

काशी हिन्दू
विश्वविद्यालय



BANARAS HINDU
UNIVERSITY

PROJECT REPORT ON

COVID PLASMA BANK

UNDER THE GUIDANCE OF
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ACKNOWLEDGEMENT

"We would like to convey our heartfelt gratitude to DST-CIMS (Mathematics & Computing) Banaras Hindu University who consistently gave ideas and direction for completion of our Project. They helped us to understand and remember important details of the project time to time. Our Project has been successfully completed because of their direction. We are also very thankful to our friends and batch mates who give their valuable suggestions to us."

PROJECT DESCRIPTION

The project has been named "Covid Plasma Bank". Through this application who wants to donating plasma can register themselves. Apart from this, if a normal consumer wants to request plasma online then he can also take help of this application. In addition, we can make deletions and modifications if necessary.

The application is designed to store data using Excel charts, and all user interfaces are written in the C programming language. The safety and security requirements have been given a great choice for proper use.

ABSTRACT

Blood relation safety is an important and critical general medical problem. Since most plasma banks are in paper-based framework, various deficiencies are enabled by different partners, which increases the presence of patients and disrupts the medical care framework.

The plasma blood bank is a e-system for storing, retrieving, and analysing data relevant to plasma blood bank administrative inventory management. The aim of this project is to establish all forms of connections with plasma blood donors and individual plasma groups in the region's plasma blood bank, as well as to better assist them.

Donors who are interested in donating their plasma have to register their name, contact number, blood type, area and PIN code in the database. It has been developed in a way that is easy to manage, saving time and relieving mutual tasks.

As a result, analysts hope to design, create, and implement an online plasma bank board platform. In future this application allows a medical clinic to list its plasma packs, also enabling any medical clinic to verify the blood pack's availability at any time.

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INTRODUCTION

On March 15th, 1937, a doctor at the Cook County Hospital in Chicago opened the first-ever "blood bank," bringing the issue of supplying blood to patients in need one step closer to being solved. The team led by Dr. Bernard Fantus wasn't the first to establish a blood transfusion centre. The Chicago Tribune's James Janega reports that person-to-person blood transfusions were effective during World War I. Advances blood storage in the 1930s meant that blood could be kept viable for transfusion outside the body for at least a few hours.

According to Janega, he took this study, which was done by Soviet scientists, a step further. His study paid off, and he reported in the Journal of the American Medical Association that he was able to preserve blood for an unprecedented 10-day period. "Fantus set out to create a 'Blood Preservation Laboratory' at the hospital, only to change it before opening it to the less squeamish," Janega writes.

The American Association of Blood Banks was established in 1947 after a community-based blood centre opened in San Francisco in 1941. Janega writes that the relatively simple availability of transfusable blood "made modern surgery possible." According to the Cook County Health & Hospitals System, the initial blood bank cost \$1,500 to open. In today's currency, that's around \$25,000. It was used in 1,364 blood transfusions in its first year of service.

According to the National Heart, Lung, and Blood Institute, blood transfusions now benefit nearly five million Americans per year. While scientists are working on a way to synthesise blood, there is currently no man-made substitute for human blood, so blood banks must depend on donors.

Arvind Kejriwal, the Delhi Chief Minister, inaugurated India's first plasma bank at the Institute of Liver and Biliary Sciences (ILBS) on July 2nd, 2020, to make plasma that is being used in a trial to treat Covid-19 patients more available. Patients who have recovered from Covid-19 and are able to donate plasma will be contacted by the bank.

A plasma bank is similar to a blood bank, except it was developed exclusively for people who have Covid-19 and have been recommended to undergo treatment by physicians. The facility has been developed at the ILBS, which will serve as a nodal point for plasma processing. Plasma therapy involves extracting and administering antibody-rich plasma from a healed patient. The trials are attempting to determine if the antibodies will aid in the recovery of patients. Many that have had the disease but have survived for at least 14 days before donating can be considered, though physicians recommend a three-week recovery period. People must be between the ages of 18 and 60 and weigh at least 50 kg to be considered. Women who have recently given birth are not eligible because the antibodies produced during pregnancy will impair lung function.

IDEA

Our project's goal is to transition from a paper-based system to an online plasma blood bank system. This project provides

1. Check the availability of plasma at any time.
2. Handle the details of the Plasma donor.
3. Allow for proper donor documentation.

CONCEPT

The project's goal is to create a plasma blood bank donation system that is safe, user-friendly, and multifunctional. This method is geared mostly toward people who want to donate plasma to patients. It will be easier to find a donor for a specific plasma community and to establish a link between donors using this application.

SOME POINTS THAT WE ARE GOING TO WORK ON.

