Heart Space

by

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Under the Supervision of Guide
by

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A Report Submitted to
Gujarat University
In Partial Fulfilment of the Requirements for
the Degree of **B.Sc. IT**
in Software Development

May | 2024-2025

Center for Professional Courses,

Gujarat University, Ahmedabad

CERTIFICATE

This is to certify that research work embodied in this report entitled "**Heart Space**" was carried out by **Patel Panth Nilay** **(Enrolment No:- 202219600091**) at Centre for Professional Course for partial fulfilment of B.Sc. IT degree to be awarded by Gujarat University. This research work has been carried out under my supervision and is to the satisfaction of department.

Date: 6/5/2025

Place:

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Seal of Institute

DECLARATION OF ORIGINALITY

I hereby certify that I am the sole author of this Project report and that neither any part of this Project report nor the whole of the Project report has been submitted for a degree to any other University or Institution.

I certify that, to the best of my knowledge, my Project report does not infringe up on any one's copyright nor violate any proprietary rights and that any ideas, techniques, quotations, or any other material from the work of other people included in my Project report, published or otherwise, are fully acknowledged in accordance with the standard referencing practices.

I declare that this is a true copy of my Project report, including any final revisions, as approved by my Project report review committee.

Date: 6/5/2025

Place:
Dep.t of Mobile Application and Technologies from Gujarat University
GUCPC[Gujarat University Center for Professional Courses]

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PROJECT REPORT APPROVAL

This is to certify that research work embodied in this Project report entitled "**Heart Space**" was carried out by **Patel Panth Nilay (Enrolment No:- 202219600091)** at Centre for Professional Course for partial fulfilment of B.Sc. IT degree in [Software Development] to be awarded by Gujarat University.

Date: Place: 6/5/2025

Examiner(s):

_____ _____ _____

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ACKNOWLEDGEMENT

We are sincerely thankful to our guide, **Assi. Prof. Soniya Suthar** for their constant support, stimulating suggestions, and encouragement, which greatly assisted us in successfully completing our project work. Their close supervision over the past few months and helpful insights have been invaluable. Despite their busy schedule, their valuable advice and unwavering support have been an inspiration and a driving force for us. Their experience and knowledge have continuously helped shape our initial ideas into a comprehensive form.

I, hereby, take an opportunity to convey my gratitude for the generous assistance and cooperation, that I received from the **[Ms. Bhoomi Parikh]** and to all those who helped me directly and indirectly.

We are deeply indebted & thankful to our Department Faculties who helped and rendered their valuable time, knowledge and information and whose suggestion and guidance has enlightened on the subject.

We also thank **"Dr. Paavan Pandit",** Director, CPC, GU for extending all the help and cooperation during our training period.

Finally, I am also indebted to my friends without whose help I would have had a hard time managing everything on my own.

Patel Panth Nilay

(202219600091)

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CHAPTER-1 INTRODUCTION

1.1 Background

In today's fast-paced and emotionally disconnected world, people often seek out digital spaces where they can freely express their inner thoughts and emotions. Social media platforms, blogs, and forums provide outlets, but they often come with privacy concerns, judgmental environments, or overwhelming noise. Recognizing this gap, the idea for a platform that offers **emotionally safe, private, and creative expression** was born—this platform is called *Heart Space*.

Heart Space is a web-based emotional sharing space that allows users to either **record and upload voice messages** or **submit written thoughts and feelings**. Unlike traditional social platforms, it is built to create a **calm, focused, and intimate experience** for users who wish to document or share their emotions without fear of criticism or exposure.

1.2 Purpose of the Project

The main objective behind developing *Heart Space* is to offer a **personal emotional outlet** powered by secure technology. Users can share what they feel using **voice** or **text** in a protected environment, where only **they can manage their content**. The voice upload feature allows a maximum duration of 90 seconds and a size limit of 5 MB to ensure server efficiency and content control. Similarly, the text uploads are moderated and stored in the system for display to logged-in users.

