

A
Project Report
On

“LactaCare – Infant Care Support”
Human Milk Bank Management System

By
Vaibhavi Sanjay Pasalkar

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1.Introduction

Breast milk is the most nutritious and natural source of nourishment for newborns, especially for premature and low-birth-weight babies. It contains essential antibodies, enzymes, and nutrients that protect infants from infections and promote healthy growth. However, not all mothers are able to breastfeed due to various medical or personal reasons. To support such infants, Human Milk Banks collect, screen, store, and distribute donated breast milk to hospitals and caregivers. These milk banks play a vital role in saving lives, but their management is often manual and unorganized.

LactaCare is a web-based human milk management system designed to connect human milk donors, hospitals, and administrators on a single platform to support infants in need of breastmilk. It allows donors to register, complete health screenings, book appointments, and track donation history, while hospitals can request milk for newborns and monitor request status. Admins manage appointments, milk requests, and inventory. The system also includes features like awareness pages, location-based milk bank search, and a money donation option—making the entire milk donation and distribution process efficient, transparent, and life-saving for vulnerable infants.

1.1. Existing System

- ❖ Lack of awareness about human milk donation and its life-saving impact.
- ❖ Manual, paper-based processes in milk banks and hospitals.
- ❖ No central platform to connect donors, hospitals, and milk banks.
- ❖ Health screening is done manually, causing delays and inconsistencies.
- ❖ No proper system to track milk donation or hospital requests.
- ❖ High risk of data loss, duplication, and inaccessibility.
- ❖ No platform to educate or engage the community in milk/money donation.
- ❖ Inventory tracking is difficult; admins can't monitor milk expiry or availability.
- ❖ No clear accountability or traceability from donor to recipient

1.2. Need of the System

- ❖ To create a unified digital platform connecting donors, hospitals, and admins.
- ❖ To raise awareness about human milk donation through educational content.
- ❖ To allow donors to register, update profiles, and manage appointments online.
- ❖ To implement automated donor health screening using smart questionnaires.
- ❖ To enable hospitals to request milk with baby details and track request status.
- ❖ To give admins full control over appointments, milk approvals, and inventory.
- ❖ To provide location-based search for nearby milk centers.
- ❖ To encourage and process money donations for infrastructure and outreach.

- ❖ To ensure full traceability of every milk donation and delivery.
- ❖ To replace slow, error-prone manual systems with a fast, secure digital solution.

1.3. **Overview of the Project**

1. Donor Module

This module allows individuals who wish to donate milk to register, undergo screening, and manage their donations.

❖ **Key Features:**

- Donor Registration & Login
- Profile Management (update personal info, contact, etc.)
- Smart Health Screening (system auto-decides eligibility based on questionnaire)
- Appointment Booking
- View Donation History (past donations and status)
- Donor Dashboard (summary donation record)

2. Hospital Module

Hospitals can request milk for infants in need, provide medical details, and track the status of their requests.

❖ **Key Features:**

- Hospital Registration & Login
- Profile Management
- Raise Milk Request (Enter baby's condition, doctor details, prescription)
- Track Request Status (Pending, Approved, Rejected, Fulfilled)
- View Request History
- Hospital Dashboard (overview of milk request)

3. Admin Module

Admins oversee and manage all system operations including donor appointments, milk inventory, and hospital requests.

❖ **Key Features:**

- Admin Dashboard
- Manage Appointments (approve/reject, collect status, mark as completed)
- Manage Hospital Requests (approve/reject requests, update delivery status)
- Manage Inventory (track milk activity, expiry, and availability)
- Track Donations and Fulfilments.

4. Other Pages (Public & Supportive)

Common Features Accessible by All Users or Guests: Home Page, Awareness Page (Learn About Human Milk Banks) ,Search Centers (by City, State, or Location), Money Donation and Contact Us Page

2. Analysis

2.1. Hardware and Software Requirements

❖ **Hardware:**

- Server: Dual-core CPU, 4 GB RAM, 20 GB storage, reliable internet
- Client: Desktop/laptop/tablet/mobile with internet and standard display

❖ **Software:**

- Frontend: HTML, CSS, JavaScript, Bootstrap
- Backend: Java (JDK 17+), Tomcat, Servlets, JSP, JDBC.
- Database: PostgreSQL
- Tools: IDE (Eclipse), Git

3. Design

3.1. Database Table Designing

1) Users Table

Sr. No	Name	Type	Length	Constraints
1	id	SERIAL	-	Primary Key
2	email	VARCHAR	255	Unique, Not Null
3	password	VARCHAR	255	Not Null
4	role	VARCHAR	20	CHECK (donor, hospital, admin), Not Null

2) Donors Table

Sr. No	Name	Type	Length	Constraints
1	id	SERIAL	-	Primary Key
2	user_id	INT	-	Foreign Key
3	full_name	VARCHAR	255	Not Null
4	contact	VARCHAR	20	Not Null
5	dob	DATE	-	Not Null
6	address	TEXT	-	Not Null
7	lactation_status	VARCHAR	50	Not Null
8	screening_frequency	INT	-	Default 1
9	donor_status	VARCHAR	20	CHECK ('Active','Inactive','Suspended'), Default 'Active'
10	last_screened	DATE	-	-
11	next_screening	DATE	-	-