- A person will not have any issue regarding plasma inconvenience or any discommodity
- Reducing man power
- For doing work more accurately
- Faster performance
- This system allows people to easily communicate with donors, making recovery from covid19 simple and fast.

SOME MAJOR PROBLEMS WILL IT SOLVE ARE FOLLOWS

- As a result of the paper-based system, there is inefficiency in collecting information about donors, inventories of plasma bags, and plasma transfusion services.
- Patients' protection could be put at risk due to the possibility of unsafe plasma bags and a lack of sufficient documentation.
- When a donor's donation record was incomplete or connected to their blood infection donors, and the plasma bags' shelf life was not adequately controlled, contamination occurred. As a result, in order to ensure the safety of plasma transfusions, a web-based plasma bank management system would be needed to address these issues and problems.

WHAT BENEFITS WILL IT DELIVERS?

In starting day of covid19, A plasma bank to treat novel corona virus, and COVID-19 patients can donate their plasma 14 days after recovery.

- The Plasma Blood Bank help in demand and supply of plasma
- This program bridges the distance between the donor, the recipient, and the plasma bank.
- This program establishes a shared ground for all.
- People may communicate directly with donors by providing their contact or details with their permission.
- We make it easy for donors and beneficiaries to use our services.
- We provide latest updates of availability of plasma
- If any infected person needs plasma, we arrange it from any hospital in minimal time limit

So, basically it is better than any manual system of plasma bank management that available today.

REQUIREMENTS

HARDWARE:

Processor- Intel(R) Core(TM) i5-1035G1 CPU @ 1.00GHz 1.19 GHz

Intel(R) Core(TM) i3-10110U CPU @ 2.10GHz 2.59 GHz

Hard Disk- 1 TB + 256 SSD

RAM- 8.00 GB

SOFTWARE:

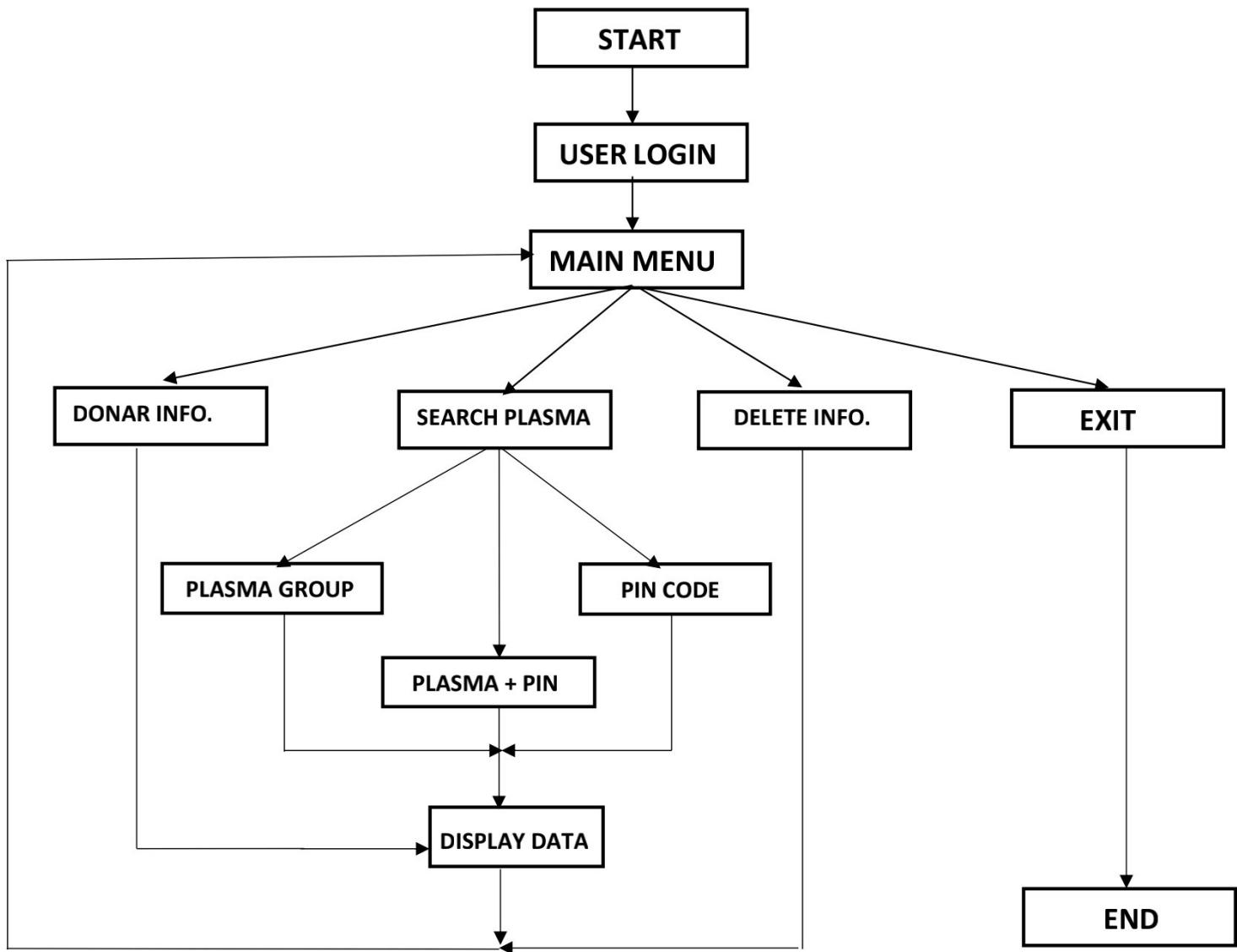
Operating system- Windows 10 Home Single Language 64-bit operating system.