A unique part of this project is the **integration of the Gemini API**, which provides a conversational chatbot experience. This AI companion helps users **talk through their feelings**, offering a space for relief, comfort, and support.

1.3 Problem Statement

Many people experience emotional stress and have no one to talk to or nowhere to express their thoughts freely. Existing social media platforms are either too public or too focused on performance and comparison. Furthermore, very few platforms offer a **voice-based emotional expression** combined with text sharing, especially in a **safe and user-controlled environment**. The *Heart Space* platform was designed to solve these issues by offering:

- A simple interface to **upload and listen to emotional voice recordings.**
- A secure system for **submitting written thoughts.**
- **User-only control** over the content—only the uploader can delete their uploads.
- A **private chatbot companion** via Gemini API for conversation and emotional support.
- A platform **responsive to all devices** and capable of handling light and dark modes.

1.4 Objectives of the Project

- To design a secure, responsive, and user-friendly emotional sharing platform.
- To implement a **voice recording and upload system** with time and size limits.
- To provide **text submission features** for sharing emotional thoughts.
- To ensure all uploaded content is **stored safely using PHP and MySQL**.
- To allow only the uploader to **delete their content** using session-based security.
- To offer **AI-powered chat** support through Gemini API.
- To build a platform that works **seamlessly across all screen sizes and devices**.

1.5 Scope of the Project

This project focuses on the **backend and frontend development** of a full-stack web platform using:

- **HTML, CSS, JavaScript** for frontend.
- **PHP and MySQL** for backend functionality and database management.
- **Voice recording features** using JavaScript with a 90-second and 5 MB limit.
- **Session handling and authentication** for secure user access.
- **AI chatbot integration** for mental wellness support.
- **Dark and light mode switching** for user comfort.

The final product is a **single-page responsive website** with four main sections:

1. Home (with poetry and welcome message)
2. Voice (record and upload)
3. Text (write and submit)
4. Chat (Gemini API chatbot)

1.6 Target Audience

The platform is built for anyone looking for an emotional outlet—teenagers, students, professionals, or anyone experiencing loneliness or emotional overwhelm. Its simple UI makes it accessible to non-technical users as well.

1.7 Significance of the Project

Mental health awareness and self-expression have become major concerns in today's world. *Heart Space* offers a **digital sanctuary**—a place where users can be themselves, unfiltered and unjudged. Whether it's just to **let out emotions**, **record memories**, or **chat with a companion**, this project contributes meaningfully to **emotional well-being using technology**.

1.8 Summary

The first chapter introduced the core concept and purpose of the *Heart Space* project. It explained the motivation behind creating an emotionally supportive digital platform, where users can express their feelings through voice and text. The chapter outlined how the system allows for a safe, user-authenticated environment that stores personal expressions and enables conversational support via AI.

The need for emotional expression in today's fast-paced digital world justifies the creation of this platform. The chapter also detailed the objectives, problem statement, and scope of the system, establishing a clear direction for the upcoming chapters. With a blend of human expression and artificial intelligence, *Heart Space* aims to become a unique digital sanctuary for emotional well-being.

CHAPTER-2 LITERATURE REVIEW

2.1 Introduction

A literature review is a critical analysis of existing research, tools, platforms, and technologies relevant to a particular domain. In the case of *Heart Space*, which blends emotional expression, audio recording, artificial intelligence, and web development, it is essential to study prior platforms and systems that contribute knowledge or features to this concept.

This chapter explores the existing solutions for emotional expression, voice-based web platforms, text-based sharing websites, AI-based mental health bots, and technologies like PHP, MySQL, and front-end frameworks. Understanding these elements provides a solid foundation for the innovation and necessity of *Heart Space*.

2.2 Existing Platforms for Emotional Sharing

2.2.1 Social Media Platforms

Websites like Facebook, Twitter (now X), and Instagram allow users to share content, but they are often cluttered, judgmental, and competitive in nature. These platforms were not built for private emotional expression but rather for social validation, which makes them unsuitable for mental relief or anonymous sharing. Posts can go viral, attract criticism, or remain unnoticed.

