Blood Donation Management System

Session: 2022 – 2026

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1. Short Description of your project:

During the emergency situation or surgery people need blood for the survival of their lives and to search their desirable blood they find difficulty. My management system provides them facility to find their blood group easily and in short time. A blood donation management system can make significant contributions in the field of computer science by utilizing technology to improve various aspects of the blood donation process. Overall, the development and implementation of a blood donation management system can have a positive impact on the field of computer science by applying technology to address real-world problems and improve healthcare outcomes. The importance of a blood donation management system lies in its ability to ensure the availability of safe and adequate blood supplies for transfusions. This can have significant benefits for both patients and healthcare systems. Person can find their desirable blood group by simple searching on my management system in short time and save their love one’s lives.

2. Users of Application

- **Admin:**

  An Admin control the management system for example add, delete or update the record of the employee and also see the clients (donors and recipients) information in the management system.

- **Employee:**

  An employee uses the management system to add, delete or update record of clients (donors and recipients) and also search their clients by their blood group according to the need of other clients.

3. Functional Requirements:

Following table contains all functionalities of users (Admin and Employee) which they can perform in the management system.

3.1. Admin Functionalities:

User Story ID	*As a*	*I want to perform*	*So that I can*
1.	Admin	Add employee	So that, the new employees are added
1.	Admin	Delete employee	So that, the old employees are removed

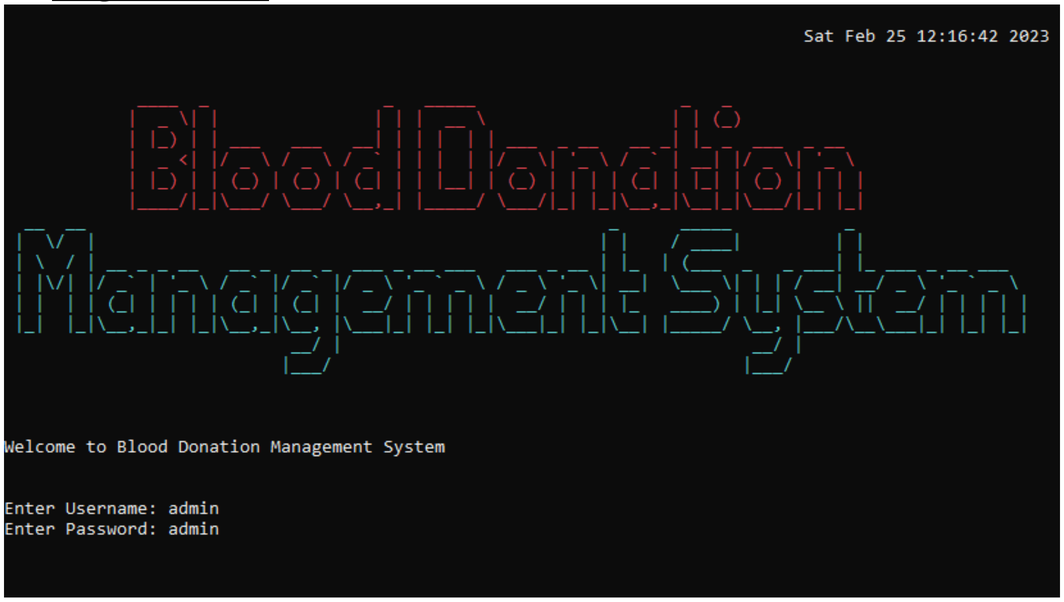
1.	Admin	Edit details of employee	So that the details of the employee are updated
1.	Admin	Search employee	So that details of the employee are displayed
1.	Admin	View all employee	So that details of all employees are displayed
1.	Admin	View all donors	So that details of all donors are displayed
1.	Admin	Search donors	So that details of the donor are displayed
1.	Admin	View all recipient	So that details of all recipients are displayed
1.	Admin	Search recipient	So that details of the recipient are displayed
1.	Admin	Log out	So that application is closed

3.1. Employee Functionalities:

User Story ID	***As a***	***I want to perform***	***So that I can***
2.	Employee	Add donor	So that, the new donors are added
2.	Employee	Delete donor	So that, the old donors are removed
2..	Employee	Edit details of donor	So that the details of the donor are updated
2.	Employee	Search donors	So that details of the donor are displayed
2.	Employee	View all donors	So that details of all donors are displayed
2.	Employee	Add recipient	So that, the new recipients are added
2.	Employee	Delete recipient	So that, the old recipients are removed
2.	Employee	Edit details of recipient	So that the details of the recipient are updated
2.	Employee	Search recipient	So that details of the recipient are displayed
2.	Employee	View all recipient	So that details of all recipients are displayed
2.	Employee	Log out	So that application is closed

4. Wireframes:

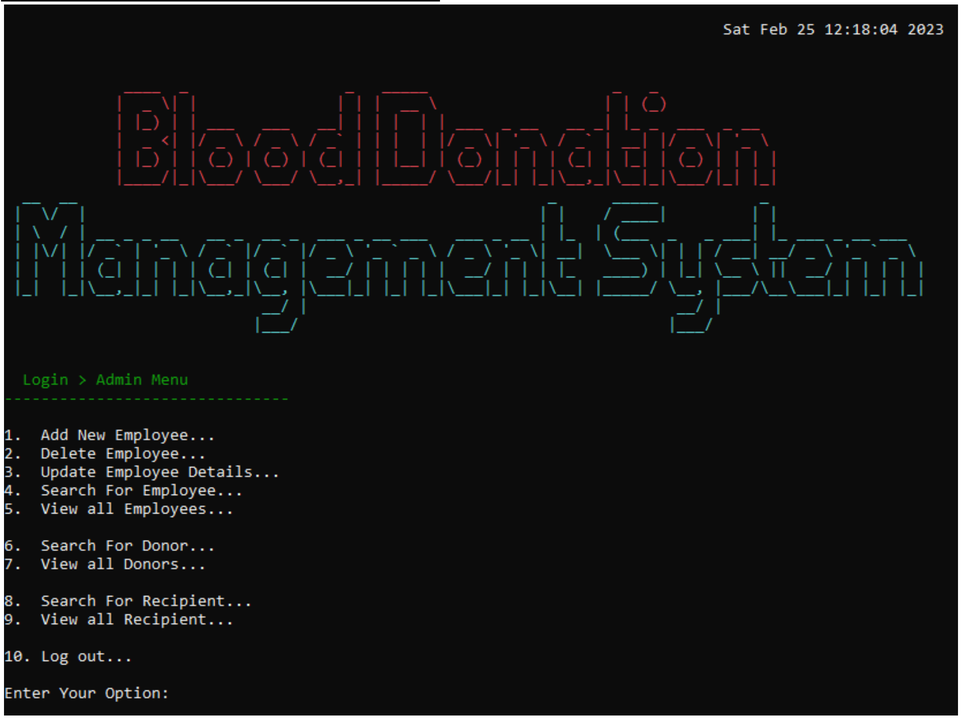
4.1. Login screen:



```
                                                              Sat Feb 25 12:16:42 2023

Welcome to Blood Donation Management System

Enter Username: admin
Enter Password: admin
```

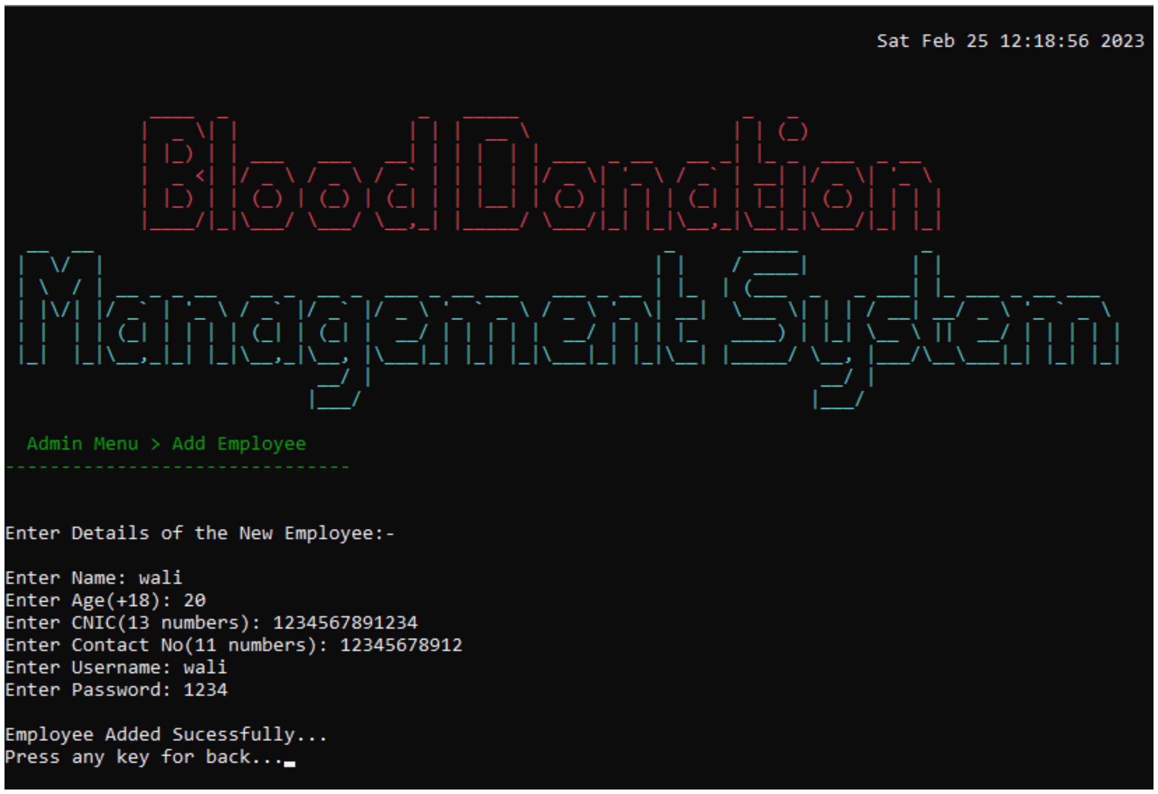
Figure 1: Login Screen

4.2. Admin screen and Options:



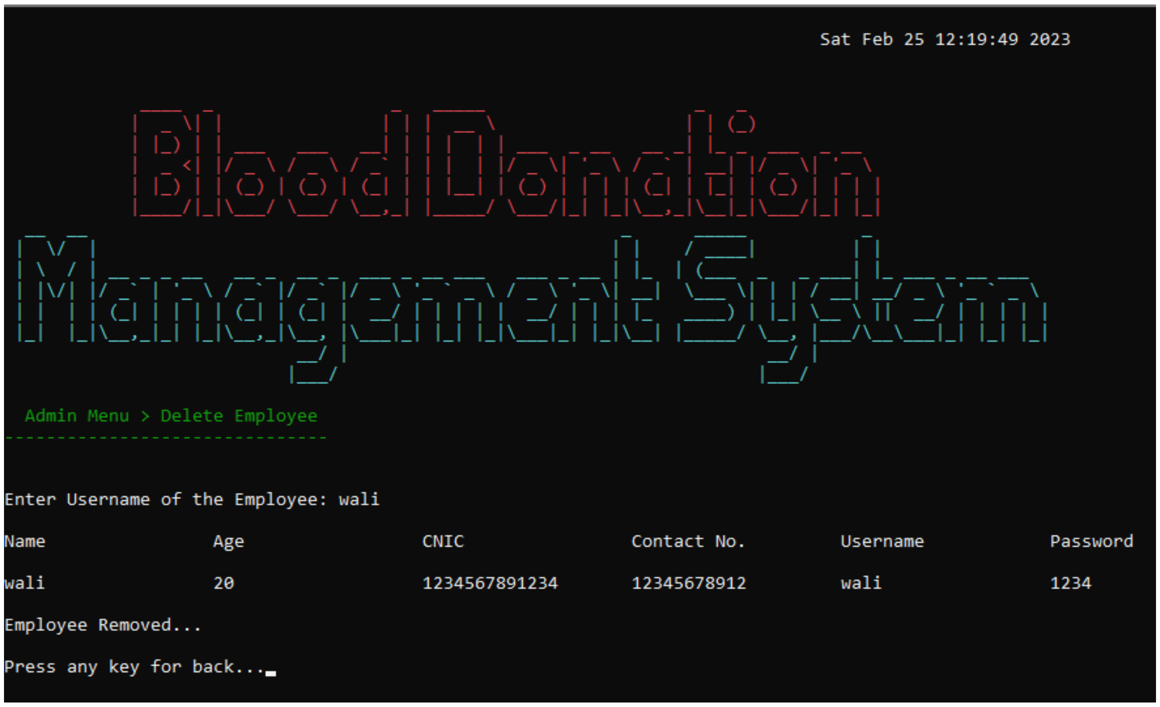
```
                                                        Sat Feb 25 12:18:04 2023

  Login > Admin Menu
-------------------------------

1.  Add New Employee...
2.  Delete Employee...
3.  Update Employee Details...
4.  Search For Employee...
5.  View all Employees...

6.  Search For Donor...
7.  View all Donors...

8.  Search For Recipient...
9.  View all Recipient...

10. Log out...

Enter Your Option:
```

Figure 2: Admin Main Menu Screen



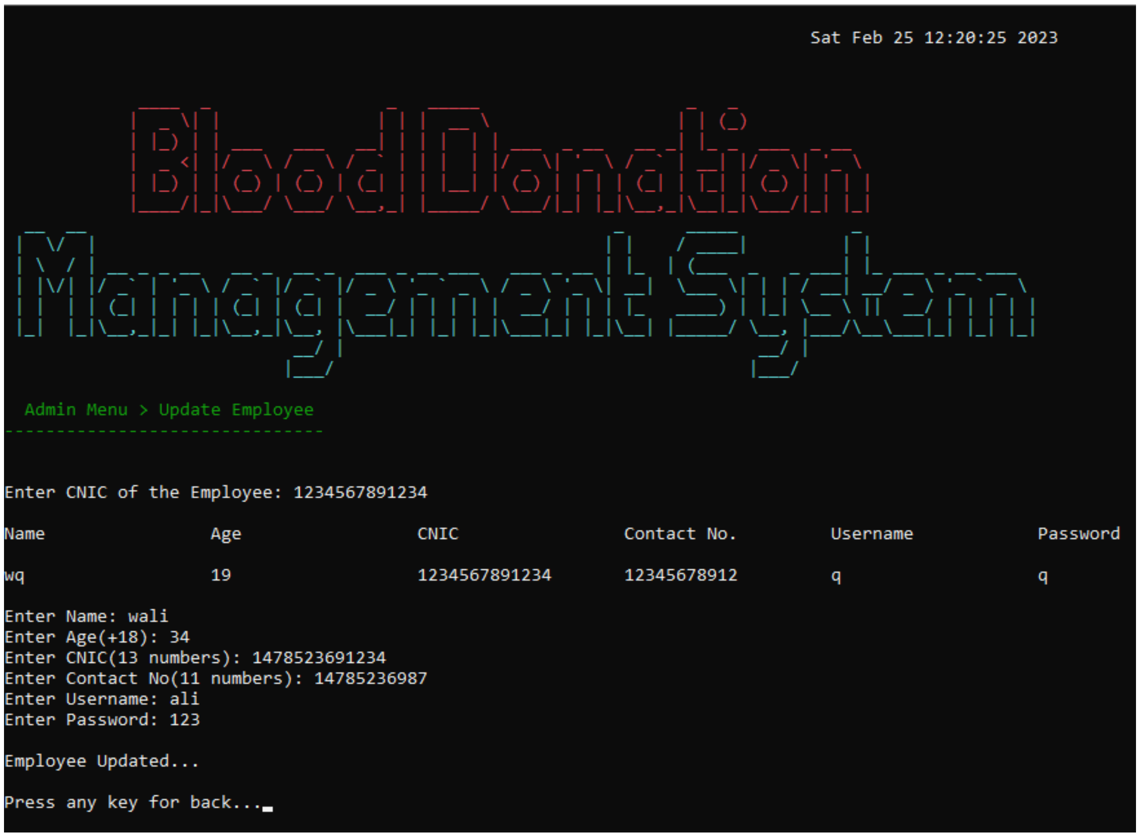
```
                                                    Sat Feb 25 12:18:56 2023

 Admin Menu > Add Employee
------------------------------

Enter Details of the New Employee:-

Enter Name: wali
Enter Age(+18): 20
Enter CNIC(13 numbers): 1234567891234
Enter Contact No(11 numbers): 12345678912
Enter Username: wali
Enter Password: 1234

Employee Added Sucessfully...
Press any key for back...
```