Web Technologies- Google, Bing

Coding Platforms- Codeblocks, VS code, Turbo C, Dev C++

Additional software- MS Word (2016), MS PowerPoint (2016), MS Excel (2016), Adobe

DESIGN



SOURCE CODE

```
#include <stdio.h>
#include <stdlib.h>
#include <string.h>

FILE *fp;

struct Reg
{
    char name[30];
    char state[30];
    int gender;
    int bg;
    int cov_rec;
    int Disease;
    char age[30];
    char pin[30];
    char phone[30];
};

struct Reg d;

void display();
void mainMenu();
void addNewPerson();
void searchBloodGroup();
void searchPin();
void searchBAP();
void deletedetails();
void common();

#define user "Plasma_Bank"
#define pass "Error404"

int main()
{
    display();

    char username[20], password[20];

    printf("\n\t\tPlease Enter username: ");
    scanf("%s", &username);
```



```

        addNewPerson();
        break;
    case 2:
        searchBloodGroup();
        break;
    case 3:
        searchPin();
        break;
    case 4:
        searchBAP();
        break;
    case 5:
        deletedetails();
        break;
    case 6:
        printf("\nThank You For Using Covid Plasma Bank.");

        printf("\n@ Copyright February,2021 || All Rights Reserved
By DST CIMS, BHU\n");
        exit(1);
    default:
        printf("\t\tSorry,invalid choice...!\n");
    }
}

void addNewPerson()
{
{
    fp = fopen("donor.txt", "ab+");

    printf("\n Enter Your Name: ");
    fflush(stdin);
    gets(d.name);

    printf("\n Your Age : ");
    fflush(stdin);
    gets(d.age);

    printf("\n Gender: ");
    printf("\n 1.Male  2.Female  3.Other \n");
    fflush(stdin);
    scanf("%d", &d.gender);

    printf("\n Please Select Your Blood Group Type:\n");
}

```

```

        printf("\n 1.A+   2.A-   3.B+   4.B- \n 5.O+   6.O-
7.AB+  8.AB- \n");
        fflush(stdin);
        scanf("%d", &d.bg);

        printf("\n Please select if you have any of the following disease.\n");
        printf("\n 1.Cancer\t2.Cardiac disease\t3.Sever lung disease\
t4.Hepatitis B and C \n 5.HIV infection, AIDS 6.Chronic alcoholism\t7.
Underweight\t8.Low or High iron level\n 9.None of these\n");
        fflush(stdin);
        scanf("%d", &d.Disease);
        printf("\n Whether Covid-19 Recovered ?\n");
        printf("\n 1.Yes  2.No  3.Didn't have COVID till now\n");
        fflush(stdin);
        scanf("%d", &d.cov_rec);

        printf("\n State You Are Living in : ");
        fflush(stdin);
        gets(d.state);

        printf("\n Area PIN Code : ");
        fflush(stdin);
        gets(d.pin);

        printf("\n Phone Number : ");
        fflush(stdin);
        gets(d.phone);

        fwrite(&d, sizeof(d), 1, fp);
    }

printf("\n\n\t\t*****\n");
printf("\n Name           : %s ", d.name);
printf("\n Age            : %s ", d.age);

switch (d.gender)
{
case 1:
    printf("\n Gender          : Male");
    break;
case 2:
    printf("\n Gender          : Female");
    break;
case 3:
    printf("\n Gender          : Other");
}

```

```

        break;
    default:
        printf("\n Gender           : Unknown {invalid input by user}");
        break;
    }
    switch (d.bg)
    {
    case 1:
        printf("\n Blood group     : A+ ");
        break;
    case 2:
        printf("\n Blood group     : A- ");
        break;
    case 3:
        printf("\n Blood group     : B+ ");
        break;
    case 4:
        printf("\n Blood group     : B- ");
        break;
    case 5:
        printf("\n Blood group     : O+ ");
        break;
    case 6:
        printf("\n Blood group     : O- ");
        break;
    case 7:
        printf("\n Blood group     : AB+ ");
        break;
    case 8:
        printf("\n Blood group     : AB- ");
        break;
    default:
        printf("\n Blood group     : Unknown {invalid input by user} ")
    ;
}
switch (d.Disease)
{
case 1:
    printf("\n Disease          : Cancer");
    break;
case 2:
    printf("\n Disease          : Cardiac disease");
    break;
case 3:
    printf("\n Disease          : Severe lung disease ");
}