3) Hospitals Table

Sr. No	Name	Type	Length	Constraints
1	id	SERIAL	-	Primary Key
2	user_id	INT	-	Foreign Key
3	full_name	VARCHAR	255	Not Null
4	contact	VARCHAR	20	Not Null
5	dob	DATE	-	Not Null
6	address	TEXT	-	Not Null
7	lactation_status	VARCHAR	50	Not Null
8	screening_frequency	INT	-	Default 1
9	donor_status	VARCHAR	20	CHECK ('Active','Inactive','Suspended'), Default 'Active'
10	last_screened	DATE	-	-
11	next_screening	DATE	-	-

4) Contact Message Table

Sr. No	Name	Type	Length	Constraints
1	id	SERIAL	—	Primary Key
2	full_name	VARCHAR	100	Not Null
3	email	VARCHAR	100	Not Null
4	phone	VARCHAR	15	—
5	subject	VARCHAR	255	—
6	message	TEXT	—	Not Null
7	submitted_at	TIMESTAMP	—	Default CURRENT_TIMESTAMP

5) Screening Table

Sr. No	Name	Type	Length	Constraints
1	id	SERIAL	—	Primary Key
2	donor_id	INTEGER	—	FK (users.id), Not Null
3	baby_dob	DATE	—	Not Null
4	excess_milk to travel	VARCHAR	3	CHECK ('Yes','No'), Not Null
...	consent1 to consent4	BOOLEAN	—	Not Null
5	submission_date	TIMESTAMP	—	Default CURRENT_TIMESTAMP
6	status	VARCHAR	20	Default 'Pending'
7	disqualification_reasons	TEXT	—	—
8	eligibility_expiry	DATE	—	—

6) Appointments Table

Sr. No	Name	Type	Length	Constraints
1	id	SERIAL	—	Primary Key
2	donor_id	INT	—	Foreign Key (donors.id), Not Null
3	user_id	INT	—	Foreign Key (users.id), Not Null
4	type	VARCHAR	10	CHECK ('home','center'), Not Null
5	appointment_date	DATE	—	Not Null
6	time_slot	VARCHAR	20	Not Null
7	notes	TEXT	—	—
8	status	VARCHAR	20	Default 'scheduled', CHECK constraint
9	milk_amount	INTEGER	—	—
10	test_result	VARCHAR	10	CHECK ('accepted', 'rejected')

7) Milk Request Table

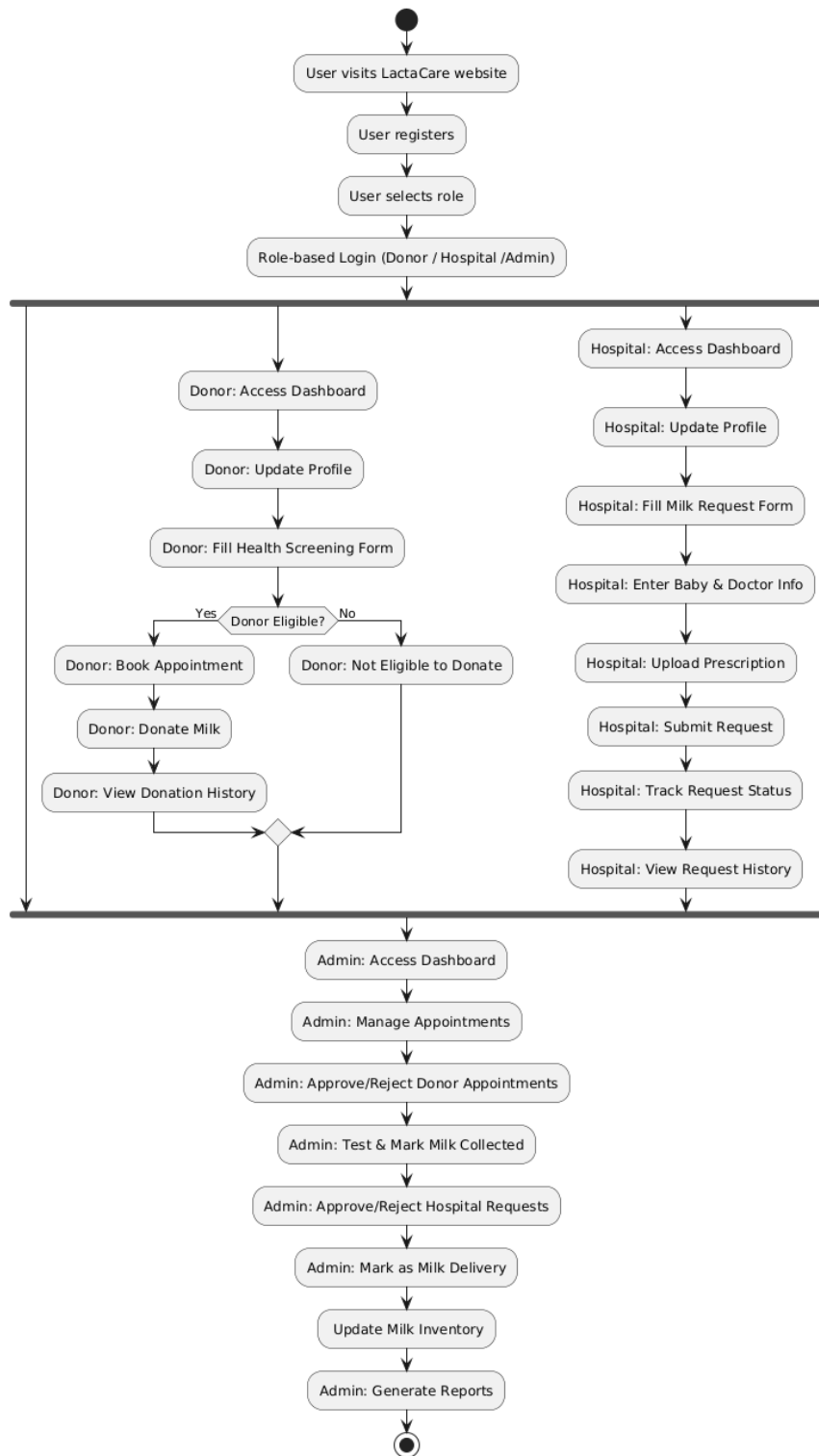
Sr. No	Name	Type	Length	Constraints
1	id	SERIAL	—	Primary Key
2	hospital_id	INTEGER	—	FK (hospitals.id), Not Null
3	user_id	INTEGER	—	FK (users.id), Not Null
4	baby_name	VARCHAR	255	Not Null
5	baby_gender	VARCHAR	10	Not Null
6	baby_dob	DATE	—	Not Null
7	baby_weight	DECIMAL	5,2	Not Null
8	birth_condition	VARCHAR	50	Not Null
9	doctor_name	VARCHAR	255	Not Null
10	milk_type	VARCHAR	20	Not Null
11	quantity_ml	INTEGER	—	Not Null
12	urgency_level	VARCHAR	10	Not Null
13	request_reason	TEXT	—	Not Null
14	prescription_path	VARCHAR	255	Not Null
15	request_date	TIMESTAMP	—	Default CURRENT_TIMESTAMP
16	status	VARCHAR	20	Default 'Pending', CHECK constraint