Figure 2.1: Add Employee Screen



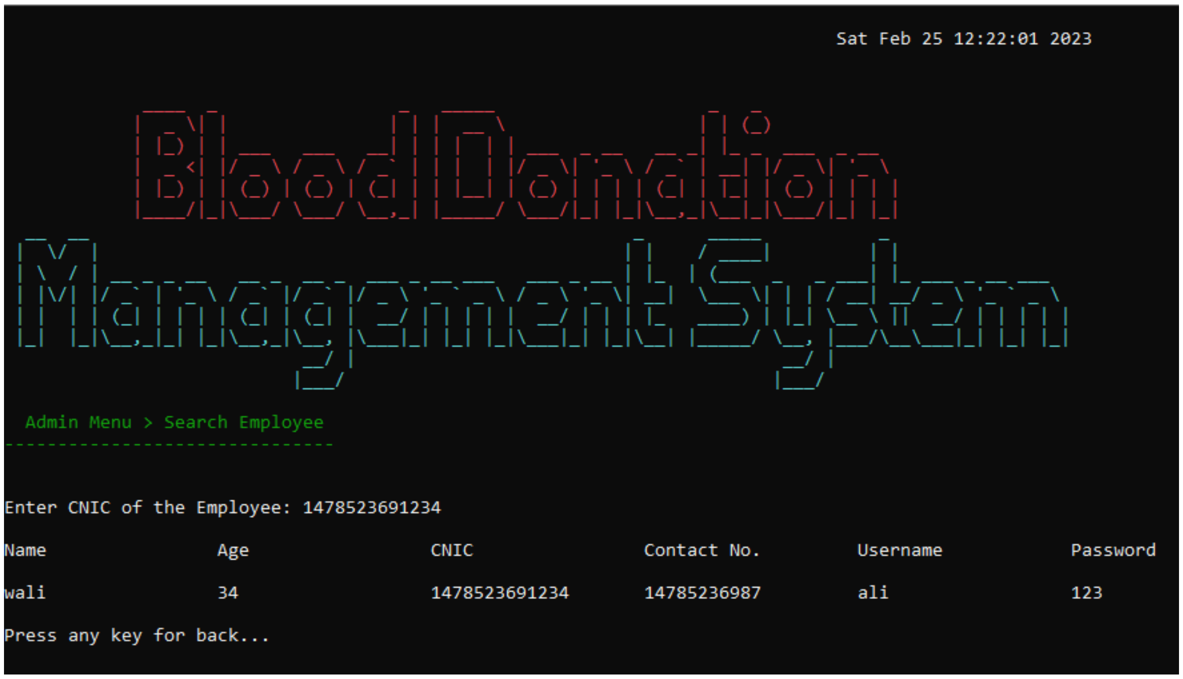
```
                                                 Sat Feb 25 12:19:49 2023

 Admin Menu > Delete Employee
------------------------------

Enter Username of the Employee: wali

Name                Age                 CNIC                Contact No.         Username            Password

wali                20                  1234567891234       12345678912         wali                1234

Employee Removed...

Press any key for back...
```

Figure 2.2: Delete Employee Screen



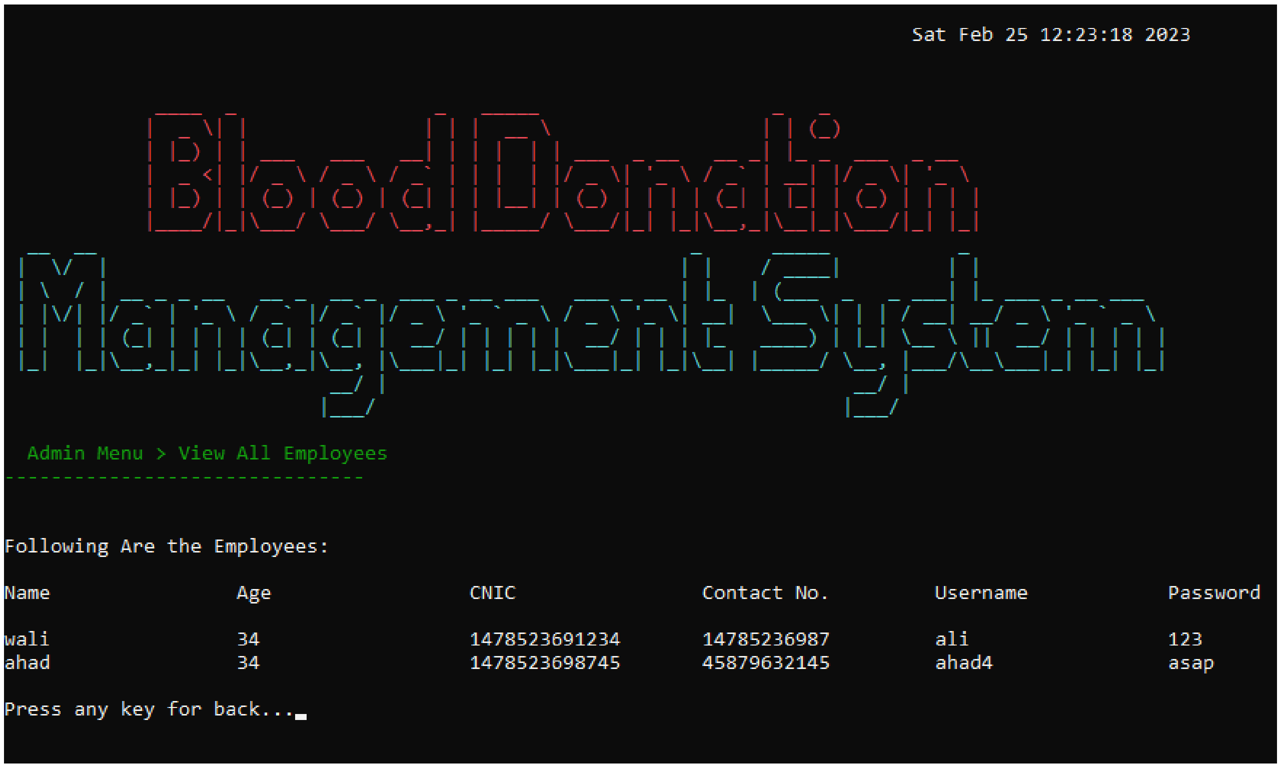
```
                                                  Sat Feb 25 12:20:25 2023

  Admin Menu > Update Employee
-------------------------------

Enter CNIC of the Employee: 1234567891234

Name                Age                 CNIC                Contact No.         Username            Password

wq                  19                  1234567891234       12345678912         q                   q

Enter Name: wali
Enter Age(+18): 34
Enter CNIC(13 numbers): 1478523691234
Enter Contact No(11 numbers): 14785236987
Enter Username: ali
Enter Password: 123

Employee Updated...

Press any key for back...
```

Figure 2.3: Update Employee Screen



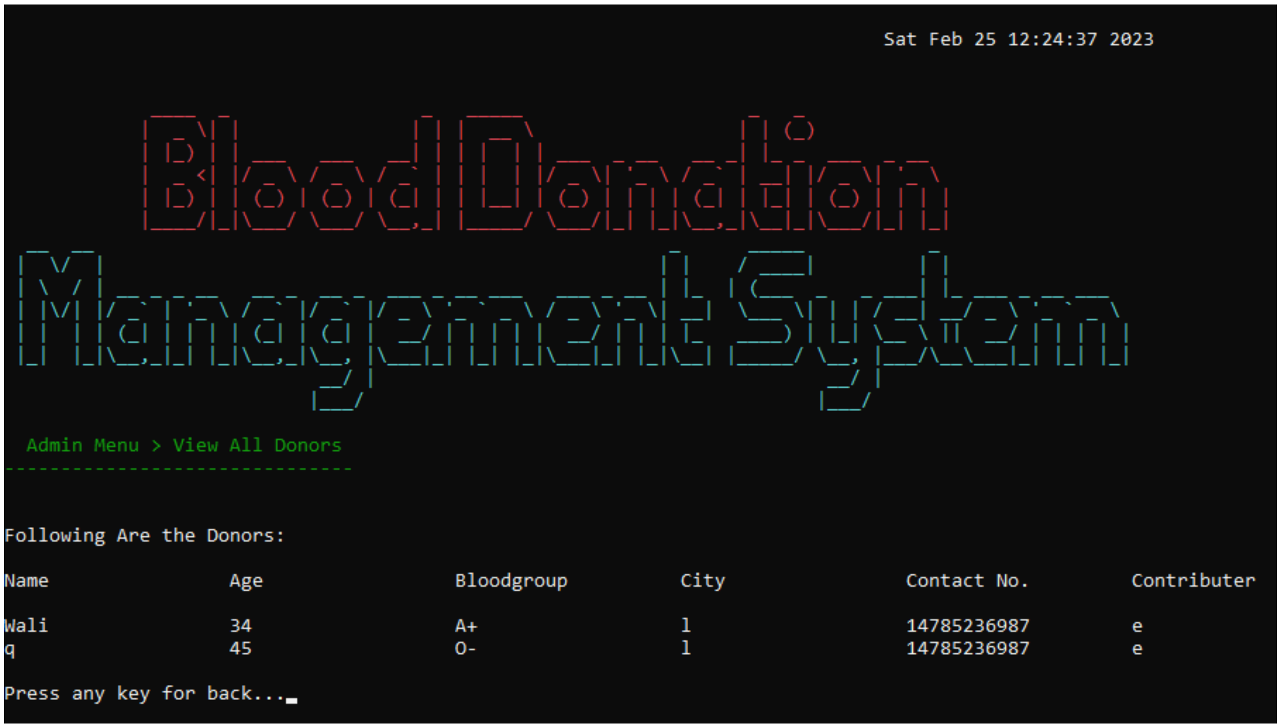
```
                                                  Sat Feb 25 12:22:01 2023

  Admin Menu > Search Employee
-------------------------------

Enter CNIC of the Employee: 1478523691234

Name                Age                 CNIC                Contact No.         Username            Password

wali                34                  1478523691234       14785236987         ali                 123

Press any key for back...
```

Figure 2.4: Search Employee Screen



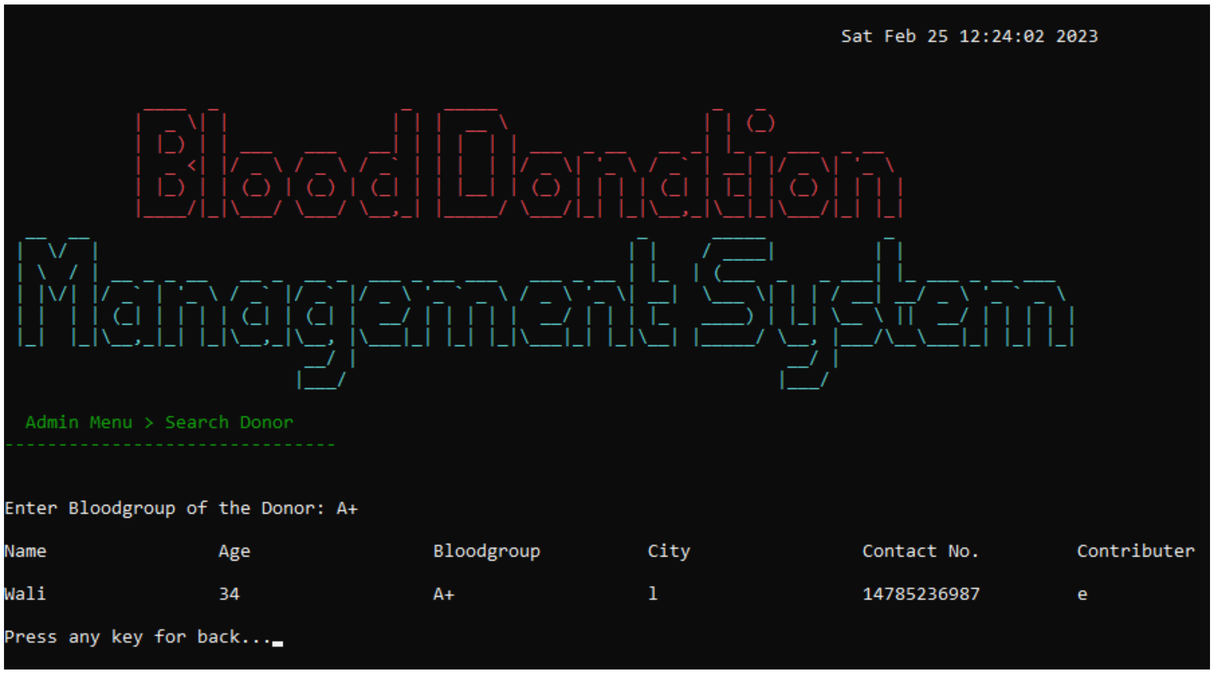
```
                                                                      Sat Feb 25 12:23:18 2023

  Admin Menu > View All Employees
-------------------------------


Following Are the Employees:

Name                Age                 CNIC                Contact No.         Username            Password

wali                34                  1478523691234       14785236987         ali                 123
ahad                34                  1478523698745       45879632145         ahad4               asap

Press any key for back...
```

Figure 2.5: View All Employee Screen



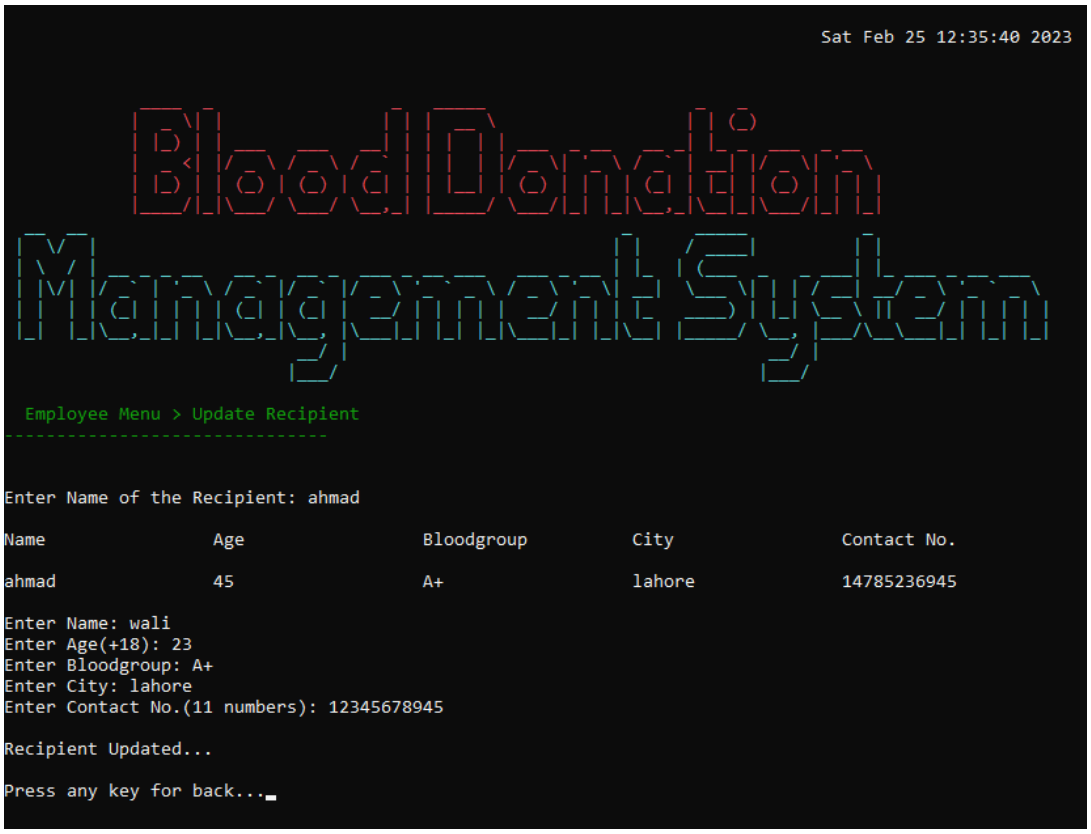
```
                                                                      Sat Feb 25 12:24:37 2023

  Admin Menu > View All Donors
-------------------------------


Following Are the Donors:

Name                Age                 Bloodgroup          City                Contact No.         Contributer

Wali                34                  A+                  l                   14785236987         e
q                   45                  O-                  l                   14785236987         e

Press any key for back...
```