```

```

        break;
    case 4:
        printf("\n Disease          : Hepatitis B and C ");
        break;
    case 5:
        printf("\n Disease          : HIV infection, AIDS ");
        break;
    case 6:
        printf("\n Disease          : Chronic alcoholism ");
        break;
    case 7:
        printf("\n Disease          : Underweight ");
        break;
    case 8:
        printf("\n Disease          : Low or High iron level ");
        break;
    case 9:
        printf("\n Disease          : None ");
        break;
    default:
        printf("\n Disease          : Unknown {invalid input by user} "
);
    }

    switch (d.cov_rec)
    {
    case 1:
        printf("\n Covid Recovered : Yes ");
        break;
    case 2:
        printf("\n Covid Recovered : No ");
        break;
    case 3:
        printf("\n Covid Recovered : Didn't have COVID till now ");
        break;
    default:
        printf("\n Covid Recovered : Unknown {invalid input by user}");
    }
    printf("\n State           : %s ", d.state);
    printf("\n Pin Code        : %s ", d.pin);
    printf("\n Phone Number    : %s ", d.phone);
    switch (d.Disease)
    {
    case 1:
    case 2:
    case 3:

```

```

    case 4:
    case 5:
    case 6:
    case 7:
    case 8:
        printf("\n\nNote -
Sorry ! You are not eligible for donating Plasma Blood\n");
    }

    printf("\n\n\t\tSuccessfully saved your information...!\n");

    fclose(fp);
    mainMenu();
}

void searchBloodGroup()
{
    int temp_blood;

    fp = fopen("donor.txt", "rb");

    printf("\n\nEnter Plasma blood group that you need :\t");
    printf("\n 1.A+  2.A-  3.B+  4.B- \n 5.O+  6.O-  7.AB+  8.AB-
\n");
    scanf("%d", &temp_blood);
    int t = 0;

    while (fread(&d, sizeof(d), 1, fp) == 1)
    {

        if (temp_blood == d.bg && d.Disease == 9)
        {

            common();
        }
        else
        {
            t = 1;
        }
    }
    if (t == 0)
    {
        printf("\n\t\tSorry! Data Not Available...");
    }
    fclose(fp);
}

```

```

    mainMenu();
}

void searchPin()
{
    char temp_Pin[10];

    fp = fopen("donor.txt", "rb");

    printf("\n\nPlease, Enter Your Area Pin Code : \t");
    fflush(stdin);
    gets(temp_Pin);
    int t = 0;

    while (fread(&d, sizeof(d), 1, fp) == 1)
    {

        if (strcmp(temp_Pin, d.pin) == 0 && d.Disease == 9)
            common();
        else

        {
            t = 1;
        }
    }
    if (t == 0)
    {
        printf("\t\t\t\tSorry! Data Not Available...");
    }

    fclose(fp);
    mainMenu();
}

void searchBAP()
{
    int temp_blood;
    char temp_Pin[10];

    fp = fopen("donor.txt", "rb");

    printf("\n\nPlease, Enter Plasma Blood Group that You Need :\t");
    printf("\n 1.A+  2.A-  3.B+  4.B- \n 5.O+  6.O-  7.AB+  8.AB-
\n");
    scanf("%d", &temp_blood);
}

```

```

printf("\n\nPlease, Enter Your Area Pin Code Blood :\t");
fflush(stdin);
gets(temp_Pin);
int t = 0;

while (fread(&d, sizeof(d), 1, fp) == 1)
{
    if (temp_blood == d.bg && strcmp(temp_Pin, d.pin) == 0 && d.Distance == 9)
    {
        common();
    }
    else
    {
        t = 1;
    }
}
if (t == 0)
{
    printf("\t\t\t\tSorry! Data Not Available...");
}
fclose(fp);
mainMenu();
}

void common()
{
    printf("\n Name : %s", d.name);

    printf("\n Age : %s", d.age);

    switch (d.gender)
    {
    case 1:
        printf("\n Gender : Male");
        break;
    case 2:
        printf("\n Gender : Female");
        break;
    case 3:
        printf("\n Gender : Other");
        break;
    default:
        printf("\n Gender : Unknown {invalid input by user}");
    }
}