8) Inventory Transactions Table

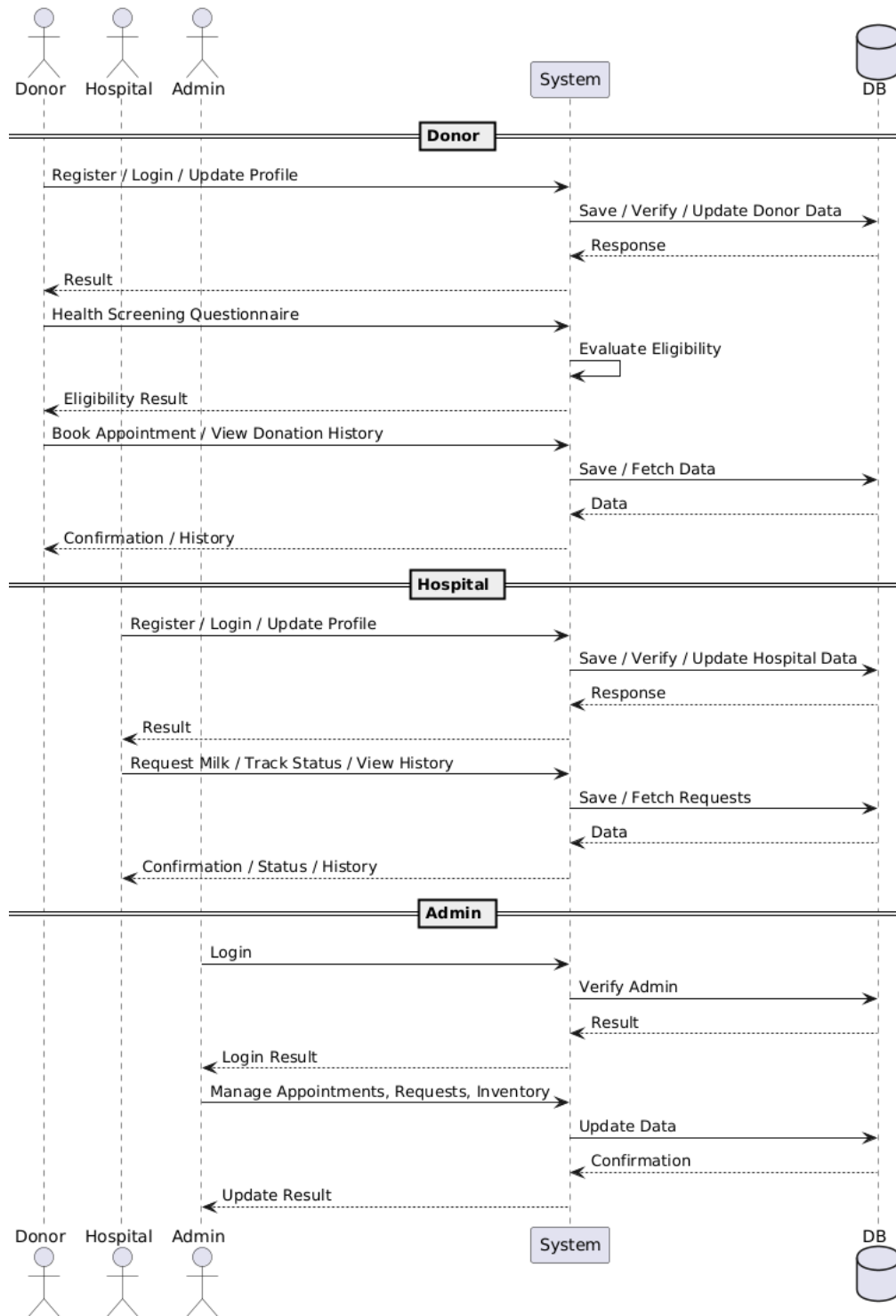
Sr. No	Name	Type	Length	Constraints
1	id	SERIAL	—	Primary Key
2	type	VARCHAR	10	CHECK ('donation', 'delivery')
3	donor_id	INTEGER	—	FK (donors.id)
4	hospital_id	INTEGER	—	FK (hospitals.id)
5	appointment_id	INTEGER	—	FK (appointments.id)
6	request_id	INTEGER	—	FK (milk_requests.id)
7	amount_ml	INTEGER	—	Not Null
8	transaction_date	TIMESTAMP	—	Default CURRENT_TIMESTAMP
9	expiration_date	DATE	—	—