Figure 2.6: Search Donor Screen



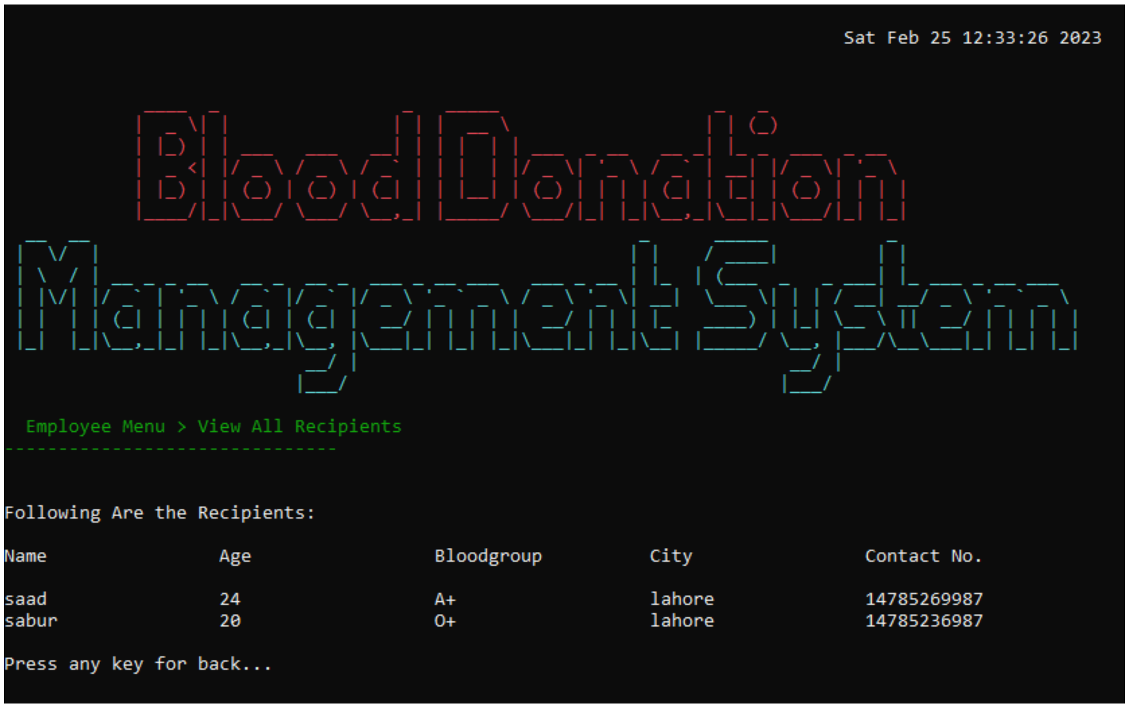
```
                                                  Sat Feb 25 12:24:02 2023

 Admin Menu > Search Donor
-------------------------------

Enter Bloodgroup of the Donor: A+

Name                Age                 Bloodgroup          City                Contact No.         Contributer

Wali                34                  A+                  l                   14785236987         e

Press any key for back...
```

Figure 2.7: View All Donor Screen



```
                                                  Sat Feb 25 12:35:40 2023

 Employee Menu > Update Recipient
-------------------------------

Enter Name of the Recipient: ahmad

Name                Age                 Bloodgroup          City                Contact No.

ahmad               45                  A+                  lahore              14785236945

Enter Name: wali
Enter Age(+18): 23
Enter Bloodgroup: A+
Enter City: lahore
Enter Contact No.(11 numbers): 12345678945

Recipient Updated...

Press any key for back...
```

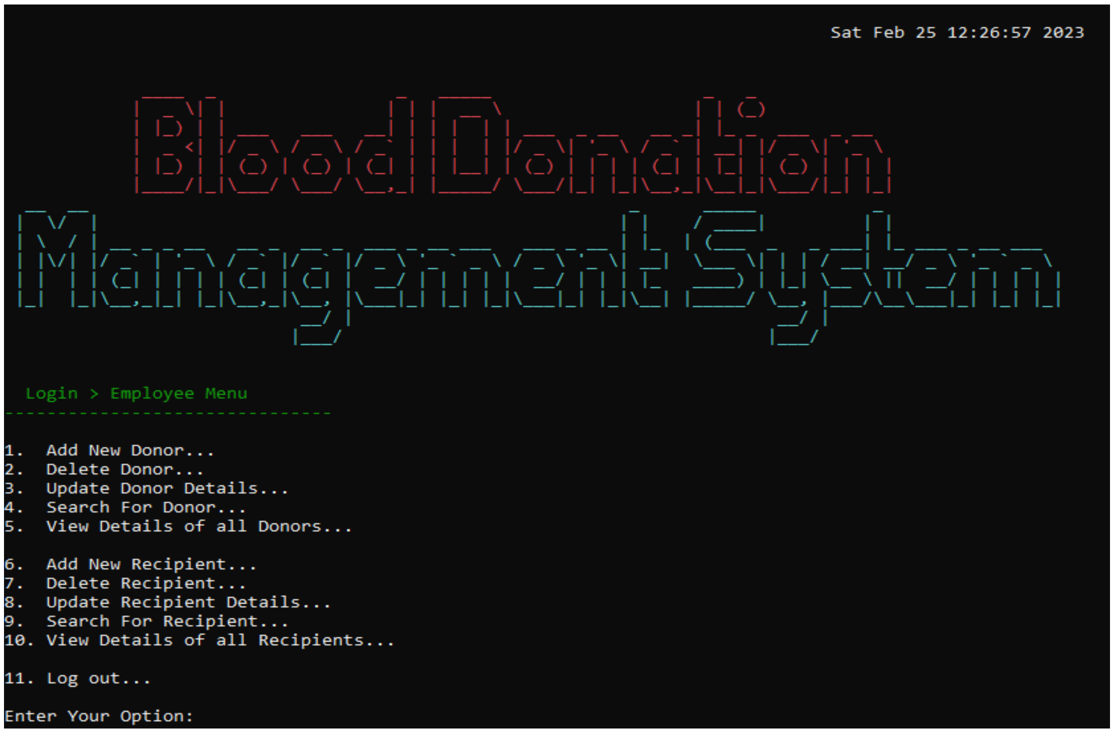
Figure 2.8: Search Recipient Screen



```
                                                      Sat Feb 25 12:33:26 2023

  Employee Menu > View All Recipients
-------------------------------


Following Are the Recipients:

Name                Age                 Bloodgroup          City                Contact No.

saad                24                  A+                  lahore              14785269987
sabur               20                  O+                  lahore              14785236987

Press any key for back...
```

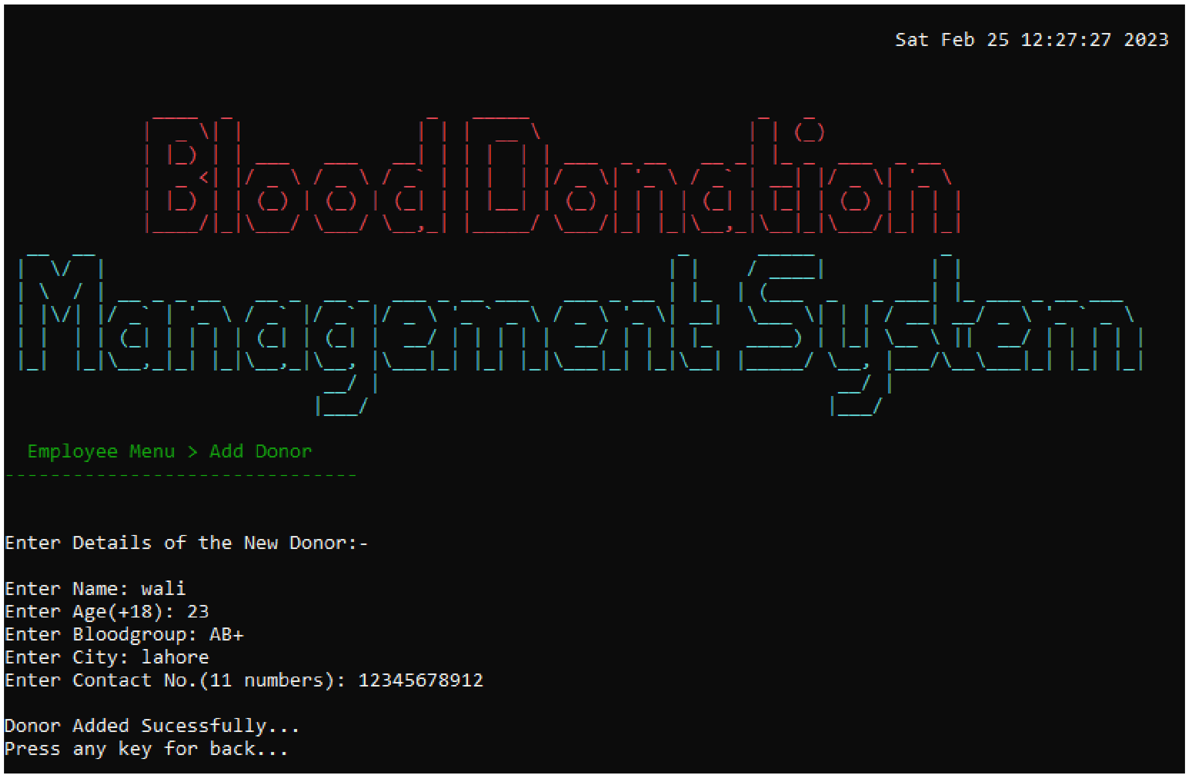
Figure 2.9: View All Recipients Screen

4.3. Employee screen and Option:



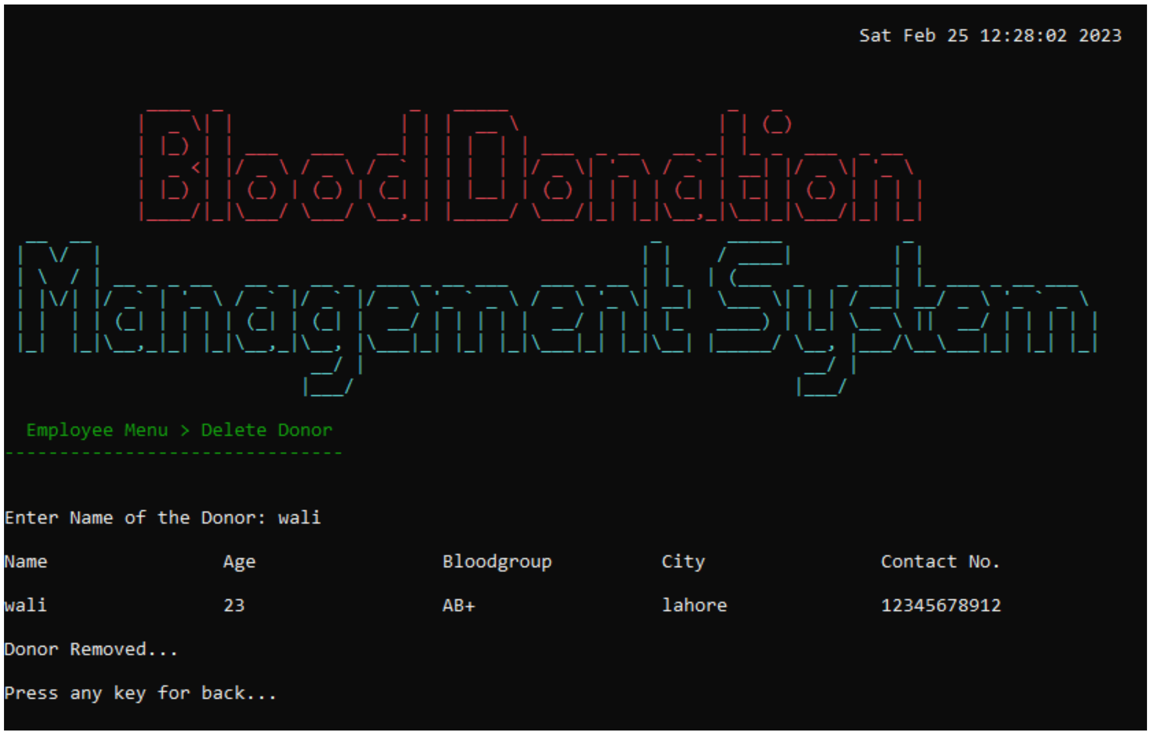
```
                                                      Sat Feb 25 12:26:57 2023

  Login > Employee Menu
-------------------------------

1.  Add New Donor...
2.  Delete Donor...
3.  Update Donor Details...
4.  Search For Donor...
5.  View Details of all Donors...

6.  Add New Recipient...
7.  Delete Recipient...
8.  Update Recipient Details...
9.  Search For Recipient...
10. View Details of all Recipients...

11. Log out...

Enter Your Option:
```

Figure 3: Employee Main Menu Screen



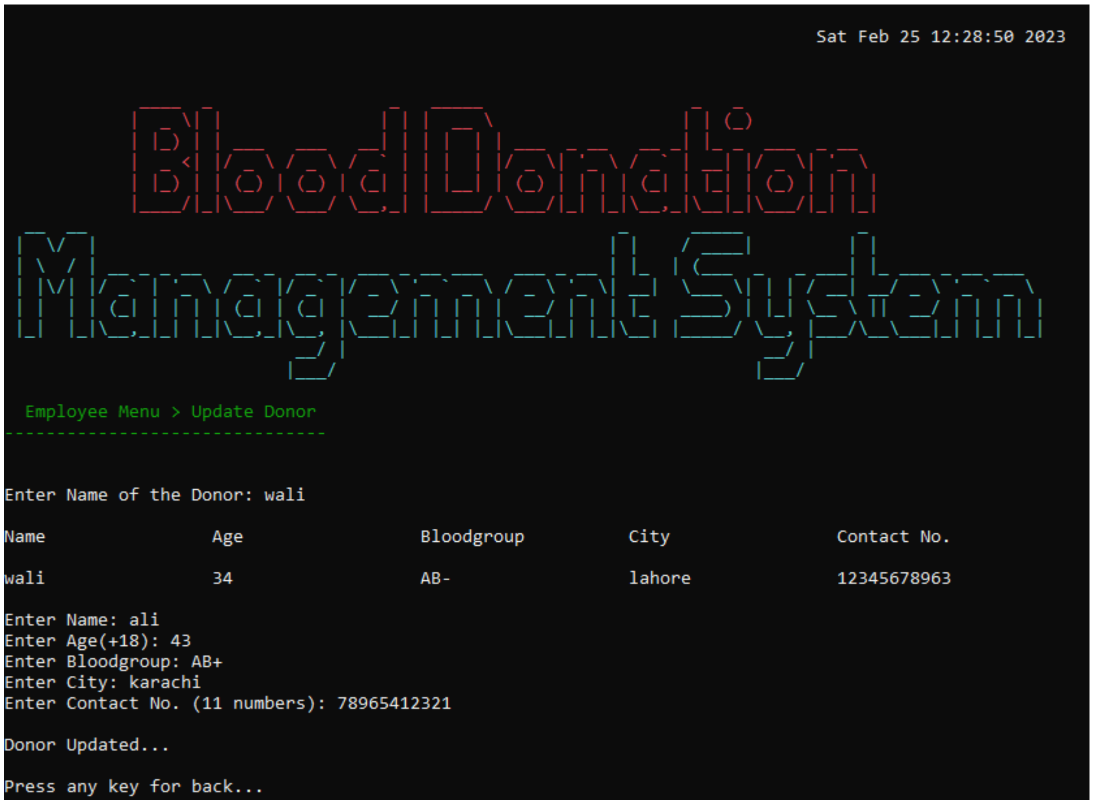
```
                                                        Sat Feb 25 12:27:27 2023

  Employee Menu > Add Donor
-------------------------------


Enter Details of the New Donor:-

Enter Name: wali
Enter Age(+18): 23
Enter Bloodgroup: AB+
Enter City: lahore
Enter Contact No.(11 numbers): 12345678912

Donor Added Sucessfully...
Press any key for back...
```

Figure 3.1: Add Donor Screen



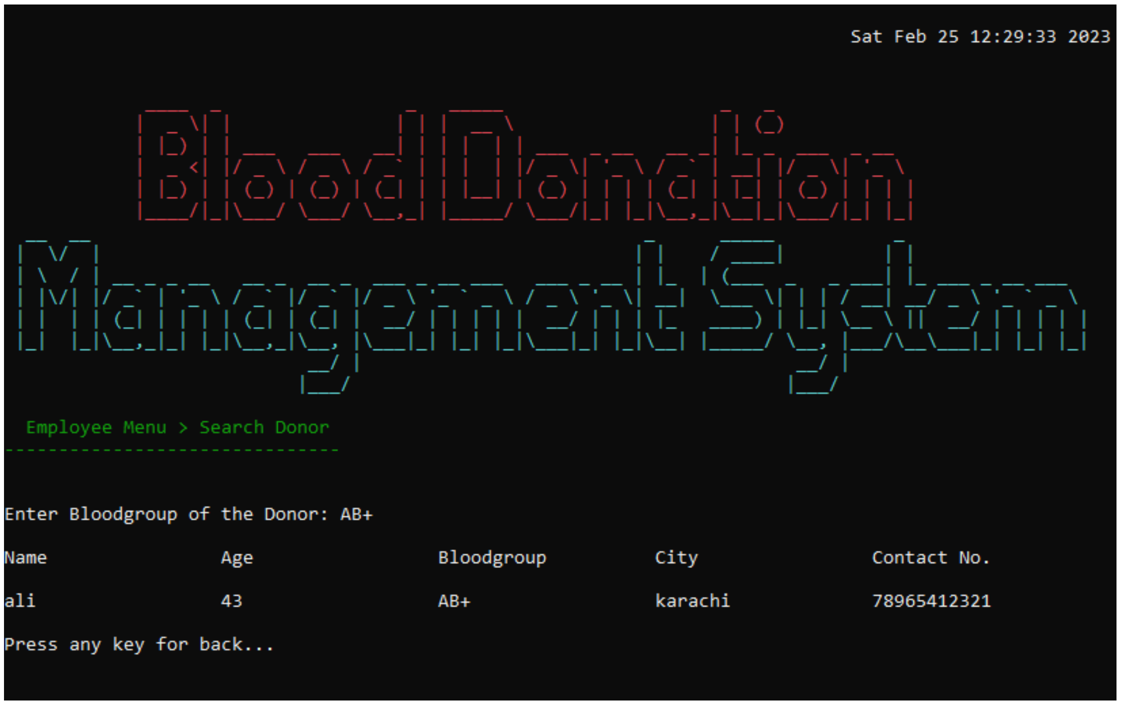
```
                                                        Sat Feb 25 12:28:02 2023

  Employee Menu > Delete Donor
-------------------------------


Enter Name of the Donor: wali

Name                Age                 Bloodgroup          City                Contact No.

wali                23                  AB+                 lahore              12345678912

Donor Removed...

Press any key for back...
```