```

```

}

switch (d.bg)
{
case 1:
    printf("\n Blood group      : A+ ");
    break;
case 2:
    printf("\n Blood group      : A- ");
    break;
case 3:
    printf("\n Blood group      : B+ ");
    break;
case 4:
    printf("\n Blood group      : B- ");
    break;
case 5:
    printf("\n Blood group      : O+ ");
    break;
case 6:
    printf("\n Blood group      : O- ");
    break;
case 7:
    printf("\n Blood group      : AB+ ");
    break;
case 8:
    printf("\n Blood group      : AB- ");
    break;
default:
    printf("\n Blood group      : Unknown {invalid input by user}")
;

}

switch (d.Disease)
{
case 1:
    printf("\n Disease      : Cancer");
    break;
case 2:
    printf("\n Disease      : Cardiac disease");
    break;
case 3:
    printf("\n Disease      : Sever lung disease ");
    break;
case 4:
    printf("\n Disease      : Hepatitis B and C ");
}

```

```

        break;
case 5:
    printf("\n Disease           : HIV infection, AIDS ");
    break;
case 6:
    printf("\n Disease           : Chronic alcoholism ");
    break;
case 7:
    printf("\n Disease           : Underweight ");
    break;
case 8:
    printf("\n Disease           : Low or High iron level ");
    break;
case 9:
    printf("\n Disease           : None   ");

    break;
default:
    printf("\n Disease           : Unknown {invalid input by user}")
;

}

switch (d.cov_rec)
{
case 1:
    printf("\n Covid Recovered  : Yes ");
    break;
case 2:
    printf("\n Covid Recovered  : No ");
    break;
case 3:
    printf("\n Covid Recovered  : Didn't have COVID till now ");
    break;
default:
    printf("\n Covid Recovered  : Unknown {invalid input by user}")
;

}

printf("\n State            : %s", d.state);

printf("\n Pin              : %s", d.pin);

printf("\n Phone Number     : %s", d.phone);

printf("\n\n\t\t\t*****\n");
printf("\n");

```

```

}

void deletedetails()
{
    FILE *fitmp;

    char Delete_Id[20];
    int temp = 1;

    fp = fopen("donor.txt", "r");

    printf("\nDelete user with phone number: ");
    scanf("%s", &Delete_Id);

    fitmp = fopen("copy.txt", "wb");

    while (fread(&d, sizeof(d), 1, fp) == 1)
    {
        if (strcmp(d.phone, Delete_Id) != 0)
            fwrite(&d, sizeof(d), 1, fitmp);
        else
            temp = 0;
    }

    fclose(fp);
    fclose(fitmp);

    remove("donor.txt");

    rename("copy.txt", "donor.txt");
    if (temp == 1)
        printf("\n No data found !!!");
    else
        printf("\n Record deleted successfully...!!!\n");
}

```

OUTPUT

1. Login

```
|-----|  
| Plasma Blood Bank |  
-----  
Please Enter username: Plasma_Bank  
Please enter password: Error404  
  
Welcome Login Success!
```

2. Main Menu

```
MAIN MENU  
*****  
  
1.Add New Person  
2.Search By Blood Group  
3.Search By Pin Code  
4.Search By Blood Group And Pin Code  
5.Delete Data  
6.Exit  
  
Please Enter Your Choice: 1
```

3. Add Donor

```
Name : Manmohan Singh Bisht  
Age : 21  
Gender : Male  
Blood group : B+  
Disease : None  
Covid Recovered : Yes  
State : Uttrakhand  
Pin Code : 263139  
Phone Number : 7906672028  
  
Successfully saved your information...!
```

4. Search

A) By Plasma Blood Group

```
MAIN MENU
*****
1.Add New Person
2.Search By Blood Group
3.Search By Pin Code
4.Search By Blood Group And Pin Code
5.Delete Data
6.Exit

Please Enter Your Choice: 2

Enter Plasma blood group that you need :
1.A+ 2.A- 3.B+ 4.B-
5.0+ 6.0- 7.AB+ 8.AB-
1

Name      : Amit Singh Negi
Age       : 21
Gender    : Male
Blood group : A+
Disease   : None
Covid Recovered : Didn't have COVID till now
State     : Maharashtra
Pin       : 400037
Phone Number : 9694484077

*****
```

B) By Area Pin Code

```
MAIN MENU
*****
1.Add New Person
2.Search By Blood Group
3.Search By Pin Code
4.Search By Blood Group And Pin Code
5.Delete Data
6.Exit

Please Enter Your Choice: 3

Please, Type a Your Area Pin Code : 263139

Name      : Manmohan Singh Bisht
Age       : 21
Gender    : Male
Blood group : B+
Disease   : None
Covid Recovered : Yes
State     : Uttrakhand
Pin       : 263139
Phone Number : 7906672028

*****
```