2.2.2 Anonymous Confession Sites (e.g., Whisper, Vent, 7 Cups)

Some platforms like Whisper and Vent have attempted to offer anonymous emotional sharing. While they provide emotional outlets, they lack voice features, proper security, or personal content control. Furthermore, these platforms can sometimes turn toxic without proper moderation.

2.2.3 Therapy and Mental Health Apps (e.g., Calm, BetterHelp)

Apps like Calm and BetterHelp offer guided meditation and therapy. They are more professional in approach but come at a cost, and they do not allow users to **freely record or upload personal emotional content**. These are structured programs and do not support creative or open expression.

2.3 Research on Voice-based Expression in Web Platforms

Voice as a medium of expression is powerful. Research indicates that hearing one's own voice or listening to others speak their emotions improves empathy, emotional relief, and self-awareness. However, few platforms offer **voice recording and uploading as a method of emotional expression.** This gap is filled by *Heart Space*, which allows users to:

- Record their voice for up to 90 seconds.
- Listen to their own or others' voice messages (based on user privacy).
- Delete or manage their own voice entries.

Most web-based voice tools focus on utility, such as voice memos or transcription, not emotion. *Heart Space* is unique in this regard.

2.4 Use of Text in Emotional Documentation

Text remains one of the oldest and most powerful forms of human expression. Blogs, journals, and storytelling websites have empowered individuals to share experiences. However, text alone often lacks the emotional tone and depth that voice can deliver. *Heart Space* provides both — text and voice — giving the user freedom to choose the form of emotional release.

Platforms like Medium and Tumblr allow long-form content but are not optimized for short, feeling-based thoughts. Heart Space's text feature is designed to be fast, expressive, and safe — combining the best of journaling and social expression.

2.5 Conversational AI in Mental Health

2.5.1 Introduction to Gemini API

Gemini API is a conversational artificial intelligence developed by Google (formerly DeepMind), capable of understanding context, tone, and emotion. Its integration into Heart Space brings a **24/7 supportive listener** that responds to users when they feel alone, confused, or overwhelmed.

2.5.2 Comparison with Other Chatbots

Other chatbots such as Replika and Wysa are similar but often locked behind paywalls or limited to app use. Heart Space offers a **browser-based, open-access companion**, which is a major advantage for inclusivity.

2.6 Review of Technologies Used

2.6.1 Front-End Technologies

- **HTML/CSS/JavaScript**: Standard for web page structure and interactivity.
- **Responsive Design**: Important for accessibility across mobile, tablet, and desktop.
- **Dark/Light Mode Toggle**: Supports visual comfort and modern UI expectations.

2.6.2 Back-End Technologies

- **PHP**: Used for session handling, server logic, authentication, and file uploads.
- **MySQL**: For storing user data, uploaded file paths, and text content.
- **Sessions and Authentication**: Protects user privacy and ensures content is secure.

2.6.3 Audio Handling

- HTML5 <audio> tags allow built-in audio playback.
- JavaScript with MediaRecorder API enables real-time voice capture and export.

2.7 Summary

From this literature review, we conclude that while several platforms support emotional or creative expression, none combine **voice and text sharing** with **user ownership**, **chatbot support**, and **aesthetic design** the way *Heart Space* does. Its originality lies in the simplicity of use and emotional depth of its features. This review justifies the necessity of developing a platform like Heart Space to meet the modern emotional and technological needs of users.

CHAPTER-3 SYSTEM ANALYSIS

3.1 Introduction

System analysis is the process of understanding, defining, and documenting the requirements and functionality of a system. In the case of *Heart Space*, a thoughtful and detailed system analysis was essential to design a web-based emotional sharing platform that allows users to upload voice and text content, interact with a chatbot, and manage their own data securely.

This chapter provides an in-depth analysis of the current system issues, proposed solutions, feasibility, and requirement gathering.