Figure 3.2: Delete Donor Screen



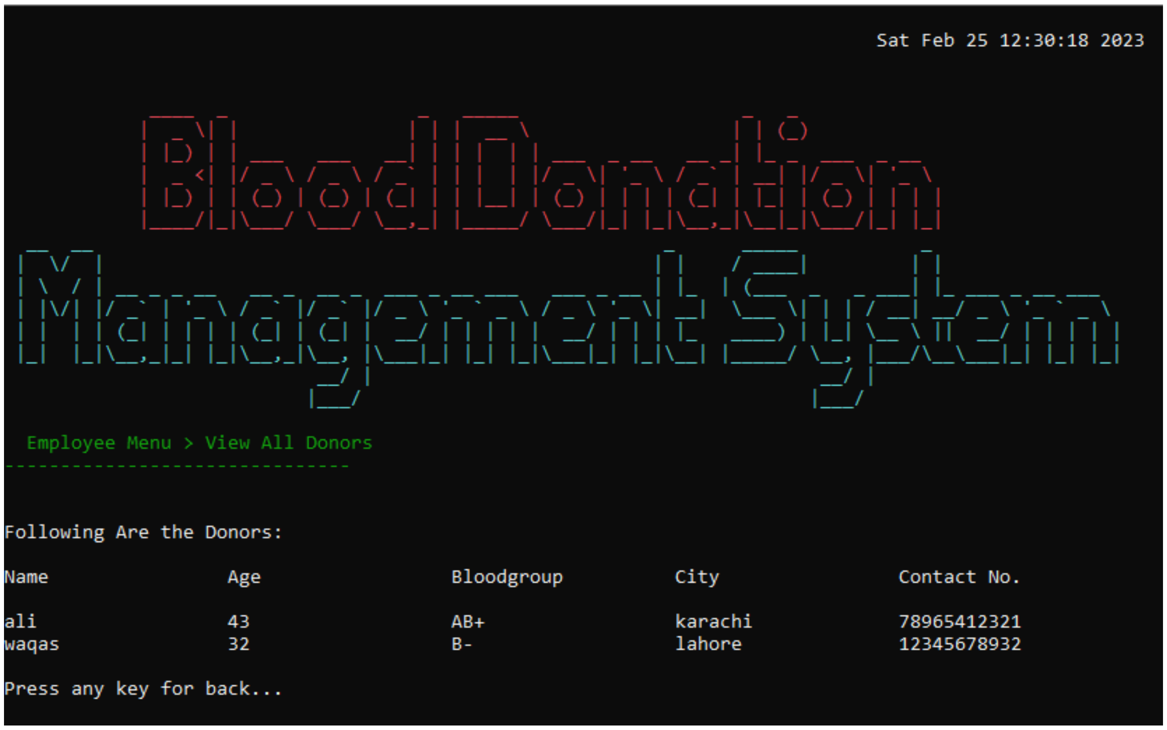
```
                                                               Sat Feb 25 12:28:50 2023

  Employee Menu > Update Donor
-------------------------------

Enter Name of the Donor: wali

Name                Age                 Bloodgroup          City                Contact No.

wali                34                  AB-                 lahore              12345678963

Enter Name: ali
Enter Age(+18): 43
Enter Bloodgroup: AB+
Enter City: karachi
Enter Contact No. (11 numbers): 78965412321

Donor Updated...

Press any key for back...
```

Figure 3.3: Update Donor Screen



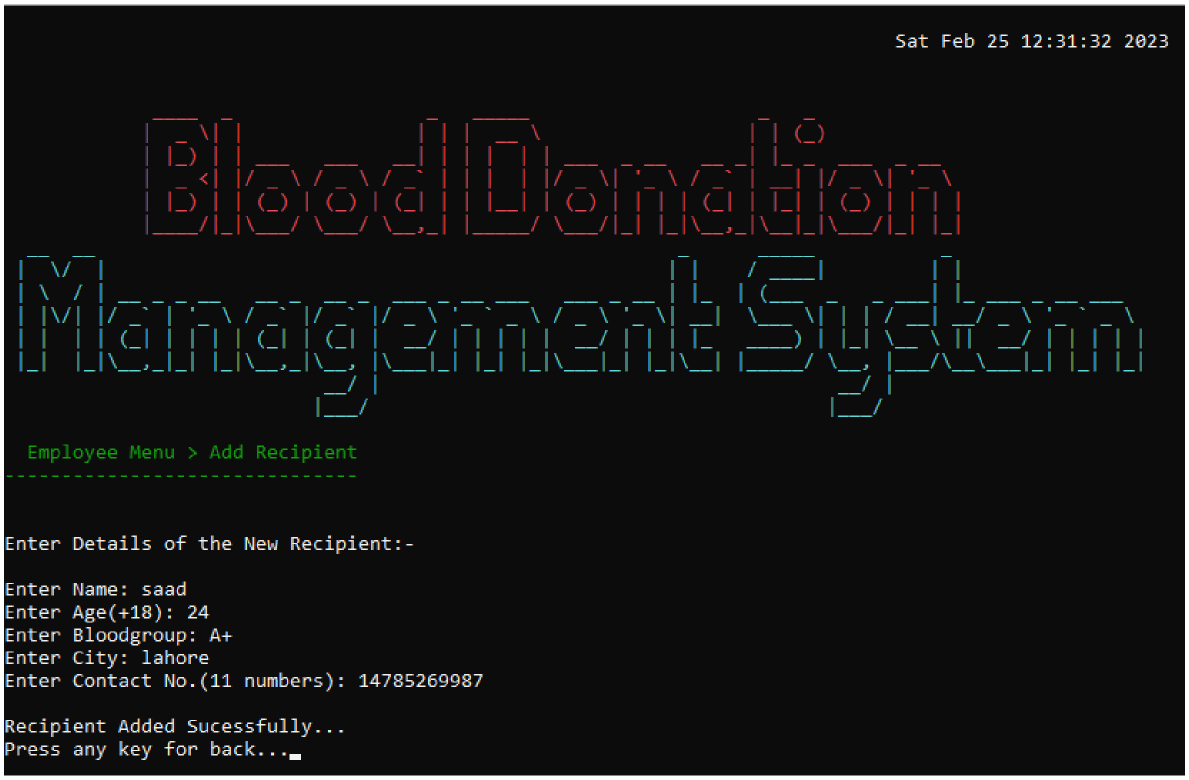
```
                                                               Sat Feb 25 12:29:33 2023

  Employee Menu > Search Donor
-------------------------------

Enter Bloodgroup of the Donor: AB+

Name                Age                 Bloodgroup          City                Contact No.

ali                 43                  AB+                 karachi             78965412321

Press any key for back...
```

Figure 3.4: Search Donor Screen



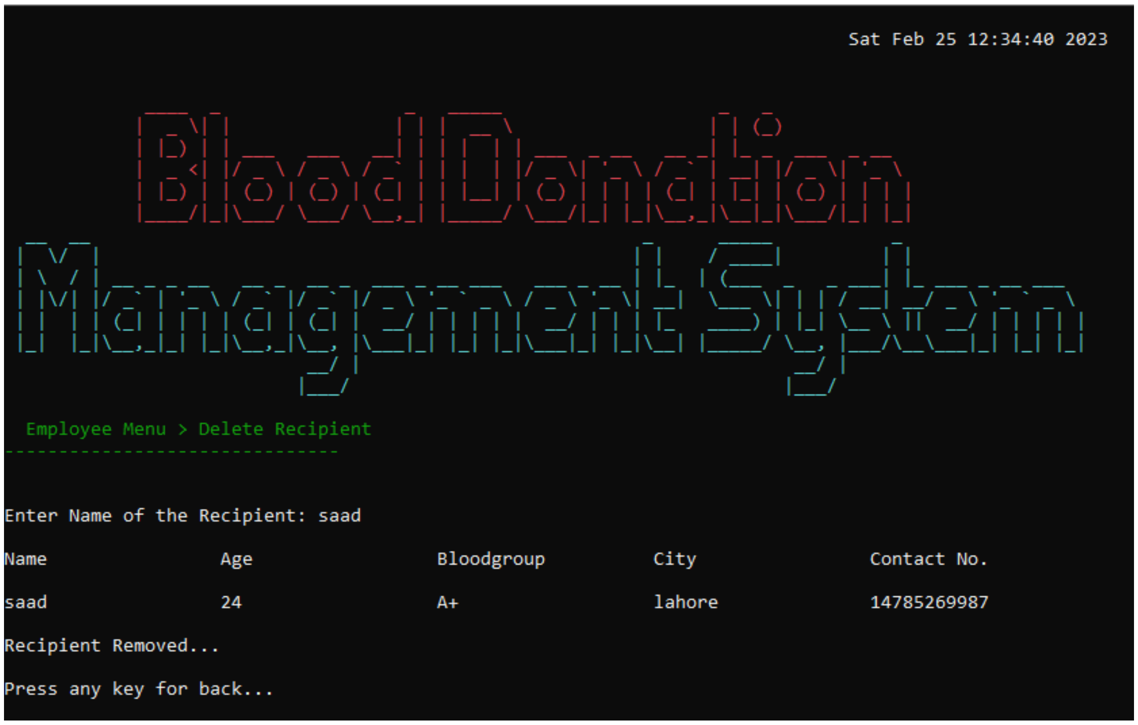
```
                                                        Sat Feb 25 12:30:18 2023

  Employee Menu > View All Donors
-------------------------------

Following Are the Donors:

Name                Age                 Bloodgroup          City                Contact No.

ali                 43                  AB+                 karachi             78965412321
waqas               32                  B-                  lahore              12345678932

Press any key for back...
```

Figure 3.5: View All Donor Screen



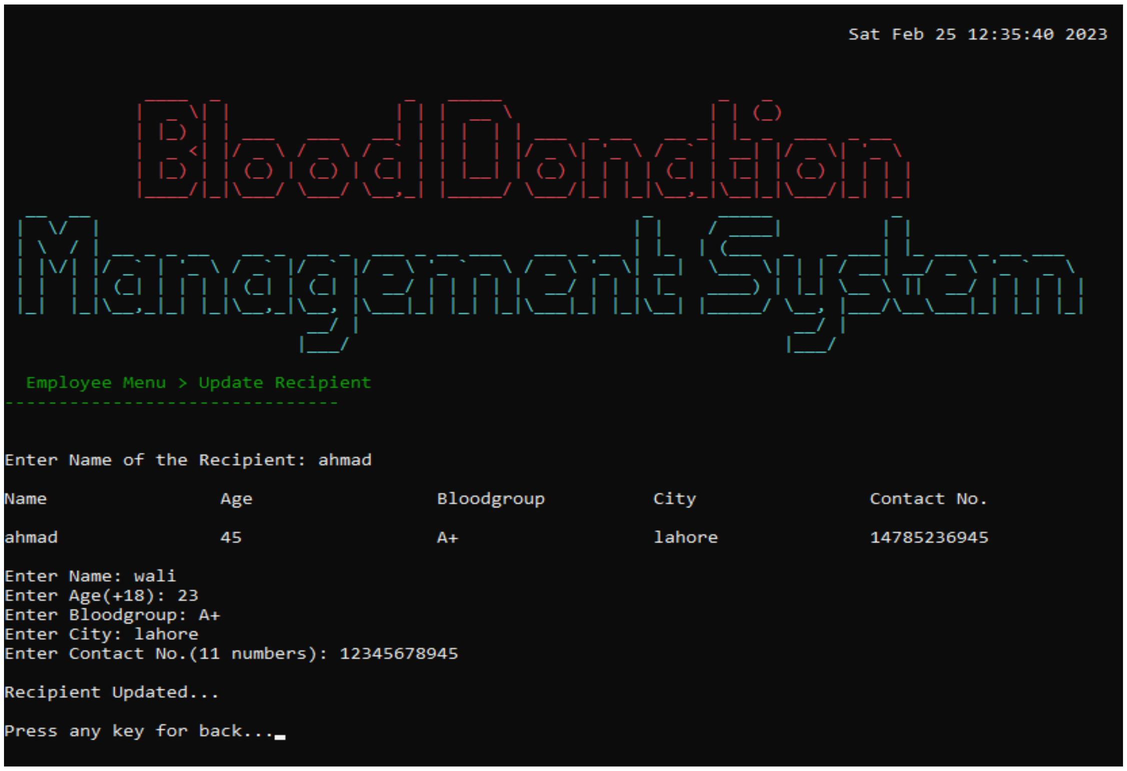
```
                                                          Sat Feb 25 12:31:32 2023

  Employee Menu > Add Recipient
-------------------------------

Enter Details of the New Recipient:-

Enter Name: saad
Enter Age(+18): 24
Enter Bloodgroup: A+
Enter City: lahore
Enter Contact No.(11 numbers): 14785269987

Recipient Added Sucessfully...
Press any key for back...
```

Figure 3.6: Add Recipient Screen



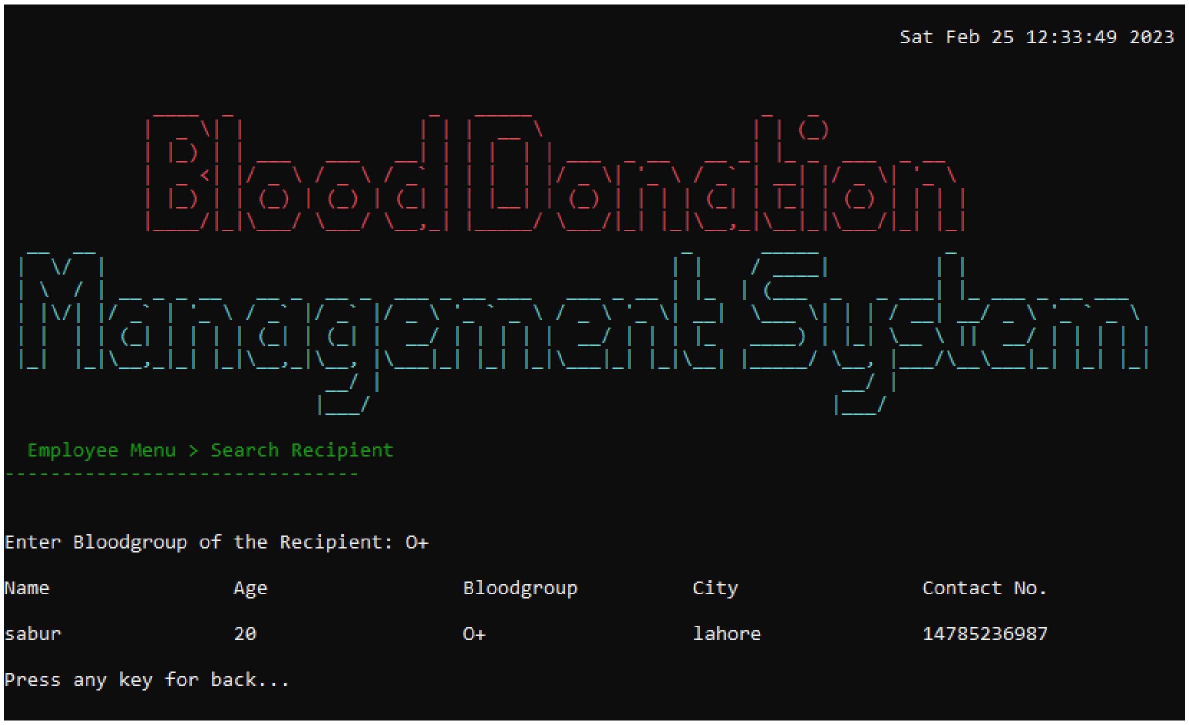
```
                                                    Sat Feb 25 12:34:40 2023

  Employee Menu > Delete Recipient
-------------------------------

Enter Name of the Recipient: saad

Name                Age                 Bloodgroup          City                Contact No.

saad                24                  A+                  lahore              14785269987

Recipient Removed...

Press any key for back...
```