C) By Plasma and Area Pin Code

```
MAIN MENU
*****
1.Add New Person
2.Search By Blood Group
3.Search By Pin Code
4.Search By Blood Group And Pin Code
5.Delete Data
6.Exit

Please Enter Your Choice: 4

Please, Type a Plasma Blood Group What You Need :
1.A+ 2.A- 3.B+ 4.B-
5.O+ 6.O- 7.AB+ 8.AB-
5

Please, Type a Your Area Pin Code Blood :      212631

Name          : Shikha Tripathi
Age           : 21
Gender        : Female
Blood group   : O+
Disease       : None
Covid Recovered : Didn't have COVID till now
State         : Uttar Pradesh
Pin            : 212631
Phone Number  : 9519472855

*****
```

5. Delete

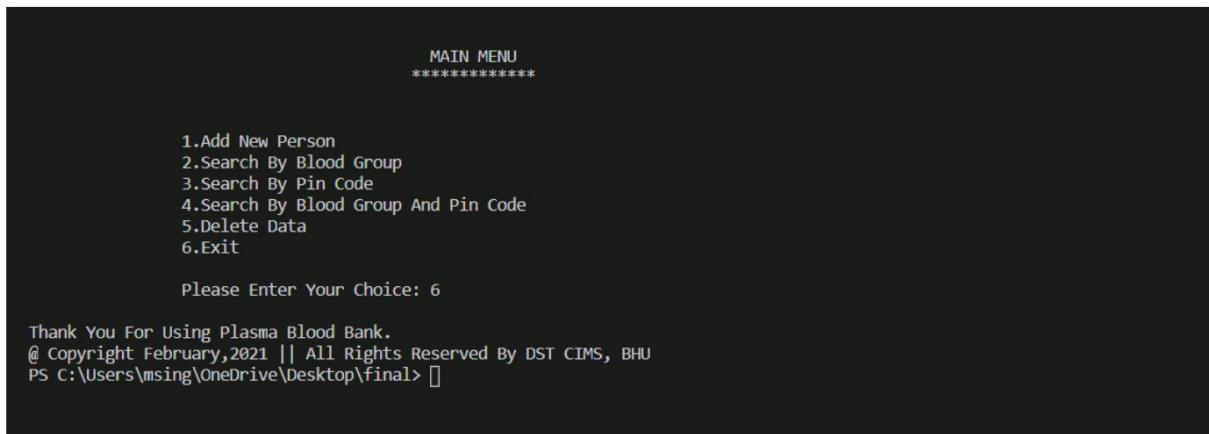
```
MAIN MENU
*****
1.Add New Person
2.Search By Blood Group
3.Search By Pin Code
4.Search By Blood Group And Pin Code
5.Delete Data
6.Exit

Please Enter Your Choice: 5

Delete user with phone number: 7906672028

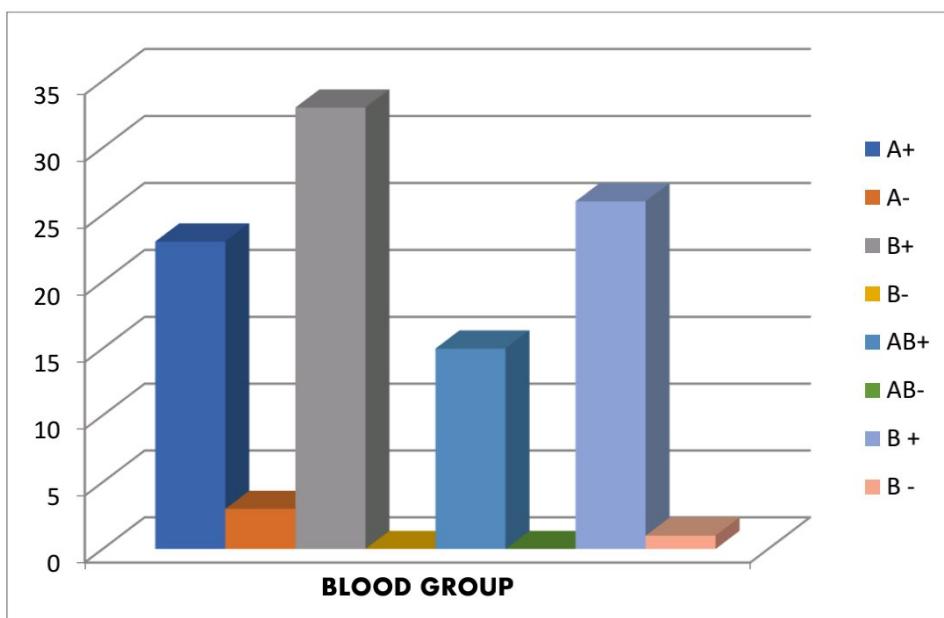
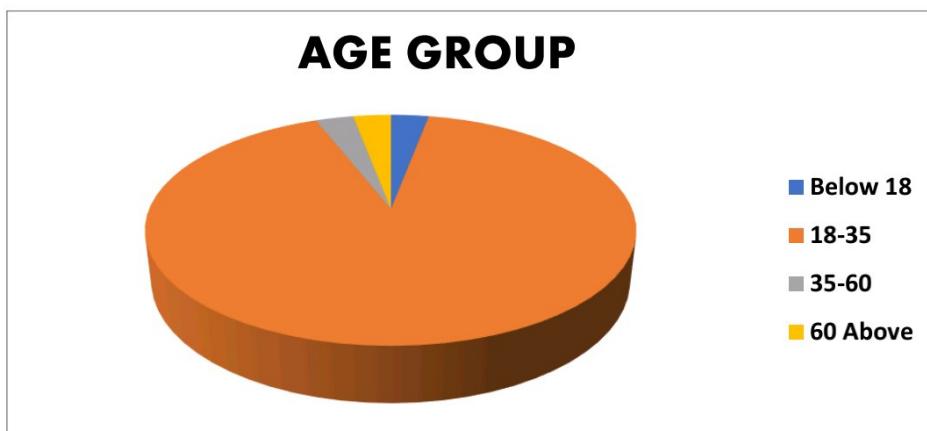
Record deleted successfully...!!
```