3.2. Software Engineering Diagram

1) Activity Diagram



2) Sequence Diagram



3.3. Input and Output Screens and reports

Home Page

[Login](#)

[Home](#) [Centers](#) [Learn](#) [Contact Us](#) [Donate](#)


"MOMS HELPING MOMS"


Donate Milk Save Child

Human Milk Banks are the lifeline for many babies.

Do you have surplus breast milk that you would like to donate or you want receive milk ?

[Become a Donor](#) [Receive Milk - Hospitals](#)





Promoting Healthy Starts

Breast milk is the ideal first nourishment for infants. Human Milk Bank is committed to ensuring that all newborns, particularly premature and medically fragile ones, receive the vital nutrition and protective benefits of breast milk.

"Your Gift Can Change Lives - Donate Money"

Your support enables us to deliver essential donor milk to fragile and premature newborns. Together, we can ensure every baby gets the healthiest start possible. Every contribution counts!

[Donate Now](#)

Who we are ?

At our Human Milk Bank, we are committed to providing life-saving donor milk to newborns who need it most. Our mission is to ensure that every baby, especially those born prematurely or critically ill, receives the vital nutrition and immune support that only breast milk can offer. Together, we're creating healthier futures, one baby at a time.

[Learn More](#)



LactaCare

We are dedicated to supporting the health and well-being of infants through the provision of safe and accessible donor human milk.

Quick Links



- [Home](#)
- [Learn](#)
- [Donate Money](#)
- [Contact](#)

Services


- [Login](#)
- [Donar Registration](#)
- [Request Milk](#)
- [Search Milk Banks Centers](#)

Contact Us

Email: info@lactaCare.org
Phone: +1 234 567 89
Address: 123 Milk Bank, Pune City

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Login

Home

Centers

Learn

Contact Us

Donate

Find Milk Banks Near You

Enter state, city or pincode

Pune

Search

or Use My Location

Deenanath Mangeshkar Hospital & Research Centre Milk Bank

Deenanath Mangeshkar Hospital, Pune, Maharashtra 411004

Time : 9 AM - 6 PM

Phone : +91 20 6600 2000

Directions

Call

KEM Hospital Milk Bank

King Edward Memorial Hospital, Pune, Maharashtra 411011

Time : 9 AM - 6 PM

Phone : +91 20 2612 2941

Directions

Call

Bharati Hospital Milk Bank

Bharati Hospital, Pune, Maharashtra 411043

Time : 9 AM - 5 PM

Phone : +91 20 2424 4444

Directions

Call

BJ Government Medical College & Sassoon General Hospitals Milk Bank

BJ Government Medical College, Pune, Maharashtra 411001

Time : 8 AM - 6 PM

Phone : +91 20 2612 7123

Directions

Call

Dr. D.Y. Patil Medical College Milk Bank

Dr. D.Y. Patil Medical College, Pimpri, Pune, Maharashtra 411018

Time : 9 AM - 6 PM

Phone : +91 20 2747 6666

Directions

Call

Sahyadri Hospitals MomStory Milk Bank

Sahyadri Hospitals, Pune, Maharashtra 411001

Time : 9 AM - 6 PM

Phone : +91 20 6608 9999

Directions

Call

Poona Hospital & Research Centre (PHRC) Milk Bank

Poona Hospital & Research Centre, Pune, Maharashtra 411001

Time : 9 AM - 5 PM

Phone : +91 20 2636 2787

Directions

Call

LactaCare

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Quick Links

Home

Learn

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Services

Login

Donar Registration

Request Milk

Search Milk Banks Centers

Contact Us


Email: info@lactaCare.org

Phone: +1 234 567 89

Address: 123 Milk Bank. Pune City

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Login

[Home](#)[Centers](#)[Learn](#)[Contact Us](#)


Donate

Your Contribution Can Help Save a Life

Not every mother can donate milk, but everyone can help. Support our mission to protect newborns through your financial contribution.


♥ Donate Now

How Your Donation Helps




Milk Pasteurization Equipment

Your donation helps purchase and maintain specialized equipment needed to safely pasteurize donor milk.