Figure 3.7: Delete Recipient Screen



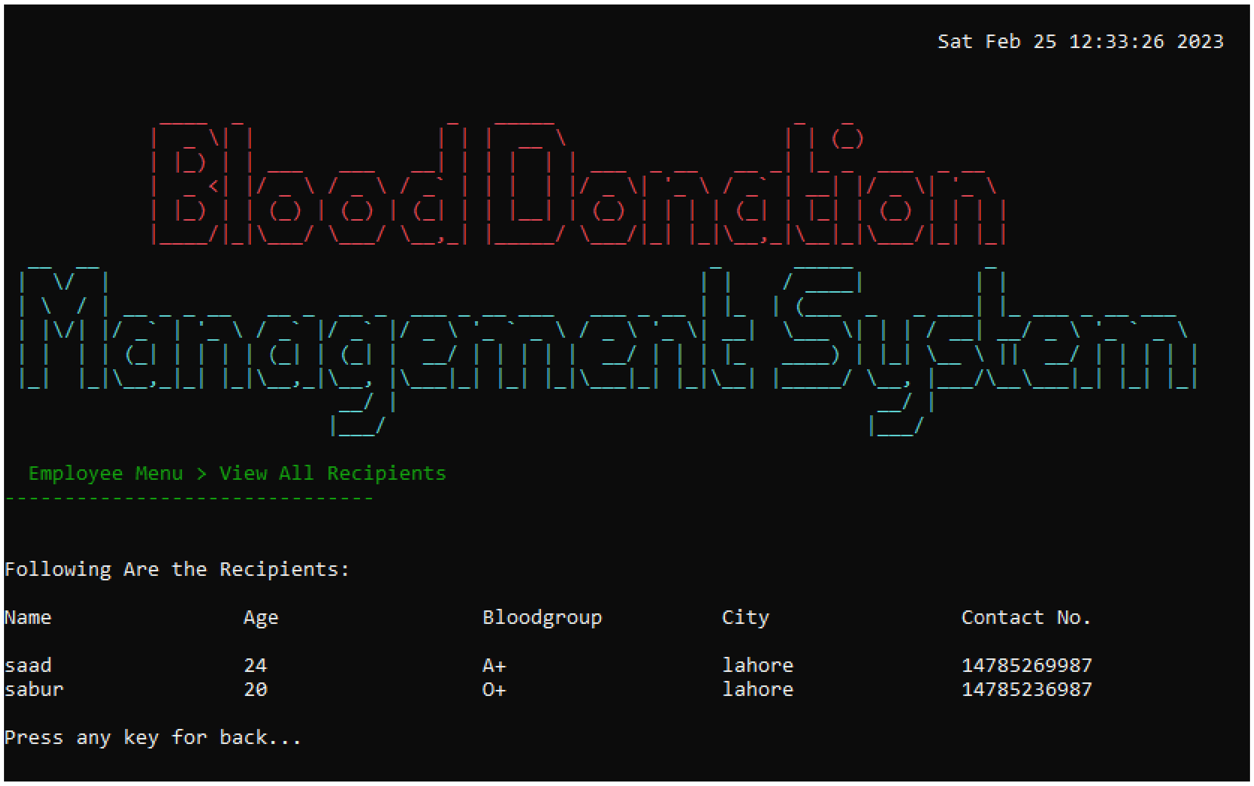
```
                                                    Sat Feb 25 12:35:40 2023

  Employee Menu > Update Recipient
-------------------------------

Enter Name of the Recipient: ahmad

Name                Age                 Bloodgroup          City                Contact No.

ahmad               45                  A+                  lahore              14785236945

Enter Name: wali
Enter Age(+18): 23
Enter Bloodgroup: A+
Enter City: lahore
Enter Contact No.(11 numbers): 12345678945

Recipient Updated...

Press any key for back...
```

Figure 3.8: Update Recipient Screen



```
                                                        Sat Feb 25 12:33:49 2023

  Employee Menu > Search Recipient
-------------------------------


Enter Bloodgroup of the Recipient: O+

Name                Age                 Bloodgroup          City                Contact No.

sabur               20                  O+                  lahore              14785236987

Press any key for back...
```

Figure 3.9: Search Recipient Screen



```
                                                        Sat Feb 25 12:33:26 2023

  Employee Menu > View All Recipients
-------------------------------


Following Are the Recipients:

Name                Age                 Bloodgroup          City                Contact No.

saad                24                  A+                  lahore              14785269987
sabur               20                  O+                  lahore              14785236987

Press any key for back...
```

Figure 3.10: View All Recipients Screen

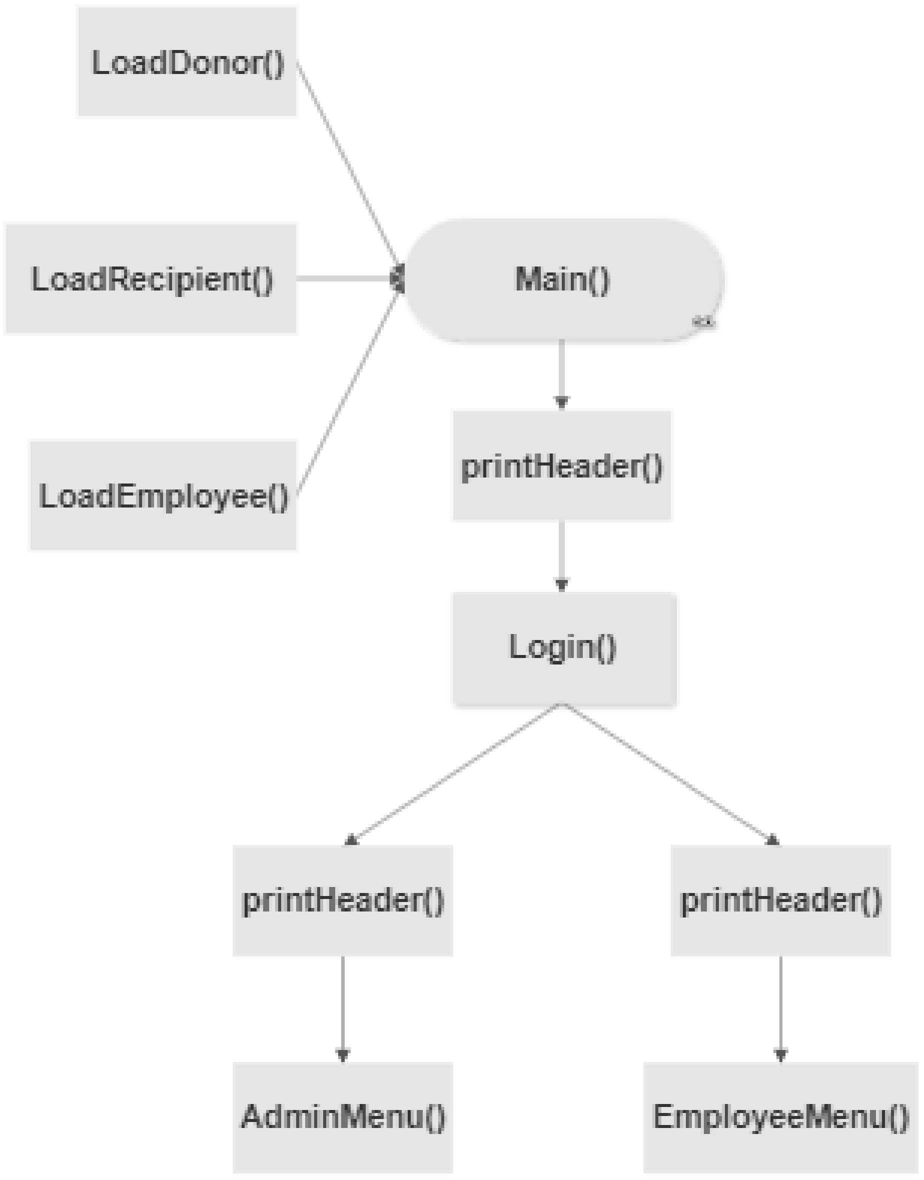
5. Data Structures:

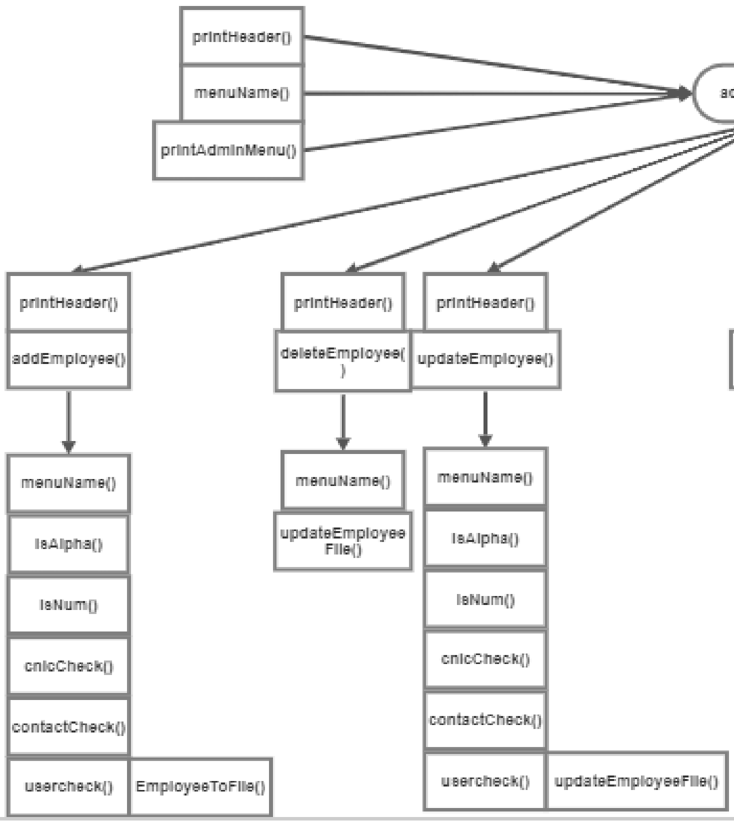
```
// employee data
string nameE[100];
string ageE[100];
string usernameE[100];
string passwordE[100];
string cnicE[100];
string contactE[100];
string contributer;
int indexE = 0; // index for employees arrays

// donor data
string nameD[100];
string ageD[100];
string bloodgroupD[100];
string cityD[100];
string statusD[100];
string contactD[100];
string contributerD[100];
int indexD = 0; // index for donors arrays

// recipient data
string nameR[100];
string ageR[100];
string bloodgroupR[100];
string cityR[100];
string contactR[100];
string contributerR[100];
int indexR = 0; // index for recipients arrays
```

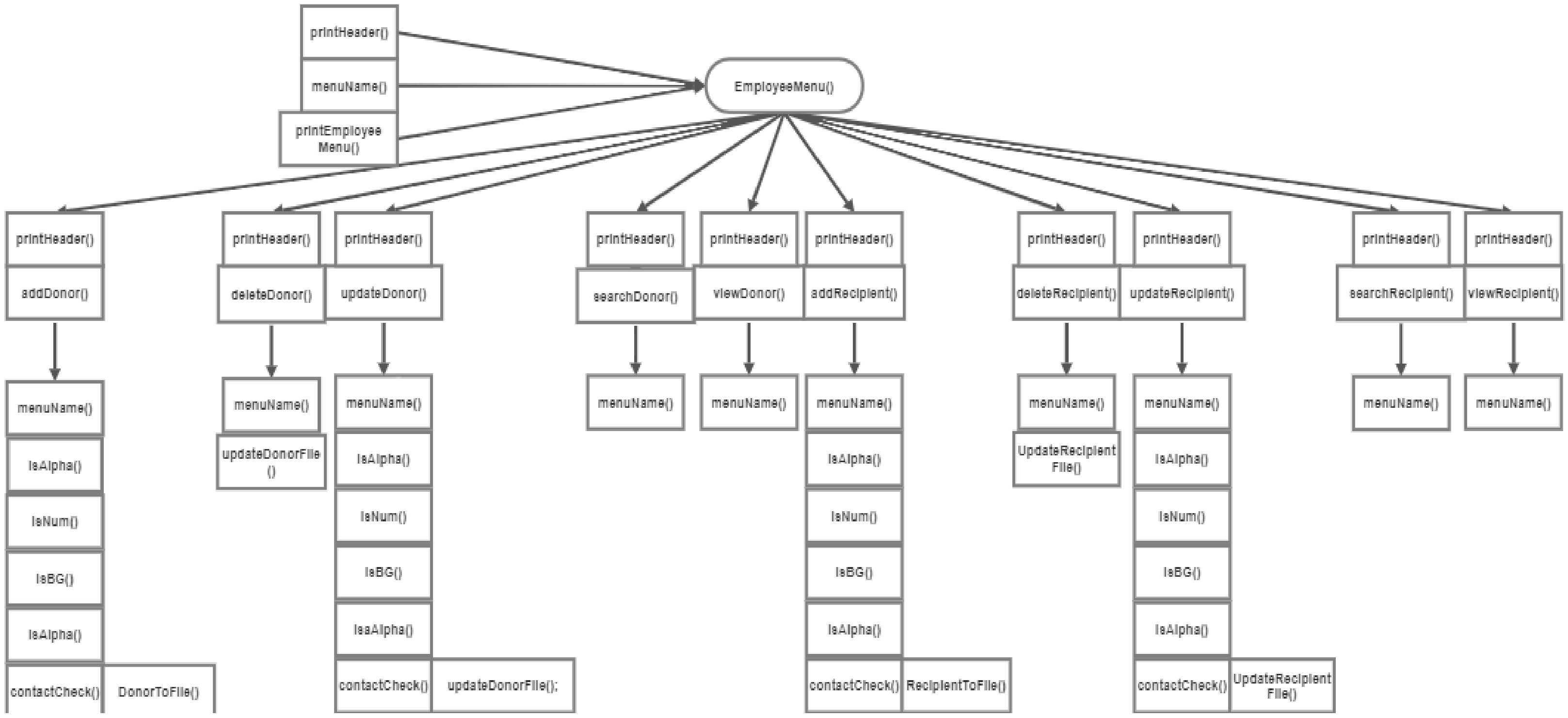
6. Function Prototypes:

```
// prototypes
void printHeader();
int login();
void adminMenu();
void printAMenu();
void employeeMenu();
void printEMenu();
void addDonor(); // Donor Functions
void deleteDonor();
void updateDonor();
void searchDonor();
void viewDonor();
void addRecipient(); // Recipient Functions
void deleteRecipient();
void updateRecipient();
void searchRecipient();
void viewRecipient();
void addEmployee(); // Employee Functions
void deleteEmployee();
void updateEmployee();
void searchEmployee();
void viewEmployee();
void searchDonorbyAdmin(); // Functions for admin
void viewDonorbyAdmin();
void searchRecipientbyAdmin();
void viewRecipientbyAdmin();
void menuName(string menu, string subMenu); // print submenu
string setcolor(unsigned short color); // color set
string isAlpha(string input); // functions for input
string isNum(string input); // functions for input
string isBG(string input); // functions for input
string contactCheck(string contact); // functions for input
string cnicCheck(string cnic); // functions for input
string usercheck(string username); // functions for input
int choiceCheck(int choice); // functions for input

void DonorToFile(string name, string age, string bloodgroup, string
city, string contact, string contributer); // store data to file

void RecipientToFile(string name, string age, string bloodgroup,
string city, string contact, string contributer); // store data to
file

void EmployeeToFile(string name, string age, string cnic, string
contact, string username, string password); // store data to file

void LoadDonor(); // load file to arrays
void LoadRecipient(); // load file to arrays
void LoadEmployee();// load file to arrays
void updateDonorFile(); // update file
void updateEmployeeFile();// update file
void updateRecipientFile(); // update file
string Dataparse(string line, int field);
void gotoxy(int x, int y);
```

7. **Functions Working Flow:**




printHeader()
menuName()
printAdminMenu()
adminMenu()
printHeader()
addEmployee()
menuName()
isAlpha()
isNum()
cnicCheck()
contactCheck()
usercheck()
EmployeeToFile()
printHeader()
deleteEmployee()
menuName()
updateEmployee File()
printHeader()
updateEmployee()
menuName()
isAlpha()
isNum()
cnicCheck()
contactCheck()
usercheck()
updateEmployeeFile()
printHeader()
searchEmployee()
menuName()
printHeader()
viewEmployee()
menuName()
printHeader()
searchDonorby Admin()
menuName()
printHeader()
viewDonorby Admin()
menuName()
printHeader()
searchRecipient byAdmin()
menuName()
printHeader()
viewRecipient byAdmin()
menuName()


printHeader()
menuName()
printEmployee Menu()
EmployeeMenu()
printHeader()
addDonor()
menuName()
isAlpha()
isNum()
isBG()
isAlpha()
contactCheck()
DonorToFile()
printHeader()
deleteDonor()
menuName()
updateDonorFile ()
printHeader()
updateDonor()
menuName()
isAlpha()
isNum()
isBG()
isaAlpha()
contactCheck()
updateDonorFile();
printHeader()
searchDonor()
menuName()
printHeader()
viewDonor()
menuName()
printHeader()
addRecipient()
menuName()
isAlpha()
isNum()
isBG()
isAlpha()
contactCheck()
RecipientToFile()
printHeader()
deleteRecipient()
menuName()
UpdateRecipient File()
printHeader()
updateRecipient()
menuName()
isAlpha()
isNum()
isBG()
isAlpha()
contactCheck()
UpdateRecipient File()
printHeader()
searchRecipient()
menuName()
printHeader()
viewRecipient()
menuName()