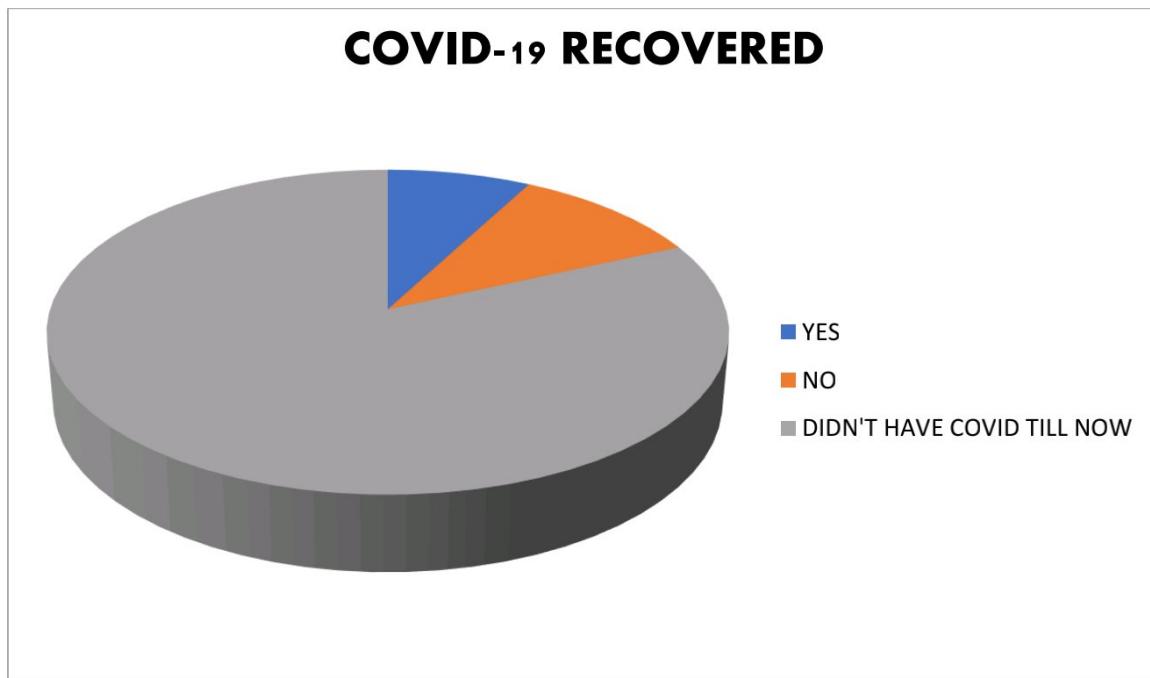
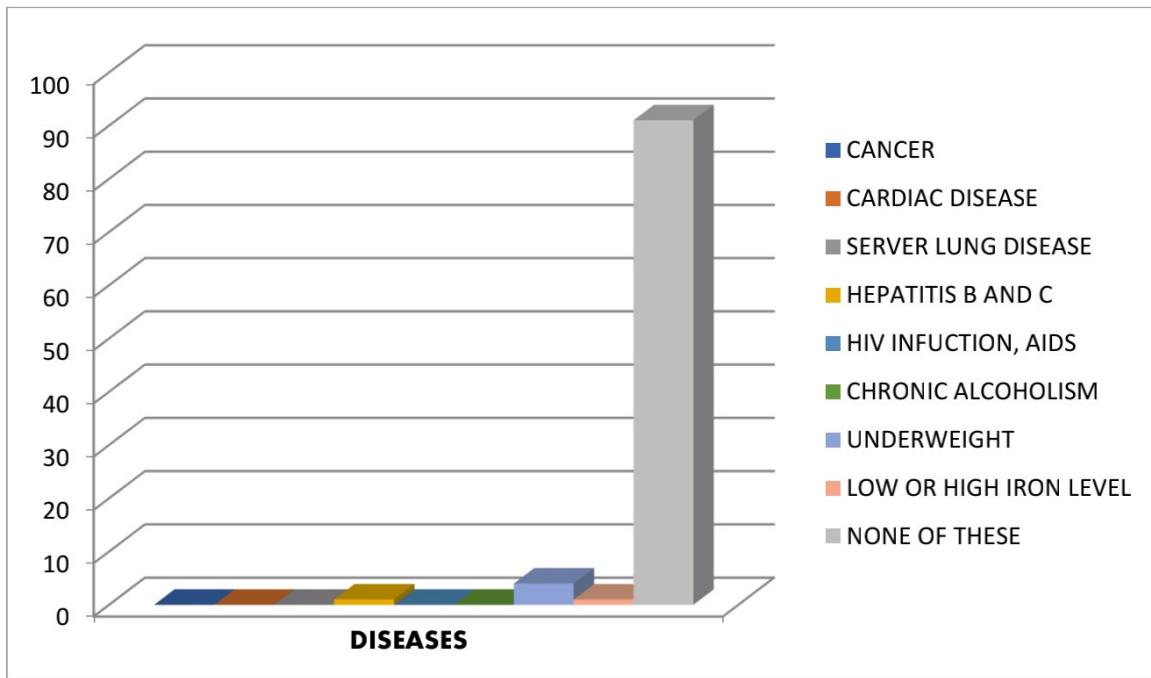
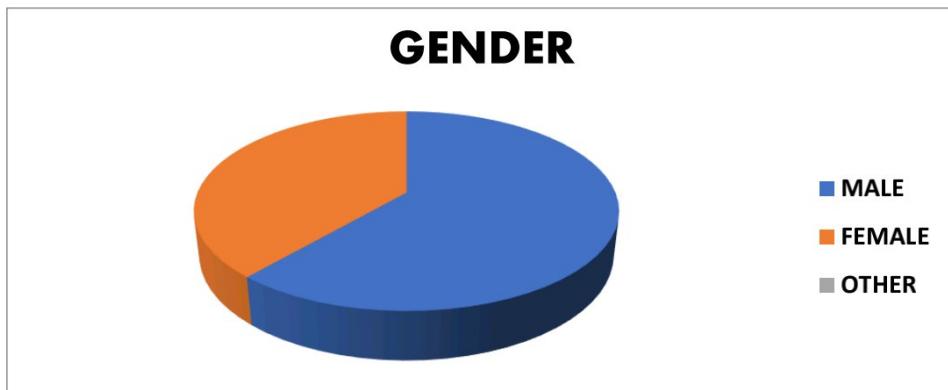
6. Exit