Transport & Cold Chain Supply

Funds support the safe collection and distribution of donor milk to hospitals and families in need.



Free Milk for Underprivileged NICUs

Your generosity provides life-saving donor milk to hospitals serving vulnerable communities.



Training for Lactation Counselors

Donations fund training programs for healthcare professionals to better support breastfeeding mothers.

Make Your Donation

Full Name

Enter your full name

Email Address

Enter your email

Phone Number

Enter your phone number

Donation Amount (₹)

Minimum donation amount is ₹100

Message (Optional)

Why are you donating? Add a personal message...

Donate Money

LactaCare

We are dedicated to supporting the health and well-being of infants through the provision of safe and accessible donor human milk.

Quick Links





[Home](#)[Learn](#)[Donate Money](#)[Contact](#)

Services

[Login](#)[Donor Registration](#)[Request Milk](#)[Search Milk Banks Centers](#)

Contact Us

[Email: info@lactacare.org](mailto:info@lactacare.org)[Phone: +1 234 567 89](tel:+123456789)[Address: 123 Milk Bank, Pune City](#)



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Hospital Registration

<

Milk Donor Registration

Donor Registration

Become a life-saving donor

Full Name

Contact Number

Email

Mother Date of Birth

dd-mm-yyyy

Password

Confirm Password

Address

Lactation Status

☐ Currently Lactating

☐ Recently Stopped

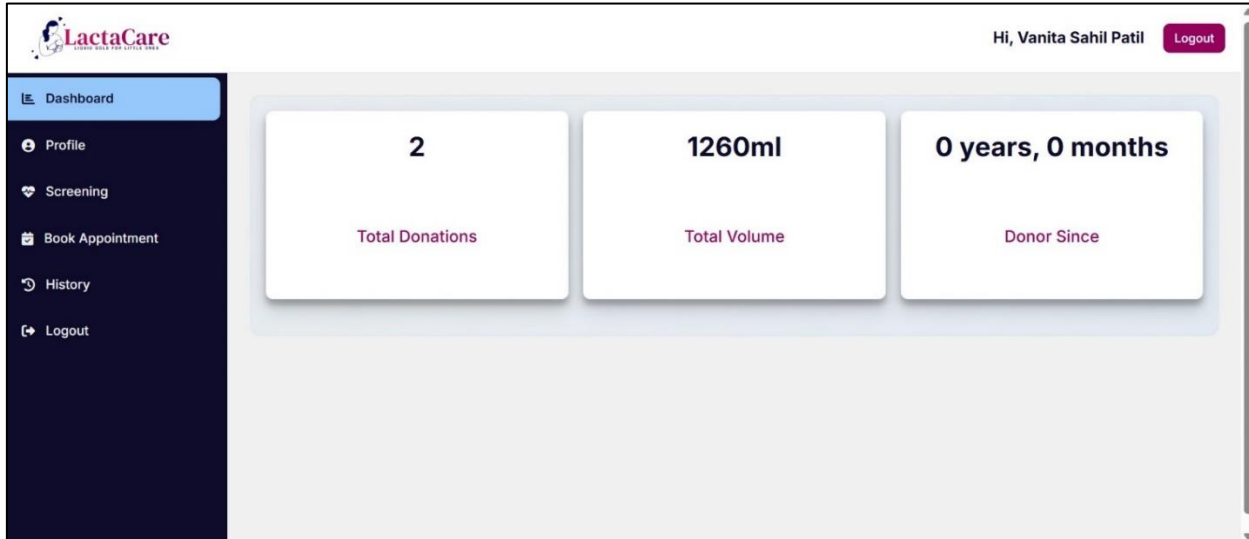
☐ Planning to Donate

Register Now

Already registered? [Login here](#) Or [Home](#)

Login Page

Donor Dashboard




Donor Profile page

The Donor Profile page for Vanita Sahil Patil displays the following personal information:

Field	Value
Full Name *	Vanita Sahil Patil
Phone Number *	8989898989
Email Address *	vanita@gmail.com
Date of Birth *	15-01-2004
Address *	Shivajinagar Pune

The profile page includes a sidebar with navigation options: Dashboard, Profile, Screening, Book Appointment, History, and Logout. The user is logged in as Vanita Sahil Patil, with a Logout button in the top right corner. At the bottom of the profile form, there are buttons for "Update Profile" and "Cancel".



[Dashboard](#)
[Profile](#)
[Screening](#)
[Book Appointment](#)
[History](#)
[Logout](#)

Hi, Vanita Sahil Patil [Logout](#)

Health Screening Questionnaire

Lactation Information

Baby's Date of Birth*

Are you producing more milk than your baby needs? *
 ☒ Yes ☐ No

Health & Medical History

Have you had fever or major illness in the last 14 days? *
 ☐ Yes ☒ No

Are you currently on any prescription or over-the-counter medications? *
 ☐ Yes ☒ No

Have you ever tested positive for HIV, Hepatitis B, or Hepatitis C? *
 ☐ Yes ☒ No

Do you have any chronic illnesses (e.g., diabetes, thyroid, cancer)? *
 ☐ Yes ☒ No

Have you received any organ or tissue transplant? *
 ☐ Yes ☒ No

Lifestyle & Diet

Do you smoke or use tobacco products? *
 ☐ Yes ☒ No

Do you consume alcohol or recreational drugs? *
 ☐ Yes ☒ No

Do you follow a vegetarian or non-vegetarian diet? *

Travel History

Have you traveled internationally in the last 6 months? *
 ☐ Yes ☒ No

Consent & Declaration

☒ I confirm all the above details are true and I understand this information will be reviewed by medical professionals.
 ☒ I give consent for my health information to be used for donor eligibility screening.
 ☒ I understand that my milk will be tested for safety and quality before being distributed to recipients.
 ☒ I agree to notify the milk bank immediately if my health status changes or if I become ineligible to donate.