3.2 Existing System (if any)

In the real world, users often rely on social media or journal apps to share their feelings. However, these systems have major drawbacks:

- Lack of privacy or anonymity.
- No support for **voice-based expression**.
- No **AI-based companionship** for emotional conversations.
- Risk of data misuse or unwanted social exposure.

Therefore, the existing platforms do not effectively support open, secure, and user-controlled emotional sharing.

3.3 Proposed System: Heart Space

The proposed system is an **online emotional outlet** for users to upload their voice (up to 90 seconds) and written thoughts securely. The platform features:

- **User registration and login system.**
- **Voice recorder and upload tool** with preview and file size control.
- **Text submission interface.**
- **AI chatbot integration** (Gemini API).
- **Responsive web design** with light/dark theme toggle.
- **Session-based content control** — only the uploader can delete their content.
- **Data stored in PHP and MySQL database.**

This system provides users with a safe, controlled, and expressive environment.

3.4 System Requirements

3.4.1 Functional Requirements

- User Registration and Login.
- Voice recording with a 90-second limit and 5 MB max size.
- Text submission functionality.
- AI Chatbot using Gemini API.
- Display of uploaded voice and text content.
- User authentication and session handling.
- User-controlled deletion of their own content only.

3.4.2 Non-Functional Requirements

- Security and Privacy.
- Cross-browser Compatibility.
- Responsive Design (PC, tablet, mobile).
- Light and Dark Mode UI.
- Fast loading and efficient database queries.

3.4.3 Hardware Requirements

- Device with a microphone for recording.
- Internet connection.
- Web browser (Chrome, Firefox, Edge, Safari).

3.4.4 Software Requirements

- **XAMPP** (Apache, PHP, MySQL).
- **Browser with HTML5 support**.
- **Code editor** (VS Code or similar).
- **Operating System:** Windows/Linux/Mac.

3.5 Feasibility Study

3.5.1 Technical Feasibility

All technologies used (PHP, MySQL, HTML5, JavaScript, Gemini API) are open-source and widely supported. The platform is lightweight and can run on basic hosting setups or local servers like XAMPP.

3.5.2 Operational Feasibility

The system is designed for non-technical users. With its user-friendly interface and minimal setup requirements, the platform is easy to operate and maintain.

3.5.3 Economic Feasibility

As all tools and technologies used are free, the overall project is economically feasible with no recurring license costs.

3.6 SWOT Analysis

Strengths	Weaknesses
Secure content sharing	No live human moderation
Simple and expressive interface	Limited to short recordings
Voice and text support	Not a real-time messaging system
AI chatbot integrated	Requires internet access

Opportunities	Threats
Can be expanded into a mobile app	Privacy breach if hosted improperly
Integration with therapy apps	Server overload with large files
Anonymous sharing features	Abuse without moderation

3.7 Data Flow Diagrams (DFD)

3.7.1 Context Level DFD (Level 0)

- **User** sends voice/text input → **Heart Space System** → stores in **Database**
- **User** retrieves uploaded content or receives AI reply ← **Heart Space System**

3.7.2 Level 1 DFD

- **Login/Register** → validates with **Database**
- **Voice Upload** → saves file → stores file path in **Database**
- **Text Submit** → stores text content in **Database**
- **Chat with AI** → request sent to **Gemini API** → response shown to user
- **Delete Content** → checked for session → then removes from **Database**

3.8 Summary

The system analysis reveals that *Heart Space* is not only feasible but also necessary given the lack of emotional voice-text platforms today. The technical tools, user-centered design, and AI integration make it a promising solution for mental wellness and emotional expression.

CHAPTER-4 SYSTEM DESIGN

4.1 Introduction

System design is the phase where the architecture and components of a project are defined in detail to ensure smooth implementation. In the *Heart Space* platform, system design includes planning the user interface, data flow, backend logic, database schema, and integration points such as the Gemini API.

This chapter outlines the logical and physical design aspects of the system and provides an overview of modules, data structures, database design, and user interface layouts.