8. Complete Code of the Business Application:

```
main()
{
    LoadDonor();
    LoadRecipient();
    LoadEmployee();
    while (true)
    {

        system("cls");
        printHeader();
        int user = login();
        if (user == 1)
        {

            system("cls");
            printHeader();
            adminMenu();
        }

        else if (user == 2)
        {
            system("cls");
            printHeader();
            employeeMenu();
        }

        else if (user == 3)
        {
            cout << endl;
            cout << "Wrong Credentials!! Try again!!";
            Sleep(300);
        }
    }
}

void printHeader()
{
    time_t now = time(0); // date display
    char *date_time = ctime(&now);
    gotoxy(78, 1);
    cout << date_time << endl;
    cout << endl;
    setcolor(12);

   cout << " ____  _                 _   _____                    _   _                        " << endl;
    cout << "|  _ \| |               | | |  __ \                  | | (_)                        " << endl;
    cout << "| |_) | | ___   ___   __| | | |  | | ___  _ __   __ _| |_ _  ___  _ __              " << endl;
    cout << "|  _ <| |/ _ \ / _ \ / _` | | |  | |/ _ \| '_ \ / _` | __| |/ _ \| '_ \             " << endl;
    cout << "| |_) | | (_) | (_) | (_| | | |__| | (_) | | | | (_| | |_| | (_) | | | |            " << endl;
    cout << "|____/|_|\___/ \___/ \__,_| |_____/ \___/|_| |_|\__,_|\__|_|\___/|_| |_|            " << endl;

     setcolor(11);

   cout << "  __  __                                                   _      _____           _                 " << endl;
    cout << " |  \/  |                                                 | |    / ____|         | |                " << endl;
    cout << " | \  / | __ _ _ __   __ _  __ _  ___ _ __ ___   ___ _ __ | |_  | (___  _   _ ___| |_ ___ _ __ ___   " << endl;
    cout << " | |\/| |/ _` | '_ \ / _` |/ _` |/ _ \ '_ ` _ \ / _ \ '_ \| __|  \___ \| | | / __| __/ _ \ '_ ` _ \  " << endl;
    cout << " | |  | | (_| | | | | (_| | (_| |  __/ | | | | |  __/ | | | |_   ____) | |_| \__ \ ||  __/ | | | | | " << endl;
    cout << " |_|  |_|\__,_|_| |_|\__,_|\__, |\___|_| |_| |_|\___|_| |_|\__| |_____/ \__, |___/\__\___|_| |_| |_| " << endl;
    cout << "                            __/ |                                        __/ |                       " << endl;
    cout << "                           |___/                                        |___/                      " << endl;
    setcolor(15);
}

int login()
{
    string username, password;
    int choice;
    cout << endl;
    cout << endl;
    cout << endl;
    cout << "Welcome to Blood Donation Management System";
    cout << endl;
    cout << endl;
    cout << endl;
    cout << "Enter Username: ";
    cin >> username;
    cout << "Enter Password: ";
    cin >> password;
    if (username == "admin" && password == "admin")
    {
        choice = 1;
    }
    else
    {
        for (int i = 0; i < 100; i++)
        {
            if (username == usernameE[i] && password == passwordE[i])
            {
                contributer = username;
                choice = 2;
                break;
            }
            else
            {
                choice = 3;
            }
        }
    }
    return choice;
}

void adminMenu()
{
    int choice = 0;
    while (choice != 10)
    {
        system("cls");
        printHeader();
        cout << endl;
        cout << endl;
        string menu = "Login";
        string subMenu = "Admin Menu";
        menuName(menu, subMenu);
        printAMenu();
        choice = choiceCheck(choice);
        if (choice == 1)
        {
            system("cls");
            printHeader();
            addEmployee();
        }
        if (choice == 2)
        {
            system("cls");
            printHeader();
            deleteEmployee();
        }
        if (choice == 3)
        {
            system("cls");
            printHeader();
            updateEmployee();
        }
        if (choice == 4)
        {
            system("cls");
            printHeader();
            searchEmployee();
        }
        if (choice == 5)
        {
            system("cls");
            printHeader();
            viewEmployee();
        }
        if (choice == 6)
        {
            system("cls");
            printHeader();
            searchDonorbyAdmin();
        }
        if (choice == 7)
        {
            system("cls");
            printHeader();
            viewDonorbyAdmin();
        }
        if (choice == 8)
        {
            system("cls");
            printHeader();
            searchRecipientbyAdmin();
        }
        if (choice == 9)
        {
            system("cls");
            printHeader();
            viewRecipientbyAdmin();
        }
    }
}

void printAMenu()
{
    cout << endl;
    cout << "1.  Add New Employee..." << endl;
    cout << "2.  Delete Employee... " << endl;
    cout << "3.  Update Employee Details... " << endl;
    cout << "4.  Search For Employee... " << endl;
    cout << "5.  View all Employees... " << endl;
    cout << endl;
    cout << "6.  Search For Donor... " << endl;
    cout << "7.  View all Donors... " << endl;
    cout << endl;
    cout << "8.  Search For Recipient... " << endl;
    cout << "9.  View all Recipient... " << endl;
    cout << endl;
    cout << "10. Log out... " << endl;
    cout << endl;
    cout << "Enter Your Option: ";
}

void employeeMenu()
{
    int choice = 0;
    while (choice != 11)
    {
        system("cls");
        printHeader();
        cout << endl;
        cout << endl;
        string menu = "Login";
        string subMenu = "Employee Menu";
        menuName(menu, subMenu);
        printEMenu();
        choice = choiceCheck(choice);
        if (choice == 1)
        {
            system("cls");
            printHeader();
            addDonor();
        }
        if (choice == 2)
        {
            system("cls");
            printHeader();
            deleteDonor();
        }
        if (choice == 3)
        {
            system("cls");
            printHeader();
            updateDonor();
        }
        if (choice == 4)
        {
            system("cls");
            printHeader();
            searchDonor();
        }
        if (choice == 5)
        {
            system("cls");
            printHeader();
            viewDonor();
        }
        if (choice == 6)
        {
            system("cls");
            printHeader();
            addRecipient();
        }
        if (choice == 7)
        {
            system("cls");
            printHeader();
            deleteRecipient();
        }
        if (choice == 8)
        {
            system("cls");
            printHeader();
            updateRecipient();
        }
        if (choice == 9)
        {
            system("cls");
            printHeader();
            searchRecipient();
        }
        if (choice == 10)
        {
            system("cls");
            printHeader();
            viewRecipient();
        }
    }
}
void printEMenu()
{
    cout << endl;
    cout << "1.  Add New Donor..." << endl;
    cout << "2.  Delete Donor... " << endl;
    cout << "3.  Update Donor Details... " << endl;
    cout << "4.  Search For Donor... " << endl;
    cout << "5.  View Details of all Donors... " << endl;
    cout << endl;
    cout << "6.  Add New Recipient..." << endl;
    cout << "7.  Delete Recipient... " << endl;
    cout << "8.  Update Recipient Details... " << endl;
    cout << "9.  Search For Recipient... " << endl;
    cout << "10. View Details of all Recipients... " << endl;
    cout << endl;
    cout << "11. Log out... " << endl;
    cout << endl;
    cout << "Enter Your Option: ";
}

void addDonor()
{

    cout << endl;
    string menu = "Employee Menu";
    string subMenu = "Add Donor ";
    menuName(menu, subMenu);
    cout << endl;
    cout << endl;
    cout << "Enter Details of the New Donor:-" << endl;
    cout << endl;
    cout << "Enter Name: ";
    nameD[indexD] = isAlpha(nameD[indexD]);

    cout << "Enter Age(+18): ";
    ageD[indexD] = isNum(ageD[indexD]);

    cout << "Enter Bloodgroup: ";
    bloodgroupD[indexD] = isBG(bloodgroupD[indexD]);

    cout << "Enter City: ";
    cityD[indexD] = isAlpha(cityD[indexD]);

    cout << "Enter Contact No.(11 numbers): ";
    contactD[indexD] = contactCheck(contactD[indexD]);

    contributerD[indexD] = contributer;
    DonorToFile(nameD[indexD], ageD[indexD], bloodgroupD[indexD],
cityD[indexD], contactD[indexD], contributerD[indexD]);
    indexD++;

    cout << endl;
    cout << "Donor Added Sucessfully...";
    Sleep(300);
    cout << endl;
    cout << "Press any key for back...";
    getch();
}

void deleteDonor()
{

    int index;
    string deleteName;
    cout << endl;
    string menu = "Employee Menu";
    string subMenu = "Delete Donor ";
    menuName(menu, subMenu);
    cout << endl;
    cout << endl;
    cout << "Enter Name of the Donor: ";
    cin.clear();
    cin.sync();
    getline(cin >> ws, deleteName);
    cout << endl;
    bool notFound = true;
    for (int idx = 0; idx < 100; idx++)
    {
        if ((deleteName == nameD[idx]) && (contributer ==
contributerD[idx]))
        {
            index = idx;
            cout << left << setw(20) << "Name" << left << setw(20) <<
"Age" << left << setw(20) << "Bloodgroup" << left << setw(20) <<
"City" << left << setw(20) << "Contact No." << endl;
            cout << endl;
            cout << left << setw(20) << nameD[index] << left <<
setw(20) << ageD[index] << left << setw(20) << bloodgroupD[index] <<
left << setw(20) << cityD[index] << left << setw(20) <<
contactD[index] << endl;
            for (int j = idx; j <= 100 - 1; j++)
            {
                nameD[j] = nameD[j + 1];
                ageD[j] = ageD[j + 1];
                bloodgroupD[j] = bloodgroupD[j + 1];
                cityD[j] = cityD[j + 1];
                contactD[j] = contactD[j + 1];
                contributerD[j] = contributerD[j + 1];
            }
            indexD--;
            updateDonorFile();
            cout << endl;
            cout << "Donor Removed..." << endl;
            notFound = true;
            break;
        }
        else
        {
            notFound = false;
        }
    }
    if (notFound == false)
    {
        setcolor(12);
        cout << endl;
        cout << "Donor Not Found" << endl;
        cout << endl;
        setcolor(15);
        cout << "Press any key for back...";
        getch();
    }
    else
    {
        cout << endl;
        cout << "Press any key for back...";
        getch();
    }
}

void updateDonor()
{
    int index;
    string updateName;
    cout << endl;
    string menu = "Employee Menu";
    string subMenu = "Update Donor ";
    menuName(menu, subMenu);
    cout << endl;
    cout << endl;
    cout << "Enter Name of the Donor: ";
    cin.clear();
    cin.sync();
    getline(cin >> ws, updateName);
    cout << endl;
    bool notFound = true;
    for (int idx = 0; idx < 100; idx++)
    {
        if (updateName == nameD[idx] && (contributer ==
contributerD[idx]))
        {
            index = idx;
            cout << left << setw(20) << "Name" << left << setw(20) <<
"Age" << left << setw(20) << "Bloodgroup" << left << setw(20) <<
"City" << left << setw(20) << "Contact No." << endl;
            cout << endl;
            cout << left << setw(20) << nameD[index] << left <<
setw(20) << ageD[index] << left << setw(20) << bloodgroupD[index] <<
left << setw(20) << cityD[index] << left << setw(20) <<
contactD[index] << endl;
            cout << endl;
            cout << "Enter Name: ";
            nameD[index] = isAlpha(nameD[index]);

            cout << "Enter Age(+18): ";
            ageD[index] = isNum(ageD[index]);

            cout << "Enter Bloodgroup: ";
            bloodgroupD[index] = isBG(bloodgroupD[index]);

            cout << "Enter City: ";
            cityD[index] = isAlpha(cityD[index]);

            cout << "Enter Contact No. (11 numbers): ";
            contactD[index] = contactCheck(contactD[index]);
            contributerD[index] = contributer;
            updateDonorFile();
            cout << endl;
            cout << "Donor Updated..." << endl;
            notFound = true;
            break;
        }
        else
```

```
            {
                notFound = false;
            }
        }
        if (notFound == false)
        {
            setcolor(12);
            cout << "Donor Not Found" << endl;
            cout << endl;
            setcolor(15);
            cout << "Press any key for back...";
            getch();
        }
        else
        {
            cout << endl;
            cout << "Press any key for back...";
            getch();
        }
}

void searchDonor()
{
    int index;
    string searchBG;
    string check;
    cout << endl;
    string menu = "Employee Menu";
    string subMenu = "Search Donor ";
    menuName(menu, subMenu);
    cout << endl;
    cout << endl;
    cout << "Enter Bloodgroup of the Donor: ";
    cin >> searchBG;
    bool notFound = true;
    bool one = false;
    cout << endl;
    cout << left << setw(20) << "Name" << left << setw(20) << "Age"
<< left << setw(20) << "Bloodgroup" << left << setw(20) << "City" <<
left << setw(20) << "Contact No." << endl;
    cout << endl;

    for (int idx = 0; idx < 100; idx++)
    {
        if (searchBG == bloodgroupD[idx] && (contributer ==
contributerD[idx]))
        {
            index = idx;
            cout << left << setw(20) << nameD[index] << left <<
setw(20) << ageD[index] << left << setw(20) << bloodgroupD[index] <<
left << setw(20) << cityD[index] << left << setw(20) <<
contactD[index] << endl;
            notFound = true;
            one = true;
        }
        else if (one == false)
        {
            notFound = false;
        }
    }
    if (notFound == false)
    {
        setcolor(12);
        cout << "Donor Not Found" << endl;
        cout << endl;
        setcolor(15);
        cout << "Press any key for back...";
        getch();
    }
    else
    {
        cout << endl;
        cout << "Press any key for back...";
        getch();
    }
}

void viewDonor()
{
    bool flag = false;
    cout << endl;
    string menu = "Employee Menu";
    string subMenu = "View All Donors ";
    menuName(menu, subMenu);
    cout << endl;
    cout << endl;
    cout << "Following Are the Donors: " << endl;
    cout << endl;
    cout << left << setw(20) << "Name" << left << setw(20) << "Age" 
<< left << setw(20) << "Bloodgroup" << left << setw(20) << "City" << 
left << setw(20) << "Contact No." << endl;
    cout << endl;

    for (int index = 0; index < 100; index++)
    {
        if ((nameD[index] != "") && (contributer == 
contributerD[index]))
        {
            cout << left << setw(20) << nameD[index] << left << 
setw(20) << ageD[index] << left << setw(20) << bloodgroupD[index] << 
left << setw(20) << cityD[index] << left << setw(20) << 
contactD[index] << endl;
            flag = true;
        }
    }

    if (flag == false)
    {
        setcolor(12);
        cout << "Donors not Found" << endl;
        cout << "Add Donors to View Donors" << endl;
        cout << endl;
        setcolor(15);
    }
    cout << endl;
    cout << "Press any key for back...";
    getch();
}

void addRecipient()
{

    cout << endl;
    string menu = "Employee Menu";
    string subMenu = "Add Recipient ";
    menuName(menu, subMenu);

    cout << endl;
    cout << endl;
    cout << "Enter Details of the New Recipient:-" << endl;
    cout << endl;
    cout << "Enter Name: ";
    nameR[indexR] = isAlpha(nameR[indexR]);
    cout << "Enter Age(+18): ";
    ageR[indexR] = isNum(ageR[indexR]);

    cout << "Enter Bloodgroup: ";
    bloodgroupR[indexR] = isBG(bloodgroupR[indexR]);

    cout << "Enter City: ";
    cityR[indexR] = isAlpha(cityR[indexR]);

    cout << "Enter Contact No.(11 numbers): ";
    contactR[indexR] = contactCheck(contactR[indexR]);

    contributerR[indexR] = contributer;
    RecipientToFile(nameR[indexR], ageR[indexR], bloodgroupR[indexR],
cityR[indexR], contactR[indexR], contributerR[indexR]);

    indexR++;
    cout << endl;
    cout << "Recipient Added Sucessfully...";
    Sleep(300);
    cout << endl;
    cout << "Press any key for back...";
    getch();
}

void deleteRecipient()
{
    int index;
    string deleteName;
    cout << endl;
    string menu = "Employee Menu";
    string subMenu = "Delete Recipient ";
    menuName(menu, subMenu);
    cout << endl;
    cout << endl;
    cout << "Enter Name of the Recipient: ";
    cin.clear();
    cin.sync();
    getline(cin >> ws, deleteName);
    cout << endl;
    bool notFound = true;
    for (int idx = 0; idx < 100; idx++)
    {
        if (deleteName == nameR[idx] && (contributer == 
contributerR[idx]))
        {
            index = idx;
            cout << left << setw(20) << "Name" << left << setw(20) << 
"Age" << left << setw(20) << "Bloodgroup" << left << setw(20) << 
"City" << left << setw(20) << "Contact No." << endl;
            cout << endl;
            cout << left << setw(20) << nameR[index] << left << 
setw(20) << ageR[index] << left << setw(20) << bloodgroupR[index] << 
left << setw(20) << cityR[index] << left << setw(20) << 
contactR[index] << endl;
            for (int j = idx; j <= 100 - 1; j++)
            {
                nameR[j] = nameR[j + 1];
                ageR[j] = ageR[j + 1];
                bloodgroupR[j] = bloodgroupR[j + 1];
                cityR[j] = cityR[j + 1];
                contactR[j] = contactR[j + 1];
                contributerR[j] = contributerR[j + 1];
            }
            indexR--;
            updateRecipientFile();
            cout << endl;
            cout << "Recipient Removed..." << endl;
            notFound = true;
            break;
        }
        else
        {
            notFound = false;
        }
    }
    if (notFound == false)
    {
        setcolor(12);
        cout << endl;
        cout << "Recipient Not Found" << endl;
        setcolor(15);
        cout << endl;
        cout << "Press any key for back...";
        getch();
    }
    else
    {
        cout << endl;
        cout << "Press any key for back...";
        getch();
    }
}

void updateRecipient()
{
    int index;
    string updateName;
    cout << endl;
    string menu = "Employee Menu";
    string subMenu = "Update Recipient ";
    menuName(menu, subMenu);
    cout << endl;
    cout << endl;
    cout << "Enter Name of the Recipient: ";
    cin.clear();
    cin.sync();
    getline(cin >> ws, updateName);
    cout << endl;
    bool notFound = true;
    for (int idx = 0; idx < 100; idx++)
    {
        if (updateName == nameR[idx] && (contributer ==
contributerR[idx]))
        {
            index = idx;
            cout << left << setw(20) << "Name" << left << setw(20) <<
"Age" << left << setw(20) << "Bloodgroup" << left << setw(20) <<
"City" << left << setw(20) << "Contact No." << endl;
            cout << endl;
            cout << left << setw(20) << nameR[index] << left <<
setw(20) << ageR[index] << left << setw(20) << bloodgroupR[index] <<
left << setw(20) << cityR[index] << left << setw(20) <<
contactR[index] << endl;
            cout << endl;
            cout << "Enter Name: ";
            nameR[index] = isAlpha(nameR[index]);

            cout << "Enter Age(+18): ";
            ageR[index] = isNum(ageR[index]);

            cout << "Enter Bloodgroup: ";
            bloodgroupR[index] = isBG(bloodgroupR[index]);
            cout << "Enter City: ";
            cityR[index] = isAlpha(cityR[index]);

            cout << "Enter Contact No.(11 numbers): ";
            contactR[index] = contactCheck(contactR[index]);
            contributerR[index] = contributer;
            updateRecipientFile();
            cout << endl;
            cout << "Recipient Updated..." << endl;
            notFound = true;
            break;
        }
        else
        {
            notFound = false;
        }
    }
    if (notFound == false)
    {
        setcolor(12);
        cout << "Recipient Not Found" << endl;
        cout << endl;
        setcolor(15);
        cout << "Press any key for back...";
        getch();
    }
    else
    {
        cout << endl;
        cout << "Press any key for back...";
        getch();
    }
}

void searchRecipient()
{
    int index;
    string searchBG;
    cout << endl;
    string menu = "Employee Menu";
    string subMenu = "Search Recipient ";
    menuName(menu, subMenu);
    cout << endl;
    cout << endl;
    cout << "Enter Bloodgroup of the Recipient: ";
    cin >> searchBG;
    bool notFound = true;
    bool one = false;
    cout << endl;
    cout << left << setw(20) << "Name" << left << setw(20) << "Age"
<< left << setw(20) << "Bloodgroup" << left << setw(20) << "City" <<
left << setw(20) << "Contact No." << endl;
    cout << endl;

    for (int idx = 0; idx < 100; idx++)
    {
        if (searchBG == bloodgroupR[idx] && (contributer ==
contributerR[idx]))
        {
            index = idx;
            cout << left << setw(20) << nameR[index] << left <<
setw(20) << ageR[index] << left << setw(20) << bloodgroupR[index] <<
left << setw(20) << cityR[index] << left << setw(20) <<
contactR[index] << endl;
            notFound = true;
            one = true;
        }
        else if (one == false)
        {
            notFound = false;
        }
    }
    if (notFound == false)
    {
        setcolor(12);
        cout << "Recipient Not Found" << endl;
        cout << endl;
        setcolor(15);
        cout << "Press any key for back...";
        getch();
    }
    else
    {
        cout << endl;
        cout << "Press any key for back...";
        getch();
    }
}
```

```
void viewRecipient()
{
    bool flag = false;
    cout << endl;
    string menu = "Employee Menu";
    string subMenu = "View All Recipients ";
    menuName(menu, subMenu);
    cout << endl;
    cout << endl;
    cout << "Following Are the Recipients: " << endl;
    cout << endl;
    cout << left << setw(20) << "Name" << left << setw(20) << "Age"
<< left << setw(20) << "Bloodgroup" << left << setw(20) << "City" <<
left << setw(20) << "Contact No." << endl;
    cout << endl;
    for (int index = 0; index < 100; index++)
    {
        if ((nameR[index] != "") && (contributer ==
contributerR[index]))
        {
            cout << left << setw(20) << nameR[index] << left <<
setw(20) << ageR[index] << left << setw(20) << bloodgroupR[index] <<
left << setw(20) << cityR[index] << left << setw(20) <<
contactR[index] << endl;
            flag = true;
        }
    }

    if (flag == false)
    {
        setcolor(12);
        cout << "Recipients not Found" << endl;
