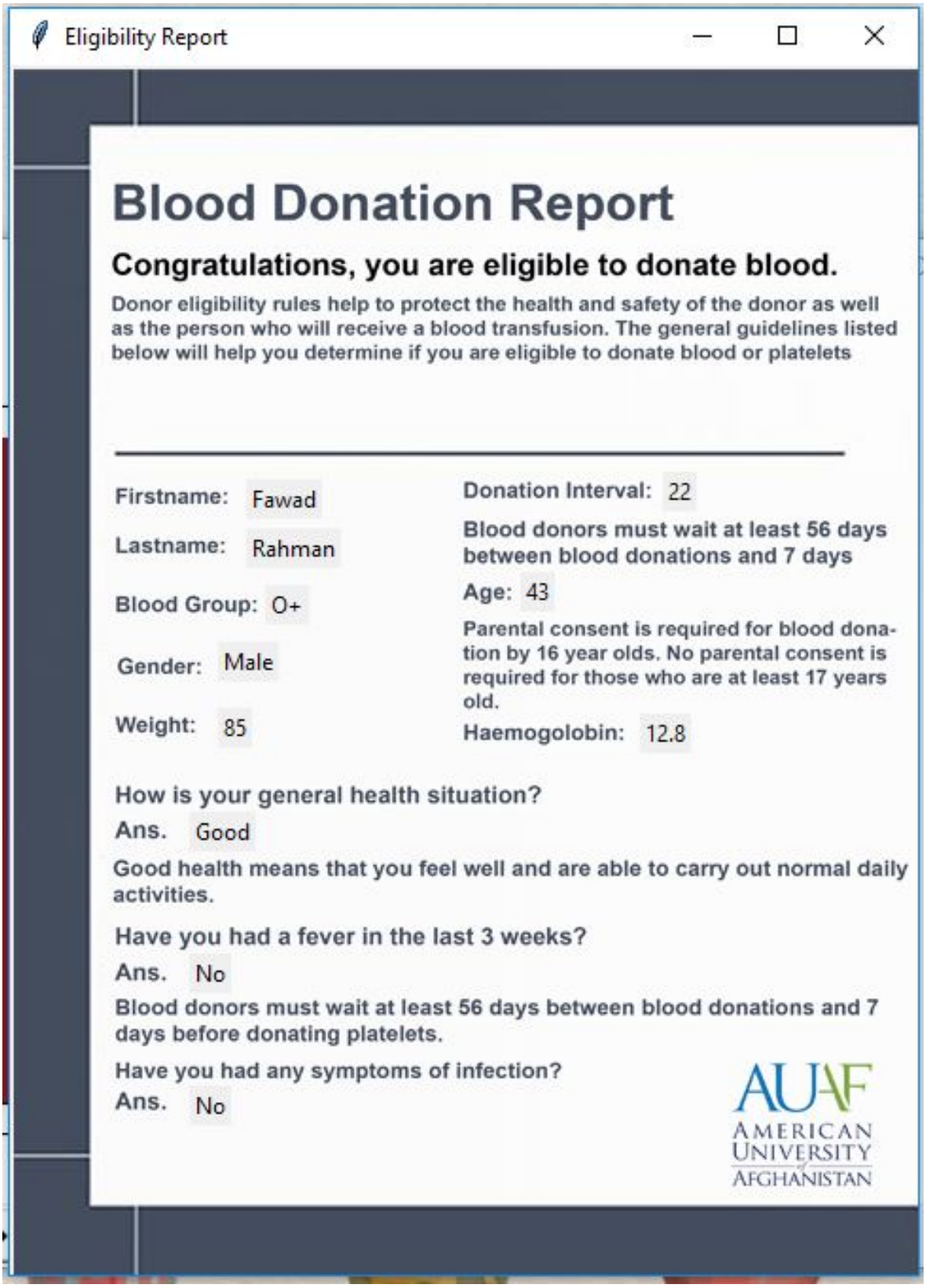
Donors List:



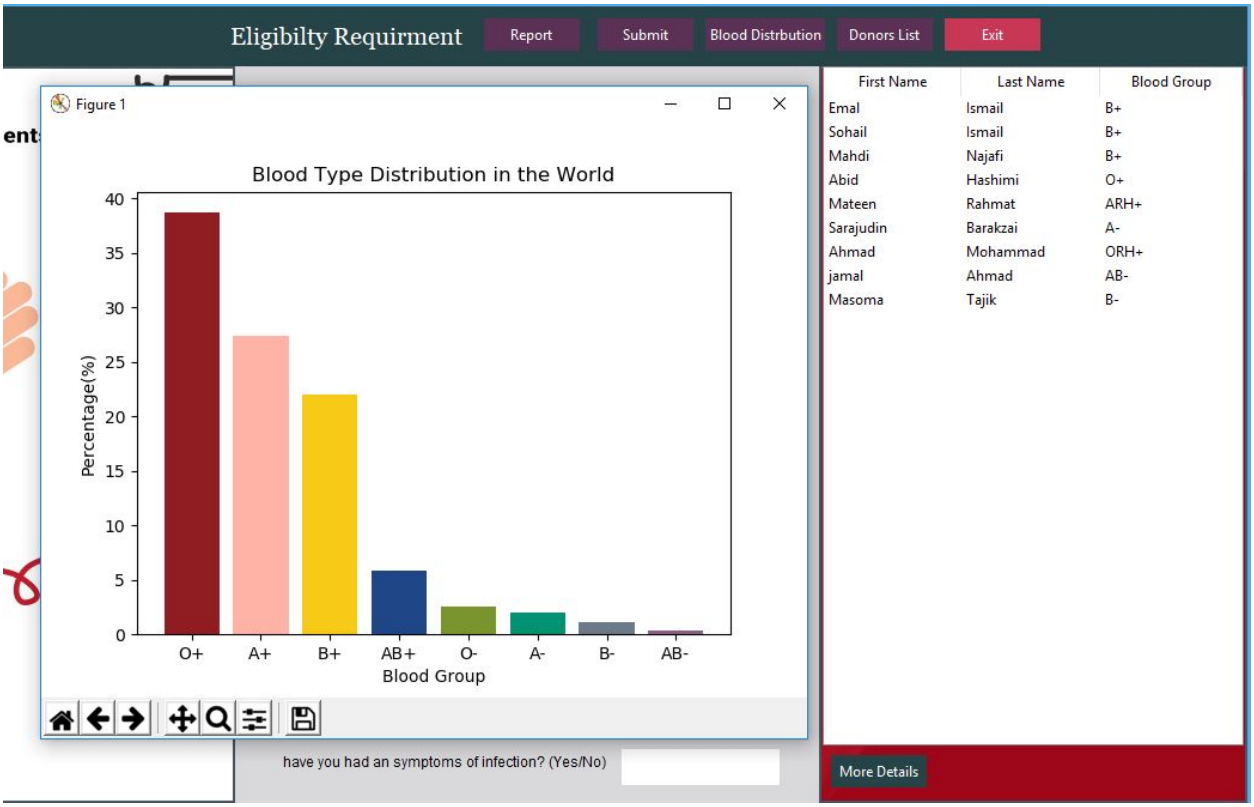
Donors List more details:



Eligibility Report:



Blood Distribution:



Code Explanation:

There are comments inside the code that briefly explain each component.

Sig_up_function

```
Sign_firstname = str(Sign_First_Name_Edit.get())
Sign_lastname = str(Sign_Last_Name_Edit.get())
Sign_Email = str(Email_Edit.get())
Sign_Password = str(Password_Edit.get())
Sign_Confirm_Password = str(Confirm_Password_Edit)
```

In these section variables has been declared in order to pass them inside our sign up table in database.

```
conn = sqlite3.connect('BloodDonation.db')
curser = conn.cursor()

curser.execute('''CREATE TABLE IF NOT EXISTS `Sign_Up` (`First_Name`
```

```
            TEXT NOT NULL,`Last_Name`  TEXT NOT NULL,`Email`  TEXT NOT NULL,`Password`
TEXT NOT NULL,`Confim_Password` TEXT NOT NULL);''')

curser.execute(
    '''insert into `Sign_Up`
(`First_Name`,`Last_Name`,`Email`,`Password`,`Confim_Password`) values (?, ?, ?, ?,
?)''',
    (Sign_firstname, Sign_lastname, Sign_Email, Sign_Password, Sign_Confirm_Password))

conn.commit()

tkinter.messagebox.showinfo(title="Eligibility Result",
                            message="You have signed up successfully!")
```

In this section the data that has been passed through the above edit texts are transferred inside our database sqlite3.

Login_Function

```
Login_User = str(Username_Edit.get())
Login_Pass = str(Login_Password_Edit.get())
```

In these section variables has been declared in order to pass them inside our sign up table in database.

```
conn = sqlite3.connect("BloodDonation.db")

result = conn.execute('SELECT * FROM SIGN_UP WHERE EMAIL = ? AND PASSWORD = ?',
(Login_User,Login_Pass))
```

In this section the data that has been retrieved Sig_up table of the blooddonation.db database sqlite3 in order to match it with the data from username and password Edit Texts.

```
if (result.fetchall()):

    tkinter.messagebox.showinfo(title="Login correct", message="Valid user")
    Login.destroy()
    Eligibility()

else:
    tkinter.messagebox.showinfo(title="Login incorrect", message="Invalid user")
    print("Failed!")
```

In this section we are matching our username and password data with the sign_up table of blooddonation.db.

