

Problem Definition:

The problem is to develop a Blood Bank Management system that allows users to efficiently manage donor information. The system should support functionalities such as adding new donors, searching donors by name or blood type, updating donor information, deleting donors, and displaying all donor information. The goal is to create a user-friendly interface and a reliable database system to streamline blood bank operations and enhance donor management.

Code for Database Connectivity:

Database Connectivity Code :

```
public class DatabaseConnection {  
    private static final String DB_URL = "jdbc:mysql://localhost:3306/mydatabase";  
    private static final String DB_USER = "username";  
    private static final String DB_PASSWORD = "password";
```

Screenshot :

```
// MySQL database connectivity  
private static final String DB_URL = "jdbc:mysql://localhost:3306/blood_bank";  
private static final String DB_USER = "root";  
private static final String DB_PASSWORD = "VKale@123";
```

Working :

GUI Interface :

Blood Bank Management System

WELCOME TO THE BLOOD BANK

Donor Name:

Blood Type:

Gender: ☒ Male ☐ Female

Age:

Contact:

Initial data in database:

Blood Bank Management System

WELCOME TO THE BLOOD BANK

Donor Name:

Blood Type:

Gender: ☒ Male ☐ Female

Age:

Contact:

Donor Name: JANHAVI
 Blood Type: AB+
 Gender: Female
 Age: 16
 Contact: 45698231760

Donor Name: VAISHNAVI
 Blood Type: O+
 Gender: Female
 Age: 19
 Contact: 4567891230

Donor Name: SIDDHI
 Blood Type: A+
 Gender: Female
 Age: 19
 Contact: 4589632170

Donor Name: ASTHA
 Blood Type: B+
 Gender: Female
 Age: 21
 Contact: 4562317890

Donor Name: ARPITA
 Blood Type: B+
 Gender: Female
 Age: 20
 Contact: 7536984120

Add Donor :

WELCOME TO THE BLOOD BANK

Donor Name:

VAIDEHI

Blood Type:

A+

Gender:

Male

Female

Age:

20

Contact:

1234567890

Add Donor

Clear Field

Search Donor

Search Blood Type

Display Donors

Update Donor

Delete Donor

WELCOME TO THE BLOOD BANK

Donor Name:

Blood Type:

Gender:

Male

Female

Age:

Contact:

Add Donor

Clear Field

Search Donor

Search Blood Type

Display Donors

Update Donor

Delete Donor

Donor Name: VAIDEHI
Blood Type: A+
Gender: Female
Age: 20
Contact: 1234567890

Display Donors :

WELCOME TO THE BLOOD BANK

Donor Name:

Blood Type:

Gender:

☒ Male

☐ Female

Age:

Contact:

Add Donor

Clear Field

Search Donor

Search Blood Type

Display Donors

Update Donor

Delete Donor

Donor Name: JANHAVI

Blood Type: AB+

Gender: Female

Age: 16

Contact: 45698231760

Donor Name: VAISHNAVI

Blood Type: O+

Gender: Female

Age: 19

Contact: 4567891230

Donor Name: SIDDHI

Blood Type: A+

Gender: Female

Age: 19

Contact: 4569632170

Donor Name: ASTHA

Blood Type: B+

Gender: Female

Age: 20

Contact: 1597362480

Donor Name: ARPITA

Blood Type: B+

Gender: Female

Age: 20

Contact: 7536984120

Donor Name: VAIDEHI

Blood Type: A+

Gender: Female

Age: 20

Contact: 1234567890

Search Donor :

WELCOME TO THE BLOOD BANK

Donor Name:

ASTHA

Blood Type:

Gender:

☒ Male

☐ Female

Age:

Contact:

Add Donor

Clear Field

Search Donor

Search Blood Type

Display Donors

Update Donor

Delete Donor

Donor Name: ASTHA

Blood Type: B+

Gender: Female

Age: 20

Contact: 1597362480

Update :