        cout << "Add Recipients to View Recpients" << endl;
        setcolor(15);
        cout << endl;
    }
    cout << endl;
    cout << "Press any key for back...";
    getch();
}

void addEmployee()
{

    cout << endl;
    string menu = "Admin Menu";
    string subMenu = "Add Employee";
    menuName(menu, subMenu);
    cout << endl;
    cout << endl;
    cout << "Enter Details of the New Employee:-" << endl;
    cout << endl;
    cout << "Enter Name: ";
    nameE[indexE] = isAlpha(nameE[indexE]);

    cout << "Enter Age(+18): ";
    ageE[indexE] = isNum(ageE[indexE]);

    cout << "Enter CNIC(13 numbers): ";
    cnicE[indexE] = cnicCheck(cnicE[indexE]);

    cout << "Enter Contact No(11 numbers): ";
    contactE[indexE] = contactCheck(contactE[indexE]);

    cout << "Enter Username: ";
    usernameE[indexE] = usercheck(usernameE[indexE]);

    cout << "Enter Password: ";
    cin >> passwordE[indexE];

    EmployeeToFile(nameE[indexE], ageE[indexE], cnicE[indexE],
contactE[indexE], usernameE[indexE], passwordE[indexE]);
    indexE++;
    cout << endl;
    cout << "Employee Added Sucessfully...";
    Sleep(300);
    cout << endl;
    cout << "Press any key for back...";
    getch();
}

void deleteEmployee()
{
    int index;
    string deleteName;
    cout << endl;
    string menu = "Admin Menu";
    string subMenu = "Delete Employee";
    menuName(menu, subMenu);
    cout << endl;
    cout << endl;
    cout << "Enter Username of the Employee: ";
    cin >> deleteName;
    cout << endl;
    bool notFound = true;
    for (int idx = 0; idx < 100; idx++)
    {
        if (deleteName == usernameE[idx])
        {
            index = idx;
            cout << left << setw(20) << "Name" << left << setw(20) <<
"Age" << left << setw(20) << "CNIC" << left << setw(20) << "Contact
No." << left << setw(20) << "Username" << left << setw(20) <<
"Password" << endl;
            cout << endl;
            cout << left << setw(20) << nameE[index] << left <<
setw(20) << ageE[index] << left << setw(20) << cnicE[index] << left
<< setw(20) << contactE[index] << left << setw(20) <<
usernameE[index] << left << setw(20) << passwordE[index] << endl;

            for (int j = idx; j <= 100 - 1; j++)
            {
                nameE[j] = nameE[j + 1];
                ageE[j] = ageE[j + 1];
                cnicE[j] = cnicE[j + 1];
                contactE[j] = contactE[j + 1];
                usernameE[j] = usernameE[j + 1];
                passwordE[j] = passwordE[j + 1];
            }
            indexR--;
            updateEmployeeFile();
            cout << endl;
            cout << "Employee Removed..." << endl;
            notFound = true;
            break;
        }
        else
        {
            notFound = false;
        }
    }
    if (notFound == false)
    {
        setcolor(12);
        cout << endl;
        cout << "Employee Not Found" << endl;
        cout << endl;
        setcolor(15);
        cout << "Press any key for back...";
        getch();
    }
    else
    {
        cout << endl;
        cout << "Press any key for back...";
        getch();
    }
}

void updateEmployee()
{
    int index;
    string updateName;
    cout << endl;
    string menu = "Admin Menu";
    string subMenu = "Update Employee";
    menuName(menu, subMenu);
    cout << endl;
    cout << endl;
    cout << "Enter CNIC of the Employee: ";
    cin >> updateName;
    cout << endl;
    bool notFound = true;
    for (int idx = 0; idx < 100; idx++)
    {
        if (updateName == cnicE[idx])
        {
            index = idx;
            cout << left << setw(20) << "Name" << left << setw(20) <<
"Age" << left << setw(20) << "CNIC" << left << setw(20) << "Contact
No." << left << setw(20) << "Username" << left << setw(20) <<
"Password" << endl;
            cout << endl;
            cout << left << setw(20) << nameE[index] << left <<
setw(20) << ageE[index] << left << setw(20) << cnicE[index] << left
<< setw(20) << contactE[index] << left << setw(20) <<
usernameE[index] << left << setw(20) << passwordE[index] << endl;
            cout << endl;
            cout << "Enter Name: ";
            nameE[index] = isAlpha(nameE[index]);
            cout << "Enter Age(+18): ";
            ageE[index] = isNum(ageE[index]);

            cout << "Enter CNIC(13 numbers): ";
            cnicE[index] = cnicCheck(cnicE[index]);

            cout << "Enter Contact No(11 numbers): ";
            contactE[index] = contactCheck(contactE[index]);

            cout << "Enter Username: ";
            usernameE[index] = usercheck(usernameE[index]);

            cout << "Enter Password: ";
            cin >> passwordE[index];

            updateEmployeeFile();
            cout << endl;
            cout << "Employee Updated..." << endl;

            notFound = true;
            break;
        }
        else
        {
            notFound = false;
        }
    }
    if (notFound == false)
    {
        setcolor(12);
        cout << "Employee Not Found" << endl;
        cout << endl;
        setcolor(15);
        cout << "Press any key for back...";
        getch();
    }
    else
    {
        cout << endl;
        cout << "Press any key for back...";
        getch();
    }
}
```

```
void searchEmployee()
{
    int index;
    string searchName;
    cout << endl;
    string menu = "Admin Menu";
    string subMenu = "Search Employee";
    menuName(menu, subMenu);
    cout << endl;
    cout << endl;
    cout << "Enter CNIC of the Employee: ";
    cin >> searchName;
    bool notFound = true;
    bool one = false;
    cout << endl;
    cout << left << setw(20) << "Name" << left << setw(20) << "Age"
<< left << setw(20) << "CNIC" << left << setw(20) << "Contact No." <<
left << setw(20) << "Username" << left << setw(20) << "Password" <<
endl;
    cout << endl;
    for (int idx = 0; idx < 100; idx++)
    {
        if (searchName == cnicE[idx])
        {
            index = idx;
            cout << left << setw(20) << nameE[index] << left <<
setw(20) << ageE[index] << left << setw(20) << cnicE[index] << left
<< setw(20) << contactE[index] << left << setw(20) <<
usernameE[index] << left << setw(20) << passwordE[index] << endl;
            notFound = true;
            one = true;
        }
        else if (one == false)
        {
            notFound = false;
        }
    }
    if (notFound == false)
    {
        setcolor(12);
        cout << "Employee Not Found" << endl;
        cout << endl;
        setcolor(15);
        cout << "Press any key for back...";
        getch();
    }
    else
    {
        cout << endl;
        cout << "Press any key for back...";
        getch();
    }
}

void viewEmployee()
{
    bool flag = false;
    cout << endl;
    string menu = "Admin Menu";
    string subMenu = "View All Employees";
    menuName(menu, subMenu);
    cout << endl;
    cout << endl;
    cout << "Following Are the Employees: " << endl;
    cout << endl;
    cout << left << setw(20) << "Name" << left << setw(20) << "Age"
<< left << setw(20) << "CNIC" << left << setw(20) << "Contact No." <<
left << setw(20) << "Username" << left << setw(20) << "Password" <<
endl;
    cout << endl;
    for (int index = 0; index < 100; index++)
    {
        if (nameE[index] != "")
        {
            cout << left << setw(20) << nameE[index] << left <<
setw(20) << ageE[index] << left << setw(20) << cnicE[index] << left
<< setw(20) << contactE[index] << left << setw(20) <<
usernameE[index] << left << setw(20) << passwordE[index] << endl;
            flag = true;
        }
    }

    if (flag == false)
    {
        setcolor(12);
        cout << "Employees not Found" << endl;
        cout << "Add Employees to View Employees" << endl;
        cout << endl;
        setcolor(15);
    }
    cout << endl;
    cout << "Press any key for back...";
    getch();
}

void searchDonorbyAdmin()
{
    int index;
    string searchName;
    cout << endl;
    string menu = "Admin Menu";
    string subMenu = "Search Donor";
    menuName(menu, subMenu);
    cout << endl;
    cout << endl;
    cout << "Enter Bloodgroup of the Donor: ";
    cin >> searchName;
    bool notFound = true;
    bool one = false;
    cout << endl;
    cout << left << setw(20) << "Name" << left << setw(20) << "Age"
<< left << setw(20) << "Bloodgroup" << left << setw(20) << "City" <<
left << setw(20) << "Contact No." << left << setw(20) <<
"Contributer" << endl;
    cout << endl;
    for (int idx = 0; idx < 100; idx++)
    {
        if (searchName == bloodgroupD[idx])
        {
            index = idx;
            cout << left << setw(20) << nameD[index] << left <<
setw(20) << ageD[index] << left << setw(20) << bloodgroupD[index] <<
left << setw(20) << cityD[index] << left << setw(20) <<
contactD[index] << left << setw(20) << contributerD[index] << endl;
            notFound = true;
            one = true;
        }
        else if (one == false)
        {
            notFound = false;
        }
    }
    if (notFound == false)
    {
        setcolor(12);
        cout << "Donor Not Found" << endl;
        cout << endl;
        setcolor(15);
        cout << "Press any key for back...";
        getch();
    }
    else
    {
        cout << endl;
        cout << "Press any key for back...";
        getch();
    }
}

void viewDonorbyAdmin()
{
    bool flag = false;
    cout << endl;
    string menu = "Admin Menu";
    string subMenu = "View All Donors";
    menuName(menu, subMenu);
    cout << endl;
    cout << endl;
    cout << "Following Are the Donors: " << endl;
    cout << endl;
    cout << left << setw(20) << "Name" << left << setw(20) << "Age"
<< left << setw(20) << "Bloodgroup" << left << setw(20) << "City" <<
left << setw(20) << "Contact No." << left << setw(20) <<
"Contributer" << endl;
    cout << endl;
    for (int index = 0; index < 100; index++)
    {
        if (nameD[index] != "")
        {
            cout << left << setw(20) << nameD[index] << left <<
setw(20) << ageD[index] << left << setw(20) << bloodgroupD[index] <<
left << setw(20) << cityD[index] << left << setw(20) <<
contactD[index] << left << setw(20) << contributerD[index] << endl;
            flag = true;
        }
    }
    if (flag == false)
    {
        setcolor(12);
        cout << "Donors not Found" << endl;
        cout << "Add Donors to View Donors" << endl;
        setcolor(15);
        cout << endl;
    }
    cout << endl;
    cout << "Press any key for back...";
    getch();
}

void searchRecipientbyAdmin()
{

    int index;
    string searchName;
    cout << endl;
    string menu = "Admin Menu";
    string subMenu = "Search Recipient";
    menuName(menu, subMenu);
    cout << endl;
    cout << endl;
    cout << "Enter Bloodgroup of the Recipient: ";
    cin >> searchName;
    bool notFound = true;
    bool one = false;
    cout << endl;
    cout << left << setw(20) << "Name" << left << setw(20) << "Age"
<< left << setw(20) << "Bloodgroup" << left << setw(20) << "City" <<
left << setw(20) << "Contact No." << left << setw(20) <<
"Contributer" << endl;
    cout << endl;

    for (int idx = 0; idx < 100; idx++)
    {
        if (searchName == bloodgroupR[idx])
        {
            index = idx;
            cout << left << setw(20) << nameR[index] << left <<
setw(20) << ageR[index] << left << setw(20) << bloodgroupR[index] <<
left << setw(20) << cityR[index] << left << setw(20) <<
contactR[index] << left << setw(20) << contributerR[index] << endl;
            notFound = true;
            one = true;
        }
        else if (one == false)
        {
            notFound = false;
        }
    }
    if (notFound == false)
    {
        setcolor(12);
        cout << "Recipient Not Found" << endl;
        cout << endl;
        setcolor(15);
        cout << "Press any key for back...";
        getch();
    }
    else
    {
        cout << endl;
        cout << "Press any key for back...";
        getch();
    }
}

void viewRecipientbyAdmin()
{
    bool flag = false;
    cout << endl;
    string menu = "Admin Menu";
    string subMenu = "View All Recipients";
    menuName(menu, subMenu);
    cout << endl;
    cout << endl;
    cout << "Following Are the Recipients: " << endl;
    cout << endl;
    cout << left << setw(20) << "Name" << left << setw(20) << "Age"
<< left << setw(20) << "Bloodgroup" << left << setw(20) << "City" <<
left << setw(20) << "Contact No." << left << setw(20) <<
"Contributer" << endl;
    cout << endl;
    for (int index = 0; index < 100; index++)
    {
        if (nameR[index] != "")
        {
            cout << left << setw(20) << nameR[index] << left <<
setw(20) << ageR[index] << left << setw(20) << bloodgroupR[index] <<
left << setw(20) << cityR[index] << left << setw(20) <<
contactR[index] << left << setw(20) << contributerR[index] << endl;
            flag = true;
        }
    }

    if (flag == false)
    {
        setcolor(12);
        cout << "Recipients not Found" << endl;
        cout << "Add Recipients to View Recipients" << endl;
        setcolor(15);
        cout << endl;
    }
    cout << endl;
    cout << "Press any key for back...";
    getch();
}

void menuName(string menu, string subMenu)
{
    setcolor(02);
    cout << "  " << menu << " > " << subMenu << endl;
    cout << "-------------------------------" << endl;
    setcolor(15);
}

string setcolor(unsigned short color)
{
    HANDLE hcon = GetStdHandle(STD_OUTPUT_HANDLE);
    SetConsoleTextAttribute(hcon, color);
    return "";
}

string isAlpha(string input)
{

    cin.clear();
    cin.sync();
    getline(cin >> ws, input);
    int size;
    int check;
    bool flap;
    while (true)
    {
        size = input.length();
        for (int i = 0; i < size; i++)
        {
            check = int(input[i]);
            if ((check >= 65 && check <= 90) || (check >= 97 && check 
<= 122) || input[i] == ' ')
            {
                flap = true;
            }
            else
            {
                flap = false;
                break;
            }
        }
        if (flap == true)
        {
            return input;
        }
        else
        {
            cin.clear();
            cin.sync();
            cout << "Wrong Charater..." << endl;
            cout << "Enter Again: ";
            getline(cin >> ws, input);
        }
    }
}

string isNum(string input)
{

    cin >> input;
    int x;
    int size;
    int check;
    bool flap;
    while (true)
    {
        size = input.length();
        for (int i = 0; i < size; i++)
        {
            if (input[i] != ' ')
            {
                check = int(input[i]);
                if ((check >= 48 && check <= 57))
                {
                    flap = true;
                }
                else
                {
                    flap = false;
                    break;
                }
            }
        }
        if (flap == true)
        {
            x = stoi(input);
            if (x >= 18 && x <= 60)
            {
                return input;
            }
            else
            {
                cin.clear();
                cin.sync();
                cout << "Wrong Age..." << endl;
                cout << "Enter age: ";
                cin >> input;
            }
        }
        else
        {
            cin.clear();
            cin.sync();
            cout << "Wrong Age..." << endl;
            cout << "Enter age: ";
            cin >> input;
        }
    }
    return 0;
}

string isBG(string input)
{

    cin >> input;
    while (true)
    {
        if (input == "A+" || input == "A-" || input == "B+" || input
== "B-" || input == "AB+" || input == "AB-" || input == "O+" || input
== "O-")
        {
            break;
        }
        else
        {
            cin.clear();
            cin.sync();
            cout << "Wrong Bloodgroup..." << endl;
            cout << "Enter Blood: ";
            cin >> input;
        }
    }

    return input;
}

string contactCheck(string contact)
{
    cin >> contact;
    int size;
    int check;
    bool flap;
    while (true)
    {
        size = contact.length();
        for (int i = 0; i < size; i++)
        {
            if (contact[i] != ' ')
            {
                check = int(contact[i]);
                if ((check >= 48 && check <= 57) && (size == 11))
                {
                    flap = true;
                }
                else
                {
                    flap = false;
                    break;
                }
            }
        }
        if (flap == true)
        {
            return contact;
        }
        else
        {
            cin.clear();
            cin.sync();
            cout << "Wrong Contact info..." << endl;
            cout << "Enter Contact No (11 numbers): ";
            cin >> contact;
        }
    }
}

string cnicCheck(string cnic)
{
    cin >> cnic;
    int size;
    int check;
    bool flap;
    while (true)
    {
        size = cnic.length();
        for (int i = 0; i < size; i++)
        {
            if (cnic[i] != ' ')
            {
                check = int(cnic[i]);
                if ((check >= 48 && check <= 57) && (size == 13))
                {
                    flap = true;
                }
                else
                {
                    flap = false;
                    break;
                }
            }
        }
        if (flap == true)
        {
            return cnic;
        }
        else
        {
            cin.clear();
            cin.sync();
            cout << "Wrong CNIC..." << endl;
            cout << "Enter CNIC (13 numbers): ";
            cin >> cnic;
        }
    }
}

int choiceCheck(int choice)
{

    cin >> choice;
    while (true)
    {
        if (cin.fail())
        {
            cin.clear();
            cin.sync();
            cout << "Wrong Option..." << endl;
            cout << "Enter Option: ";
            cin >> choice;
        }
        if (!cin.fail())
        {
            break;
        }
    }
    return choice;
}
string usercheck(string username)
{
    cin >> username;
    for (int i = 0; i < 100; i++)
    {
        if (username == usernameE[i])
        {
            cin.clear();
            cin.sync();
            cout << "Username Already Present..." << endl;
            cout << "Enter Username: ";
            cin >> username;
        }
        else
        {
            continue;
        }
    }
    return username;
}

void gotoxy(int x, int y)
{
    COORD coordinates;
    coordinates.X = x;
    coordinates.Y = y;
    SetConsoleCursorPosition(GetStdHandle(STD_OUTPUT_HANDLE), 
coordinates);
}

void DonorToFile(string name, string age, string bloodgroup, string 
city, string contact, string contributer)
{
    fstream donorData;
    donorData.open("DonorData.txt", ios::app);
    donorData << name << "," << age << "," << bloodgroup << "," << 
city << "," << contact << "," << contributer << endl;
    donorData.close();
}

void RecipientToFile(string name, string age, string bloodgroup, 
string city, string contact, string contributer)
{
    fstream recipientData;
    recipientData.open("RecipientData.txt", ios::app);
    recipientData << name << "," << age << "," << bloodgroup << "," 
<< city << "," << contact << "," << contributer << endl;
    recipientData.close();
}

void EmployeeToFile(string name, string age, string cnic, string 
contact, string username, string password)
{
    fstream employeeData;
    employeeData.open("EmployeeData.txt", ios::app);
    employeeData << name << "," << age << "," << cnic << "," << 
contact << "," << username << "," << password << endl;
    employeeData.close();
}
```

```
void LoadDonor()
{
    fstream donorData;
    string line = "";
    donorData.open("DonorData.txt", ios::in);
    while (!donorData.eof())
    {
        getline(donorData, line);

        nameD[indexD] = Dataparse(line, 1);

        ageD[indexD] = Dataparse(line, 2);

        bloodgroupD[indexD] = Dataparse(line, 3);

        cityD[indexD] = Dataparse(line, 4);

        contactD[indexD] = Dataparse(line, 5);

        contributerD[indexD] = Dataparse(line, 6);
        indexD++;
    }

    donorData.close();
}

void LoadRecipient()
{
    fstream recipientData;
    string line = "";
    recipientData.open("RecipientData.txt", ios::in);
    while (!recipientData.eof())
    {
        getline(recipientData, line);

        nameR[indexR] = Dataparse(line, 1);

        ageR[indexR] = Dataparse(line, 2);

        bloodgroupR[indexR] = Dataparse(line, 3);

        cityR[indexR] = Dataparse(line, 4);

        contactR[indexR] = Dataparse(line, 5);
        contributerR[indexR] = Dataparse(line, 6);
        indexR++;
    }

    recipientData.close();
}

void LoadEmployee()
{
    fstream employeeData;
    string line = "";
    employeeData.open("EmployeeData.txt", ios::in);
    while (!employeeData.eof())
    {
        getline(employeeData, line);

        nameE[indexE] = Dataparse(line, 1);

        ageE[indexE] = Dataparse(line, 2);

        cnicE[indexE] = Dataparse(line, 3);

        contactE[indexE] = Dataparse(line, 4);

        usernameE[indexE] = Dataparse(line, 5);

        passwordE[indexE] = Dataparse(line, 6);
        indexE++;
    }

    employeeData.close();
}

void updateDonorFile()
{
    fstream donorData;
    donorData.open("DonorData.txt", ios::out);
    for (int i = 0; i < indexD; i++)
    {
        if (nameD[i] != "")
        {
            donorData << nameD[i] << "," << ageD[i] << "," <<
bloodgroupD[i] << "," << cityD[i] << "," << contactD[i] << "," <<
contributerD[i] << endl;
        }
    }
    donorData.close();
}

void updateRecipientFile()
{
    fstream recipientData;
    recipientData.open("RecipientData.txt", ios::out);
    for (int i = 0; i < indexR; i++)
    {
        if (nameR[i] != "")
        {
            recipientData << nameR[i] << "," << ageR[i] << "," <<
bloodgroupR[i] << "," << cityR[i] << "," << contactR[i] << "," <<
contributerR[i] << endl;
        }
    }
    recipientData.close();
}

void updateEmployeeFile()
{
    fstream employeeData;
    employeeData.open("EmployeeData.txt", ios::out);
    for (int i = 0; i < indexE; i++)
    {
        if (nameE[i] != "")
        {
            employeeData << nameE[i] << "," << ageE[i] << "," <<
cnicE[i] << "," << contactE[i] << "," << usernameE[i] << "," <<
passwordE[i] << endl;
        }
    }
    employeeData.close();
}

string Dataparse(string line, int field)
{
    int comma = 1;
    string item = "";
    int length = line.length();
    for (int i = 0; i < length; i++)
    {
        if (line[i] == ',')
        {
            comma++;
        }
        else if (field == comma)
        {
            item = item + line[i];
        }
    }
    return item;
}
```