SURVEY

To get a deep insight of our project, we tried to analyse the sample of population that we are familiar with. For this, we created a Microsoft form that collects some information regarding Blood group, Covid-19 recovery, etc along with their name and district they are living in. The data collected was in Excel format, so the direct interpretation is shown here is as follows-





IMPLEMENTATION

- The entire system was developed using the C language.
- The Personal database is used to understand the client's request and to send response to them.
- During the software-testing phase, each module of the software is thoroughly tested for the accuracy of the output.
- The system developed is very user friendly and detailed.
- The implementation phase normally ends with a formal test involving all components.
- Hence the design of the entire system is user-friendly and simple the implementation has been quite easy.

As a result of the system's user-friendly and transparent nature, its implementation has been fairly simple.

CONCLUSION AND FUTURE WORK

The application is efficient in maintaining donor details and can easily perform operations on plasma blood donation records. This application also reduces the man power and workload of plasma blood bank management to know how much blood is available and also keep a record of how many donors are registered for donating plasma.

In future, this application can launch website for easy online Plasma blood bank functioning and other hospitals can also use and manage this data.

There is nothing called perfection in any one of us. The more you improve, the more you realize the scope of improvement. Here is the similar case with us. We are planning to take this project for more user-friendly interface. To achieve this, we are going to add some more facilities to benefit the user, like if a person enters wrong details by mistake, and wants to correct those, then we would provide them another option in which they can modify their entered details. Addition to this, we would bring you much more options for searching. Another option would be Admin login facility. As the area of serving this facility grows, the selected people having that id and password, can directly see the whole data at once. Thus, these would be the areas to be worked upon.