Current Screening Status


Last Screening: Jun 05, 2025
 Status: Eligible

Next Screening Due: Jul 05, 2025
 Frequency: Every 1 month

Submit Screening

Cancel

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Dashboard

Profile

Screening

Book Appointment

Donation History

Logout

Hi, Vanita Sahil Patil

Logout

Your Appointment Details

Appointment ID:

21

Type:

Home Collection

Date:

2025-06-06

Time Slot:

14:00-15:00

Notes:

None

Status:

completed

Book Your Donation Appointment

Select Appointment Type *

Home Collection

Our team will visit your home to collect the donation

At Center

Visit our donation center for the appointment

Select Date *

dd-mm-yyyy

Select Time Slot *

Choose a time slot

Additional Notes

Any special instructions or notes for the appointment...

Appointment Summary

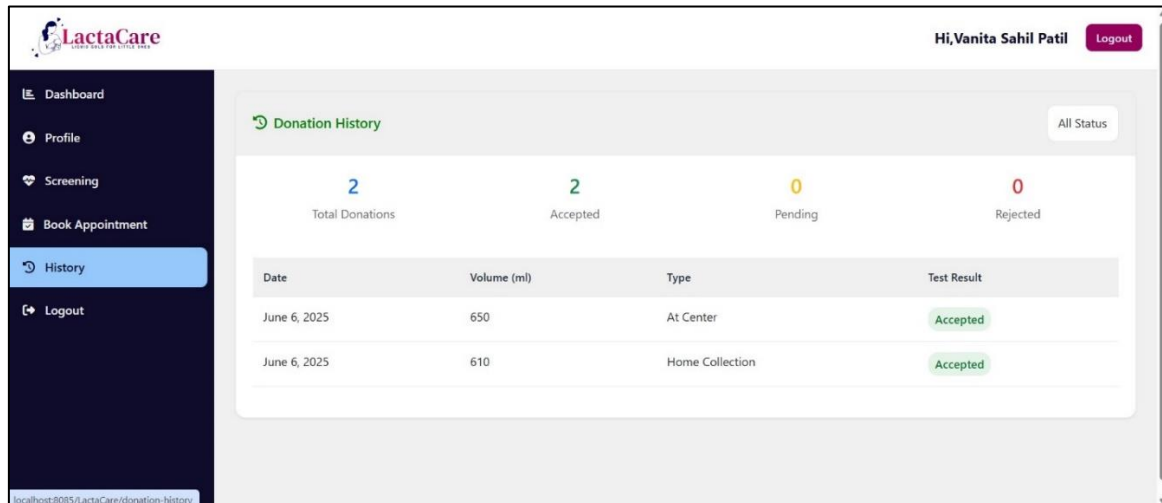
Please select appointment details above to see the summary.

Confirm Appointment

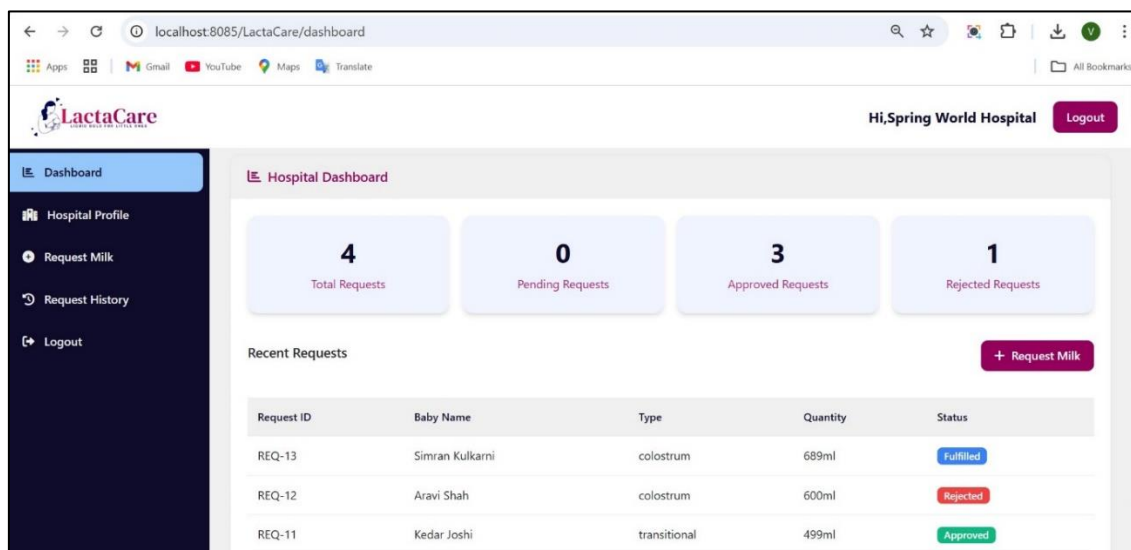
Cancel

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Donor History Page



Hospital Dashboard




Hospital Profile Page

The screenshot shows the Hospital Profile page for Spring World Hospital. The page features a sidebar with navigation options: Dashboard, Profile (selected), Request Milk, History, and Logout. The main content area displays a 'Hospital Profile' section with a form for updating the profile. The form includes fields for Hospital Name, Email Address, License ID, Contact Person Name, Contact Number, and Address. A green message bar at the top indicates 'Profile updated successfully!'. The form is currently filled with the following information:

- Hospital Name: Spring World Hospital
- Email Address: sw@gamil.com
- License ID: HSR2322
- Contact Person Name: Mr. Nitin Marne
- Contact Number: 7878888888
- Address: Shivajinagar Pune 411021

Buttons for 'Update Profile' and 'Cancel' are located at the bottom of the form.

Milk Request Page



Hi, Spring World Hospital [Logout](#)

Dashboard

Hospital Profile

Request Milk

Request History

Logout

Request Milk

Baby Information

Baby Full Name *

Simran Kulkarni

Looks good!

Gender *

Female

Looks good!

Date of Birth *

02-02-2025

Looks good!

Babies Weight (kg) *

2.4

Looks good!

Birth Condition *

Normal

Looks good!

Health Notes

Any additional health information about the baby...

Milk Request Information

Prescribed Doctor's Name *

Dr Rohit Patil

Looks good!

Type of Milk *

Colostrum

Looks good!

Quantity (ml) *

689

Looks good!

Urgency Level *

Medium

Looks good!

Reason for Request *

Infant's condition is normal, but the baby's mother has sadly passed away during childbirth.

Looks good!

Doctor's Prescription *


Accepted formats: PDF, JPG, PNG (Max 5MB)

Looks good!

Submit Request

Reset Form

Donor History Page



Hi, [Logout](#)

Dashboard

Hospital Profile

Request Milk

Request History

Logout

Request History

Status Filter

All Statuses

Date From

dd-mm-yyyy

Date To

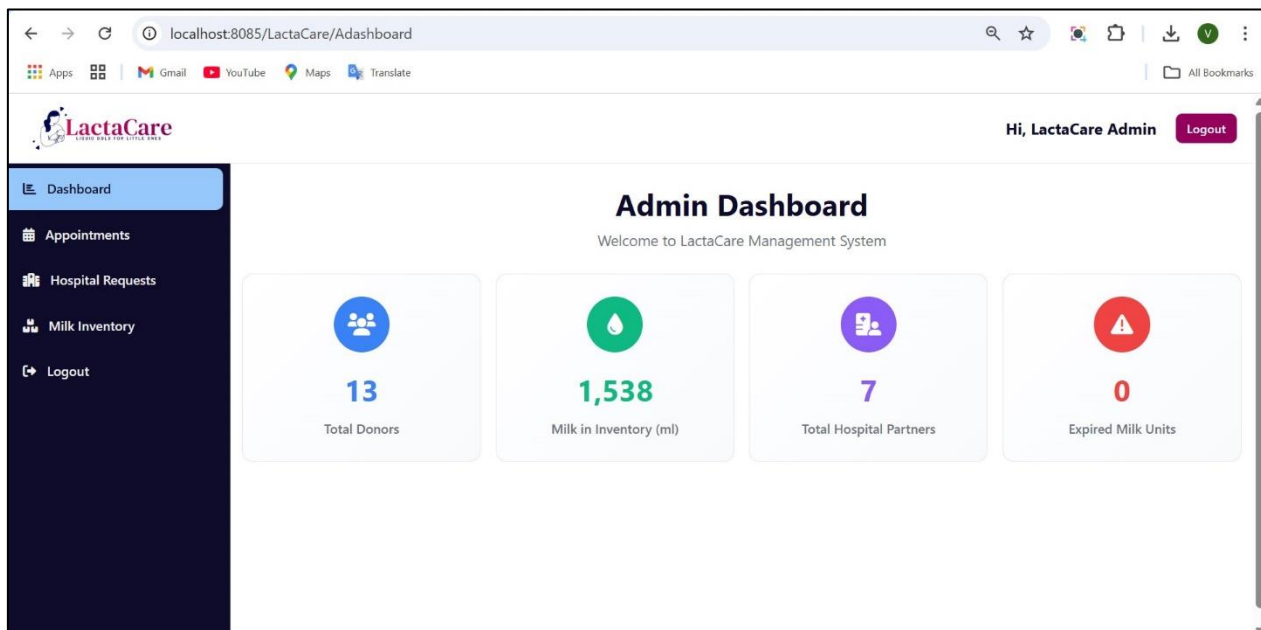
dd-mm-yyyy

Apply Filters

Download Report

Request ID	Baby Name	Type of Milk	Quantity	Status	Submission Date	Urgency
REQ0013	Simran Kulkarni	colostrum	689ml	Fulfilled	2025-06-05	medium
REQ0012	Aravi Shah	colostrum	600ml	Rejected	2025-06-05	high
REQ0011	Kedar Joshi	transitional	499ml	Approved	2025-06-05	medium
REQ0004	Fatima Bisu Goel	colostrum	514ml	Fulfilled	2025-06-01	low