9. Weakness in the Application:

- The option of stock of different blood group separately which is donated is not available in the application.
- Employee information is not changed by his own.
- The application is less user friendly because user need to type option number to use application.

10. Future Directions:

- If recipient does not get his desire blood group, then an option of requests is enabled and employee get notify which blood group is needed to recipient.
- If employee wanted to change his password and username, he can change it by his own without the permission of admin.
- I also add the option of blood bank where the stock of donated blood is show. This option is only enabled for admin.
- Make it more user friendly by adding more graphics and use mouse pointer for selecting options instead of adding option number.

Student Reg. No.: 2022-CS-65 **Student Name:** Muhammad Wali Ahmad

	A-Extensive Evidence	B-Convincing Evidence	C-Limited Evidence	D-No Evidence
Documentation Formatting **Grade:**	All the documentation meets all the criteria.	Documentation is well formatted but some of the criteria is not fulfilled.	Documentation is required a lot of improvement.	Documentation is not Available
Documentation Formatting Criteria: In **Binder**, **Title** Page, **Header**-Footers, Font **Style**, Font **Size** all are all consistence and according to given **guidelines**. Project **Poster** is professionally design and well presented				
Documentation Contents **Grade:**	Documentation includes all of the criteria.	Documentation meet more than 80% of the criteria given.	Documentation meet more than 50% of the criteria.	When the documentation meet less than 50% of the criteria.
Documentation Contents Criteria: **Title** Page - **Table** of Contents - Project **Abstract** - **Functional** Requirements - **Wire** Frames –**Data Flow** Diagram- **Data** Structure (Arrays)-**Function** Headers and Description -Project **Code.** - **Weakness** in the Project and **Future** Directions. - **Conclusion** and What your **Learn** from the Project and Course and What is your **Future** Planning.				
Project Complexity **Grade:**	Project has at least 2 user's types and each user has at least 5 functionalities.	Project complexity meet 80% criteria given in extensive evidence	Project complexity meet 50% criteria given in extensive evidence	Project complexity meet less than 50% criteria given in extensive evidence
Code Style **Grade:**	All Code style criteria is followed	All code style criteria followed but some improvements required	lot of improvements required in coding style.	**Did not follow** code style,
Code Style Criteria: Consistent code style. Code is well indented. Variable and Function names are well defined. White Spaces are well used. Comments are added.				
Code Documentation Mapping **Grade:**	Code and documentation is synchronized.	Code and documentation does not synchronized at **some** places	Code and documentation does not synchronized at **many** places	Code and documentation **does not** synchronized.
Data Structure (Arrays) **Grade:**	Data structure is sufficient for the project requirements	Data Structure is sufficient but require improvement to meet project requirements.	Data structure is not sufficient and need a lot of improvement	Data Structure is not properly identified and declared.
Modularity **Grade:**	Meet all Modularity criteria	Meet all Modularity criteria but at some places it is missing	Do not sufficiently meet the modularity criteria.	No modularity or very minimum modularity.
Modularity criteria: Functions are defined for each major feature. Functions are independent (identify from parameter list and return types).				
Validations **Grade:**	Validations on all number type inputs are applied	Validations are applied but at some places it is missing.	Validations are missing at lot of places	No Validations are used
File Handling **Grade:**	Separate files for separate data. Data in csv format	File handing require some improvements	File handing require a lot of improvements	Not implemented
Aesthetics of the User Interface **Grade:**	UI is presentable. Proper coloring, Headers and clear screen is done	UI require some improvements	UI require a lot of improvements	Not implemented
Presentation and Demo **Grade:**	Presentation and Demo was 100% working	Presentation and Demo require some improvements	Presentation and Demo require a lot of improvements	Presentation was not ok and Demo was not working
Student Understanding with the Code. **Grade:**	Student has complete understanding how the code is working and knows the concept.	Student has good understand but some place he does not know the concepts	Student has a very little understand and lack the major concepts.	Student does not have any level of understanding of the code.

Checked by:	
Comments:	

Student Reg. No.: 2022-CS-65 **Student Name:** Muhammad Wali Ahmad

	A-Extensive Evidence	**B-Convincing Evidence**	**C-Limited Evidence**	**D-No Evidence**
Documentation Formatting **Grade:**	All the documentation meets all the criteria.	Documentation is well formatted but some of the criteria is not fulfilled.	Documentation is required a lot of improvement.	Documentation is not Available
Documentation Formatting Criteria: In **Binder**, **Title** Page, **Header**-Footers, Font **Style**, Font **Size** all are all consistence and according to given **guidelines**. Project **Poster** is professionally design and well presented				
Documentation Contents **Grade:**	Documentation includes all of the criteria.	Documentation meet more than 80% of the criteria given.	Documentation meet more than 50% of the criteria.	When the documentation meet less than 50% of the criteria.
Documentation Contents Criteria: **Title** Page - **Table** of Contents - Project **Abstract** - **Functional** Requirements - **Wire** Frames –**Data Flow** Diagram- **Data** Structure (Arrays)-**Function** Headers and Description -Project **Code.** - **Weakness** in the Project and **Future** Directions. - **Conclusion** and What your **Learn** from the Project and Course and What is your **Future** Planning.				
Project Complexity **Grade:**	Project has at least 2 user's types and each user has at least 5 functionalities.	Project complexity meet 80% criteria given in extensive evidence	Project complexity meet 50% criteria given in extensive evidence	Project complexity meet less than 50% criteria given in extensive evidence
Code Style **Grade:**	All Code style criteria is followed	All code style criteria followed but some improvements required	lot of improvements required in coding style.	**Did not follow** code style,
Code Style Criteria: Consistent code style. Code is well indented. Variable and Function names are well defined. White Spaces are well used. Comments are added.				
Code Documentation Mapping **Grade:**	Code and documentation is synchronized.	Code and documentation does not synchronized at **some** places	Code and documentation does not synchronized at **many** places	Code and documentation **does not** synchronized.
Data Structure (Arrays) **Grade:**	Data structure is sufficient for the project requirements	Data Structure is sufficient but require improvement to meet project requirements.	Data structure is not sufficient and need a lot of improvement	Data Structure is not properly identified and declared.
Modularity **Grade:**	Meet all Modularity criteria	Meet all Modularity criteria but at some places it is missing	Do not sufficiently meet the modularity criteria.	No modularity or very minimum modularity.
Modularity criteria: Functions are defined for each major feature. Functions are independent (identify from parameter list and return types).				
Validations **Grade:**	Validations on all number type inputs are applied	Validations are applied but at some places it is missing.	Validations are missing at lot of places	No Validations are used
File Handling **Grade:**	Separate files for separate data. Data in csv format	File handing require some improvements	File handing require a lot of improvements	Not implemented
Aesthetics of the User Interface **Grade:**	UI is presentable. Proper coloring, Headers and clear screen is done	UI require some improvements	UI require a lot of improvements	Not implemented
Presentation and Demo **Grade:**	Presentation and Demo was 100% working	Presentation and Demo require some improvements	Presentation and Demo require a lot of improvements	Presentation was not ok and Demo was not working
Student Understanding with the Code. **Grade:**	Student has complete understanding how the code is working and knows the concept.	Student has good understand but some place he does not know the concepts	Student has a very little understand and lack the major concepts.	Student does not have any level of understanding of the code.

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Comments:	