Donors_Eligibility_Submit_Function

```
        firstname = str(First_Name_Edit.get())
        lastname = str(Last_Name_Edit.get())
        bloodgroup = str(Blood_Group_Edit.get())
```

```
gender = str(Gender_Edit.get())
weight = int(Weight_Edit.get())
age = int(Age_Edit.get())
Haemoglobin = float(Haemoglobin_Edit.get())
Donation_interval = int(Donation_Interval_Edit.get())
Question_one = str(Q1_Edit.get())
Question_two = str(Q2_Edit.get())
Question_three = str(Q3_Edit.get())
```

In these section variables has been declared in order to pass them inside our sign up table in database.

```
conn = sqlite3.connect('BloodDonation.db')
curser = conn.cursor()

curser.execute("SELECT Min_Weight FROM Verification")
min_value_weight = curser.fetchone()

curser.execute("SELECT Max_Weight FROM Verification")
max_value_weight = curser.fetchone()

curser.execute("SELECT Min_Age FROM Verification")
min_value_Age = curser.fetchone()

curser.execute("SELECT Max_Age FROM Verification")
max_value_Age = curser.fetchone()

curser.execute("SELECT Min_Haemoglobin FROM Verification")
min_value_Haemoglobin = curser.fetchone()

curser.execute("SELECT Max_Haemoglobin FROM Verification")
max_value_Haemoglobin = curser.fetchone()

curser.execute("SELECT Min_Donation_Interval FROM Verification")
Min_value_Donation_Interval = curser.fetchone()

curser.execute("SELECT Max_Donation_Interval FROM Verification")
Max_value_Donation_Interval = curser.fetchone()

curser.execute("SELECT Q1 FROM Verification")
Q1_value = curser.fetchone()

curser.execute("SELECT Q2 FROM Verification")
Q2_value = curser.fetchone()

curser.execute("SELECT Q3 FROM Verification")
Q3_value = curser.fetchone()
```

In this section the data that has been retrieved Sig_up table of the blooddonation.db database sqlite3 in order to match it with the data from username and password Edit Texts.

```
try:

 if int(min_value_weight[0]) <= weight and int(max_value_weight[0]) >= weight:
```

```
    if int(min_value_Age[0]) <= age and int(max_value_Age[0]) >= age:

      if float(min_value_Haemoglobin[0]) <= Haemoglobin and float(max_value_Haemoglobin[0]) >= Haemoglobin:

       if int(Min_value_Donation_Interval[0]) <= Donation_interval and int(Max_value_Donation_Interval[0]) >=
Donation_interval:

         if str(Q1_value[0]) == Question_one:

            if str(Q2_value[0]) == Question_two:

              if str(Q3_value[0]) == Question_three:
                  tkinter.messagebox.showinfo(title="EligibilityResult", message="Congratulations, You are Eligibile to Donate
blood'")

else:
tkinter.messagebox.showinfo(title="Eligibility Result", message="Invalid!,
You are not Eligibile to Donate blood")
```

In this section we are matching the data from the edit text with the Eligibility table of blooddonation.db conditions in order to check the eligibility of the donor.

```
                        curser.execute('''CREATE TABLE IF NOT EXISTS `Donors`( `First_Name` TEXT, `Last_Name` TEXT,
`Blood_Group` TEXT, `Age` INTEGER,`Weight`INTEGER,`Donation_Interval` INTEGER,
                                    `Haemoglobin` TEXT, `Gender` TEXT, `Question_1` TEXT, `Question_2` TEXT, `Question_3`
TEXT);''')

                        curser.execute('''insert into Donors (`First_Name` , `Last_Name`, `Blood_Group`, `Age`
,`Weight`,`Donation_Interval`,
                                    `Haemoglobin`, `Gender`, `Question_1`, `Question_2`, `Question_3`) values (?, ?, ?, ?, ?,?,
?,?, ?,?, ?)''', (firstname, lastname, bloodgroup, age, weight,Donation_interval, Haemoglobin, gender, Question_one,
Question_two, Question_three))  conn.commit()
```

The above code stores data from the edit texts which are donors report inside the donors table of BloodDonation.db database.