Blood Bank Management System

WELCOME TO THE BLOOD BANK

Donor Name:

ASTHA

Blood Type:

B+

Gender:

Male

Female

Age:

21

Contact:

4562317890

Add Donor

Clear Field

Search Donor

Search Blood Type

Display Donors

Update Donor

Delete Donor

Donor Name: ASTHA

Blood Type: B+

Gender: Female

Age: 20

Contact: 1597362480

Blood Bank Management System

WELCOME TO THE BLOOD BANK

Donor Name:

ASTHA

Blood Type:

Gender:

Male

Female

Age:

Contact:

Add Donor

Clear Field

Search Donor

Search Blood Type

Display Donors

Update Donor

Delete Donor

Donor Name: ASTHA

Blood Type: B+

Gender: Female

Age: 21

Contact: 4562317890

Search Blood Type :

Blood Bank Management System

WELCOME TO THE BLOOD BANK

Donor Name:
Blood Type:
Gender: ☒ Male ☐ Female
Age:
Contact:

Donor Name: SIDDHI

Blood Type: A+

Gender: Female

Age: 19

Contact: 4589632170

Donor Name: VAIDEHI

Blood Type: A+

Gender: Female

Age: 20

Contact: 1234567890

Delete Donor :

WELCOME TO THE BLOOD BANK

Donor Name:

VAIDEHI

Blood Type:

Gender:

Male

Female

Age:

Contact:

Add Donor

Clear Field

Search Donor

Search Blood Type

Display Donors

Update Donor

Delete Donor

Donor Name: JANHAVI
Blood Type: AB+
Gender: Female
Age: 16
Contact: 45698231760

Donor Name: VAISHNAVI
Blood Type: O+
Gender: Female
Age: 19
Contact: 4567891230

Donor Name: SIDDHI
Blood Type: A+
Gender: Female
Age: 19
Contact: 4589632170

Donor Name: ASTHA
Blood Type: B+
Gender: Female
Age: 21
Contact: 4562317890

Donor Name: ARPITA
Blood Type: B+
Gender: Female
Age: 20
Contact: 7536984120

WELCOME TO THE BLOOD BANK

Donor Name:

Blood Type:

Gender:

Male

Female

Age:

Contact:

Add Donor

Clear Field

Search Donor

Search Blood Type

Display Donors

Update Donor

Delete Donor

Donor Name: JANHAVI
Blood Type: AB+
Gender: Female
Age: 16
Contact: 45698231760

Donor Name: VAISHNAVI
Blood Type: O+
Gender: Female
Age: 19
Contact: 4567891230

Donor Name: SIDDHI
Blood Type: A+
Gender: Female
Age: 19
Contact: 4589632170

Donor Name: ASTHA
Blood Type: B+
Gender: Female
Age: 21
Contact: 4562317890

Donor Name: ARPITA
Blood Type: B+
Gender: Female
Age: 20
Contact: 7536984120

Screenshots of frontend and Backend to demonstrate the data is reflected in a backend table:

Initially:

```
mysql> use blood_bank;
Database changed
mysql> select * from donors;
```

donor_id	donor_name	blood_type	gender	age	contact
5	JANHAVI	AB+	Female	16	45698231760
7	VAISHNAVI	O+	Female	19	4567891230
8	SIDDHI	A+	Female	19	4589632170
9	ASTHA	B+	Female	21	4562317890
10	ARPITA	B+	Female	20	7536984120

Blood Bank Management System

WELCOME TO THE BLOOD BANK

Donor Name:

Blood Type:

Gender: ☒ Male ☐ Female

Age:

Contact:

Donor Name: JANHAVI
Blood Type: AB+
Gender: Female
Age: 16
Contact: 45698231760

Donor Name: VAISHNAVI
Blood Type: O+
Gender: Female
Age: 19
Contact: 4567891230

Donor Name: SIDDHI
Blood Type: A+
Gender: Female
Age: 19
Contact: 4589632170

Donor Name: ASTHA
Blood Type: B+
Gender: Female
Age: 21
Contact: 4562317890

Donor Name: ARPITA
Blood Type: B+
Gender: Female
Age: 20
Contact: 7536984120

Add:

WELCOME TO THE BLOOD BANK

Donor Name:

Blood Type:

Gender: ☐ Male ☒ Female

Age:

Contact:

Add Donor

Clear Field

Search Donor

Search Blood Type

Display Donors

Update Doner

Delete Donor

Donor Name: JANHAVI
Blood Type: AB+
Gender: Female
Age: 16
Contact: 45698231760

Donor Name: VAISHNAVI
Blood Type: O+
Gender: Female
Age: 19
Contact: 4567891230

Donor Name: SIDDHI
Blood Type: A+
Gender: Female
Age: 19
Contact: 4589632170

Donor Name: ASTHA
Blood Type: B+
Gender: Female
Age: 21
Contact: 4562317890

Donor Name: ARPITA
Blood Type: B+
Gender: Female
Age: 20
Contact: 7536984120

WELCOME TO THE BLOOD BANK

Donor Name:

Blood Type:

Gender: ☒ Male ☐ Female

Age:

Contact:

Add Donor

Clear Field

Search Donor

Search Blood Type

Display Donors

Update Doner

Delete Donor

Donor Name: JANHAVI
Blood Type: AB+
Gender: Female
Age: 16
Contact: 45698231760

Donor Name: VAISHNAVI
Blood Type: O+
Gender: Female
Age: 19
Contact: 4567891230

Donor Name: SIDDHI
Blood Type: A+
Gender: Female
Age: 19
Contact: 4589632170

Donor Name: ASTHA
Blood Type: B+
Gender: Female
Age: 21
Contact: 4562317890

Donor Name: ARPITA
Blood Type: B+
Gender: Female
Age: 20
Contact: 7536984120

Donor Name: VAIDEHI
Blood Type: A+
Gender: Female
Age: 20
Contact: 1234567890

```
mysql> select * from donors;
```

donor_id	donor_name	blood_type	gender	age	contact
5	JANHAVI	AB+	Female	16	45698231760
7	VAISHNAVI	O+	Female	19	4567891230
8	SIDDHI	A+	Female	19	4589632170
9	ASTHA	B+	Female	21	4562317890
10	ARPITA	B+	Female	20	7536984120
14	VAIDEHI	A+	Female	20	1234567890

Update :

WELCOME TO THE BLOOD BANK

Donor Name:

Blood Type: Gender: ☐ Male ☒ Female

Age:

Contact:

Add Donor

Clear Field

Search Donor

Search Blood Type

Display Donors

Update Donor

Delete Donor

Donor Name: JANHAVI
Blood Type: B+
Gender: Female
Age: 16
Contact: 4568293170

Donor Name: VAISHNAVI
Blood Type: O+
Gender: Female
Age: 19
Contact: 4567891230

Donor Name: SIDDHI
Blood Type: A+
Gender: Female
Age: 19
Contact: 4589632170

Donor Name: ASTHA
Blood Type: B+
Gender: Female
Age: 21
Contact: 4562317890

Donor Name: ARPITA
Blood Type: B+
Gender: Female
Age: 20
Contact: 7536984120

Donor Name: VAIDEHI
Blood Type: A+
Gender: Female
Age: 20
Contact: 1234567890

WELCOME TO THE BLOOD BANK

Donor Name:

Blood Type: Gender: ☒ Male ☐ Female

Age:

Contact:

Add Donor

Clear Field

Search Donor

Search Blood Type

Display Donors

Update Donor

Delete Donor

Donor Name: JANHAVI
Blood Type: B+
Gender: Female
Age: 16
Contact: 4568293170

Donor Name: VAISHNAVI
Blood Type: O+
Gender: Female
Age: 19
Contact: 4567891230

Donor Name: SIDDHI
Blood Type: A+
Gender: Female
Age: 19
Contact: 4589632170

Donor Name: ASTHA
Blood Type: B+
Gender: Female
Age: 21
Contact: 4562317890


Donor Name: ARPITA
Blood Type: B+
Gender: Female
Age: 20
Contact: 7536984120

Donor Name: VAIDEHI
Blood Type: A+
Gender: Female
Age: 20
Contact: 1234567890

```
mysql> select * from donors;
```

donor_id	donor_name	blood_type	gender	age	contact
5	JANHAVI	B+	Female	16	4568293170
7	VAISHNAVI	O+	Female	19	4567891230
8	SIDDHI	A+	Female	19	4589632170
9	ASTHA	B+	Female	21	4562317890
10	ARPITA	B+	Female	20	7536984120
14	VAIDEHI	A+	Female	20	1234567890

Delete :


Blood Bank Management System

WELCOME TO THE BLOOD BANK

Donor Name:

Blood Type:

Gender:
 ☒ Male
 ☐ Female

Age:

Contact:

Add Donor

Clear Field

Search Donor

Search Blood Type

Display Donors

Update Donor

Delete Donor

Donor Name: JANNAVI
 Blood Type: B+
 Gender: Female
 Age: 16
 Contact: 4568293170


Donor Name: VANSHRAVI
 Blood Type: O+
 Gender: Female
 Age: 19
 Contact: 4567891230

Donor Name: SIDDIHI
 Blood Type: A+
 Gender: Female
 Age: 19
 Contact: 4589632170

Donor Name: ASTHA
 Blood Type: B+
 Gender: Female
 Age: 21
 Contact: 4562317890

Donor Name: ARPITA
 Blood Type: B+
 Gender: Female
 Age: 20
 Contact: 7536984120

Donor Name: VAIDEHI
 Blood Type: A+
 Gender: Female
 Age: 20
 Contact: 1234567890


Blood Bank Management System

WELCOME TO THE BLOOD BANK

Donor Name:

Blood Type:

Gender:

☒ Male
☐ Female

Age:

Contact:

Add Donor

Clear Field

Search Donor

Search Blood Type

Display Donors

Update Donor

Delete Donor

Donor Name: JANHAVI

Blood Type: B+

Gender: Female

Age: 16

Contact: 4568293170

Donor Name: VASHNAVI

Blood Type: O+

Gender: Female

Age: 19

Contact: 4567891230

Donor Name: ASTHA

Blood Type: B+

Gender: Female

Age: 21

Contact: 4562317890

Donor Name: ARPITA

Blood Type: B+

Gender: Female

Age: 20

Contact: 7536984120

Donor Name: VAIDEHI

Blood Type: A+

Gender: Female

Age: 20

Contact: 1234567890

```
mysql> select * from donors;
```

donor_id	donor_name	blood_type	gender	age	contact
5	JANHAVI	B+	Female	16	4568293170
7	VAISHNAVI	O+	Female	19	4567891230
9	ASTHA	B+	Female	21	4562317890
10	ARPITA	B+	Female	20	7536984120
14	VAIDEHI	A+	Female	20	1234567890

Screenshots of frontend and Backend to demonstrate the data is displayed on frontend Application:

Initially :

```
mysql> select * from donors;
```

donor_id	donor_name	blood_type	gender	age	contact
5	JANHAVI	B+	Female	16	4568293170
7	VAISHNAVI	O+	Female	19	4567891230
9	ASTHA	B+	Female	21	4562317890
10	ARPITA	B+	Female	20	7536984120
14	VAIDEHI	A+	Female	20	1234567890

WELCOME TO THE BLOOD BANK

Donor Name:

Blood Type:

Gender:

☒ Male

☐ Female

Age:

Contact:

Add Donor

Clear Field

Search Donor

Search Blood Type

Display Donors

Update Donor

Delete Donor

Donor Name: JANHAVI
Blood Type: B+
Gender: Female
Age: 16
Contact: 4568293170

Donor Name: VAISHNAVI
Blood Type: O+
Gender: Female
Age: 19
Contact: 4567891230

Donor Name: ASTHA
Blood Type: B+
Gender: Female
Age: 21
Contact: 4562317890

Donor Name: ARPITA
Blood Type: B+
Gender: Female
Age: 20
Contact: 7536984120

Donor Name: VAIDEHI
Blood Type: A+
Gender: Female
Age: 20
Contact: 1234567890

Insert :

```
mysql> INSERT into donors(donor_id,donor_name,blood_type,gender,age,contact)
-> values(15,"ISHA","O+","Female",19,4568973210);
Query OK, 1 row affected (0.00 sec)
```

```
mysql> select * from donors;
```

donor_id	donor_name	blood_type	gender	age	contact
5	JANHAVI	B+	Female	16	4568293170
7	VAISHNAVI	O+	Female	19	4567891230
9	ASTHA	B+	Female	21	4562317890
10	ARPITA	B+	Female	20	7536984120
14	VAIDEHI	A+	Female	20	1234567890
15	ISHA	O+	Female	19	4568973210

WELCOME TO THE BLOOD BANK

Donor Name:

Blood Type:

Gender:

☒ Male ☐ Female

Age:

Contact:

Add Donor

Clear Field

Search Donor

Search Blood Type

Display Donors

Update Donor

Delete Donor

Donor Name: JANHAVI
Blood Type: B+
Gender: Female
Age: 16
Contact: 4568293170

Donor Name: VAISHNAVI
Blood Type: O+
Gender: Female
Age: 19
Contact: 4567891230

Donor Name: ASTHA
Blood Type: B+
Gender: Female
Age: 21
Contact: 4562317890

Donor Name: ARPITA
Blood Type: B+
Gender: Female
Age: 20
Contact: 7536984120

Donor Name: VAIDEHI
Blood Type: A+
Gender: Female
Age: 20
Contact: 1234567890

Donor Name: ISHA
Blood Type: O+
Gender: Female
Age: 19
Contact: 4568973210

Update:

```
mysql> UPDATE donors
      -> SET age="17",blood_type="A+"
      -> WHERE donor_name ="JANHAVI";
Query OK, 1 row affected (0.01 sec)
Rows matched: 1  Changed: 1  Warnings: 0
```

```
mysql> select * from donors;
```

donor_id	donor_name	blood_type	gender	age	contact
5	JANHAVI	A+	Female	17	4568293170
7	VAISHNAVI	O+	Female	19	4567891230
9	ASTHA	B+	Female	21	4562317890
10	ARPITA	B+	Female	20	7536984120
14	VAIDEHI	A+	Female	20	1234567890
15	ISHA	O+	Female	19	4568973210

Blood Bank Management System

WELCOME TO THE BLOOD BANK

Donor Name:

JANHAVI

Blood Type:

Gender:

☒ Male

☐ Female

Age:

Contact:

Add Donor

Clear Field

Search Donor

Search Blood Type

Display Donors

Update Donor

Delete Donor

Donor Name: JANHAVI
Blood Type: A+
Gender: Female
Age: 17
Contact: 4568293170

Delete:

```
mysql> DELETE FROM donors
      -> WHERE donor_name="ISHA";
Query OK, 1 row affected (0.01 sec)
```

```
mysql> select * from donors;
```

donor_id	donor_name	blood_type	gender	age	contact
5	JANHAVI	A+	Female	17	4568293170
7	VAISHNAVI	O+	Female	19	4567891230
9	ASTHA	B+	Female	21	4562317890
10	ARPITA	B+	Female	20	7536984120
14	VAIDEHI	A+	Female	20	1234567890

WELCOME TO THE BLOOD BANK

Donor Name:

Blood Type:

Gender: ☒ Male ☐ Female

Age:

Contact:

Add Donor

Clear Field

Search Donor

Search Blood Type

Display Donors

Update Donor

Delete Donor

Donor Name: JANHAVI
Blood Type: A+
Gender: Female
Age: 17
Contact: 4568293170

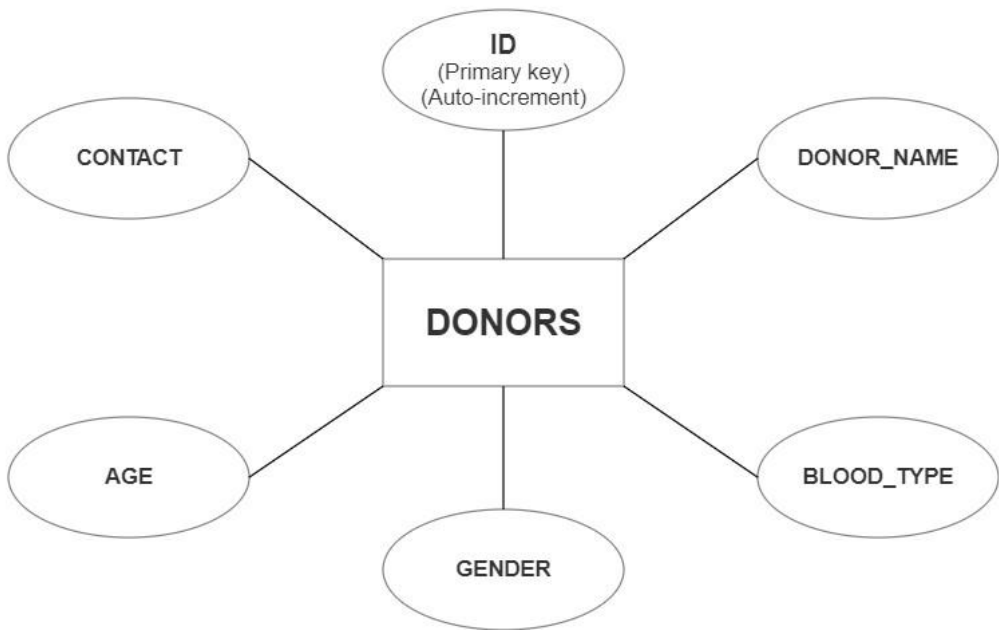
Donor Name: VAISHNAVI
Blood Type: O+
Gender: Female
Age: 19
Contact: 4567891230

Donor Name: ASTHA
Blood Type: B+
Gender: Female
Age: 21
Contact: 4562317890

Donor Name: ARPITA
Blood Type: B+
Gender: Female
Age: 20
Contact: 7536984120

Donor Name: VAIDEHI
Blood Type: A+
Gender: Female
Age: 20
Contact: 1234567890

ER-Diagram :



Schema :

```
1 • CREATE DATABASE blood_bank;
2
3 • USE blood_bank;
4
5 • CREATE TABLE donors (
6     id INT AUTO_INCREMENT PRIMARY KEY,
7     donor_name VARCHAR(255) NOT NULL,
8     blood_type VARCHAR(10) NOT NULL,
9     gender VARCHAR(10) NOT NULL,
10    age INT NOT NULL,
11    contact VARCHAR(20) NOT NULL
12 );
```

Schema:

Database: blood_bank

Table: donors

- donor_name (VARCHAR)
- blood_type (VARCHAR)
- gender (VARCHAR)
- age (INT)
- contact (VARCHAR)

Conclusion:

In conclusion, the Blood Bank Management system presented in the provided code offers a user-friendly interface for efficiently managing donor information. It enables adding, searching, updating, and deleting donor records, enhancing the overall effectiveness of blood bank operations. The system has the potential to streamline processes, improve donor management, and contribute to the efficient allocation of blood resources.