4.2 Design Objectives

The main design goals of *Heart Space* are:

- Create a clean, minimal, and emotionally safe user interface.
- Ensure seamless interaction between frontend and backend.
- Maintain security and privacy for each user's data.
- Provide easy navigation and responsive experience.
- Ensure all users can record and submit voice/text entries with minimal effort.
- Enable AI-powered chatbot interaction using the Gemini API.

4.3 System Architecture

4.3.1 Three-Tier Architecture

1. **Presentation Layer (Frontend)**
    - HTML, CSS, JavaScript
    - Provides forms for login, signup, voice recording, text input, and chat
    - Displays user content in a readable and responsive format
2. **Business Logic Layer (Backend)**
    - PHP Scripts handle user login/logout, content upload, content display, and deletion
    - Ensures session management and file validation
    - Connects to the Gemini API for chatbot functionality
3. **Data Layer (Database)**
    - MySQL database stores user credentials, file paths, and text inputs
    - Ensures data retrieval for playback and display

4.4 Module Design

4.4.1 User Authentication Module

- **Functions:** Signup, Login, Logout, Session Start, Password Encryption

- **Features:**
  - Users can sign up with unique email
  - Login session starts only after credential validation
  - Passwords stored securely
  - Access restricted to logged-in users

4.4.2 Voice Upload Module

- **Functions:** Voice recording, 90-second limit, 5MB max size
- **Workflow:**
  - User records via browser
  - File is previewed
  - After confirmation, file is uploaded and saved
  - File path is stored in database

4.4.3 Text Upload Module

- **Functions:** Text writing, editing, and submission
- **Workflow:**
  - User writes feelings or messages
  - Submits text to be saved in the database
  - Text is shown on user dashboard

4.4.4 Chatbot Module (Gemini API)

- **Functions:** Emotional AI support
- **Workflow:**
  - User types message
  - Query is sent to Gemini API
  - AI responds with contextual and emotional feedback
  - Response is displayed in chat panel

4.4.5 Content Display Module

- **Functions:** Display uploaded voice and text
- **Workflow:**
  - Server retrieves data based on user session
  - Loads media/text dynamically
  - Shows only user's content with delete options

4.5 Database Design

4.5.1 Tables

1. **Users Table**

```
CREATE TABLE users (
    id INT AUTO_INCREMENT PRIMARY KEY,
    name VARCHAR(255) NOT NULL,
    email VARCHAR(255) NOT NULL UNIQUE,
    password VARCHAR(255) NOT NULL
);
```

2. **Voice Table**

```
CREATE TABLE voice (
    id INT AUTO_INCREMENT PRIMARY KEY,
    user_id INT NOT NULL,
    filename VARCHAR(255) NOT NULL,
    timestamp DATETIME DEFAULT CURRENT_TIMESTAMP,
    FOREIGN KEY (user_id) REFERENCES users(id) ON DELETE CASCADE
);
```

3. **Text Table**

```
CREATE TABLE text (
    id INT AUTO_INCREMENT PRIMARY KEY,
    user_id INT NOT NULL,
    content TEXT NOT NULL,
    timestamp DATETIME DEFAULT CURRENT_TIMESTAMP,
    FOREIGN KEY (user_id) REFERENCES users(id) ON DELETE CASCADE
);
```

4.6 User Interface Design

4.6.1 Home Page

- Displays welcome message and motivational poetry
- Navigation bar with links to Voice, Text, and Chat

4.6.2 Voice Page

- Shows voice recording interface
- Upload and playback section
- Only logged-in users can record/upload

4.6.3 Text Page

- Simple form to submit thoughts
- Shows submitted entries in card format
- Option to delete own content

4.6.4 Chat Page

- Chat window interface
- AI-generated conversation thread
- Users can express emotions in text and receive support

4.7 Security Design

- **Session Validation:** Prevents unauthorized access
- **Password Hashing:** Ensures credentials are not stored as plain text
- **File Validation:** Limits size and format of voice uploads
- **User Ownership:** Only the original uploader can delete their content
- **Input Sanitization:** Prevents SQL injection and XSS attacks

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4.8 Summary

The design phase of *Heart Space* ensures a smooth user journey from login to emotional expression via voice, text, and AI chat. It balances simplicity and functionality while protecting user privacy and delivering a modern experience. Each module is designed to be modular and scalable for future upgrades, including mobile apps or community features.