Admin Dashboard




Appointment Tracking and Managing Page

The screenshot shows the LactaCare Admin Dashboard with the "Appointments" section selected in the sidebar. The main content area is titled "Manage and Track Donor Appointments". It features a table of donor appointments:

ID	Donor	Date	Type	Time	Status	Actions
APT017	Komal Jadhav	2025-06-19	home	11:00-12:00	Completed	Accepted (150 ml)
APT014	Ujwala Sanjay Pasalkar	2025-06-17	home	11:00-12:00	Completed	Accepted (700 ml)
APT018	Juhi Rohit Bedi	2025-06-11	home	10:00-11:00	Completed	Test Milk
APT015	Ujwala Sanjay Pasalkar	2025-06-11	home	10:00-11:00	Completed	Rejected
APT019	Hema Manoj Patil	2025-06-06	home	10:00-11:00	Pending Complete	Test Milk
APT021	Vanita Sahil Patil	2025-06-06	home	14:00-15:00	Completed	Test Milk

Hospital Request Managing Page



Hi, LactaCare Admin
Logout

Dashboard
Appointments
Hospital Requests
Milk Inventory
Logout


Manage and Process hospital milk requests

All
Pending
Approved
Rejected
Fulfilled

Milk Requests

Request ID	Hospital	Baby Name	Quantity (ml)	Urgency	Status	Prescription	Actions
REQ013	Spring World Hospital	Simran Kulkarni	689	medium	Fulfilled	View	Completed
REQ012	Spring World Hospital	Aravi Shah	600	high	Rejected	View	Rejected
REQ011	Spring World Hospital	Kedar Joshi	499	medium	Approved	View	Deliver
REQ010	J V M Hospital	Jay Patil	400	high	Pending	View	Approve Reject
REQ009	J V M Hospital	Billi Ellish	1500	medium	Fulfilled	View	Completed
REQ008	B J Medical Hospital	Babab Nilesh Patil	600	high	Fulfilled	View	Completed
REQ007	Blue Ocean Hospital	Amisha File	1000	medium	Fulfilled	View	Completed

Inventory Managing Page



Hi, LactaCare Admin
Logout

Dashboard
Appointments
Hospital Requests
Milk Inventory
Logout

Track and Manage Milk Inventory

1,538
Total Milk Available (ml)

Milk Records

Download Report

User Name	Date	Milk Amount (ml)	Status	Type
+ Viha Sanjay Patel	2025-06-05	595	Fresh	Donation
+ Hema Manoj Patil	2025-06-05	700	Fresh	Donation
- Hospital Akola	2025-06-05	998	Delivered	Delivery
+ Vanita Sahil Patil	2025-06-05	610	Fresh	Donation
+ Juhi Rohit Bedi	2025-06-05	580	Fresh	Donation
- J V M Hospital	2025-06-04	1500	Delivered	Delivery
+ Komal Jadhav	2025-06-04	150	Fresh	Donation
+ Fatima Ali Shaikh	2025-06-04	500	Fresh	Donation
- Spring World Hospital	2025-06-04	100	Delivered	Delivery
- Blue Ocean Hospital	2025-06-04	100	Delivered	Delivery
+ Fatima Ali Shaikh	2025-06-04	1500	Fresh	Donation
- Hospital Akola	2025-06-04	500	Delivered	Delivery

4. Drawbacks and Limitations

4.1. Drawbacks

- ❖ Rigid donor eligibility logic — no doctor override..
- ❖ Poor accessibility for differently-abled users.
- ❖ Missing privacy/legal compliance features.
- ❖ No audit logs or user activity tracking.
- ❖ No support for feedback/review system.
- ❖ No notification.
- ❖ No verification for hospital's authenticity.
- ❖ No chatbot or AI assistant for donor/hospital queries

4.2. Limitations

- ❖ No offline access.
- ❖ No multi-language support.
- ❖ No real-time notifications (SMS/email).
- ❖ No option to cancel/reschedule appointments.
- ❖ No integration with other milk banks.
- ❖ No roles for nurses/delivery staff.
- ❖ No live chat/helpdesk for support.
- ❖ System lacks mobile app version.
- ❖ No appointment reminders or alerts.

5. Future Enhancement and Conclusion

5.1. Future Enhancement

- ❖ Add multi-language support.
- ❖ Add SMS/email notifications.
- ❖ Introduce appointment cancel/reschedule.
- ❖ Add feedback & complaint system.
- ❖ Integrate payment gateway for donations.
- ❖ Connect with other milk banks/health systems.

5.2. Conclusion

In conclusion, online human milk banks are still a new idea, and there isn't much research yet on how safe and effective they are. However, creating the *LactaCare* system is an important step in helping both mothers who want to donate breast milk and babies who need it.

This project was made to connect donors who have extra milk with hospitals caring for babies in need. It includes features like health checks, appointment booking, donation tracking, and request management to make the process easier and more organized.

With some future improvements, *LactaCare* can become a powerful and trusted system that supports newborn health and encourages more people to donate human milk.

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 - <https://stackoverflow.com>
 - <https://fontawesome.com/>
 - <https://getbootstrap.com/>