CHAPTER-5 IMPLEMENTATION

5.1 Introduction

The implementation phase involves the actual coding, configuration, and integration of system modules. It is where the design is translated into a working system. For *Heart Space*, implementation includes setting up the web server, coding front-end and back-end functionalities, connecting the database, and integrating voice recording and the Gemini API for chatbot support.

This chapter explains how each part of the *Heart Space* system was implemented using HTML, CSS, JavaScript, PHP, and MySQL.

5.2 Development Environment

- **Platform Used:** XAMPP (Apache, PHP, MySQL)
- **Languages:** HTML5, CSS3, JavaScript (ES6), PHP 8+
- **Database:** MySQL (phpMyAdmin)
- **API Integration:** Gemini AI (Google's generative API)
- **Tools Used:**
    - Visual Studio Code
    - Google Chrome
    - Git for version control
    - Audacity (for voice quality checks)

5.3 Implementation Steps

5.3.1 User Registration and Login System

Technologies Used: HTML, CSS, PHP, MySQL

- Signup form includes fields for name, email, and password
- On submission, data is sanitized and stored in the MySQL database with hashed passwords
- Login system authenticates user using $_SESSION in PHP
- Secure sessions created to manage user identity
- Users are redirected to index.php after successful login

5.3.2 Voice Recording and Upload

Technologies Used: JavaScript (MediaRecorder API), PHP

- The frontend allows users to record voice using the browser microphone
- Recording is automatically limited to 90 seconds using a JavaScript timer
- A “preview” option lets users listen before uploading
- Upon upload, a .webm or .mp3 file is sent to the server using FormData
- Server-side PHP validates the file (max 5MB) and moves it to the uploads/ folder
- File path is saved in the voice table with the user’s ID and timestamp

5.3.3 Text Submission

Technologies Used: HTML, PHP, MySQL

- Simple textarea form allows users to submit thoughts
- Submitted text is stored in the text table along with user ID and timestamp
- Text is retrieved and displayed in cards using a PHP loop
- Only the session owner can delete their submitted texts

5.3.4 Chatbot Integration (Gemini API)

Technologies Used: JavaScript (Fetch), PHP

- User types a message in the chat window
- Message is sent via fetch() to a PHP file
- PHP forwards the message to Gemini API using an API key
- API returns a contextual and emotional response
- Response is displayed in the chat interface
- This creates a simulated real-time emotional support chat

5.3.5 Content Deletion Logic

Technologies Used: PHP, MySQL

- Delete buttons are displayed only for content uploaded by the logged-in user
- When clicked, a PHP script verifies the user ID before deleting the record
- Files (voice recordings) are also removed from the server using unlink()

5.4 Database Connectivity (PHP + MySQL)

php
CopyEdit

```
// db.php
$host = "localhost";
$user = "root";
$pass = "";
$db = "heartspace";

$conn = mysqli_connect($host, $user, $pass, $db);
if (!$conn) {
    die("Connection failed: " . mysqli_connect_error());
}
```

All other PHP files include this file to interact with the database.

5.5 Folder Structure

bash
CopyEdit

```
/heartspace
│
├── /css            # All styling files
├── /js             # JavaScript files
├── /uploads        # User voice uploads
├── db.php          # Database connection
├── signup.php      # Registration page
├── login.php       # Login page
├── index.php       # Main homepage
├── voice.php       # Voice upload page
├── text.php        # Text submission page
├── chat.php        # Gemini chatbot
├── logout.php      # Session destroy
└── delete.php      # Content deletion script
```

5.6 Integration Testing

- Tested voice uploads under various formats and sizes
- Verified session-based deletion of content
- Tested text upload and storage
- Gemini API tested for accuracy and emotional relevance
- Login system tested for invalid credentials and session expiry

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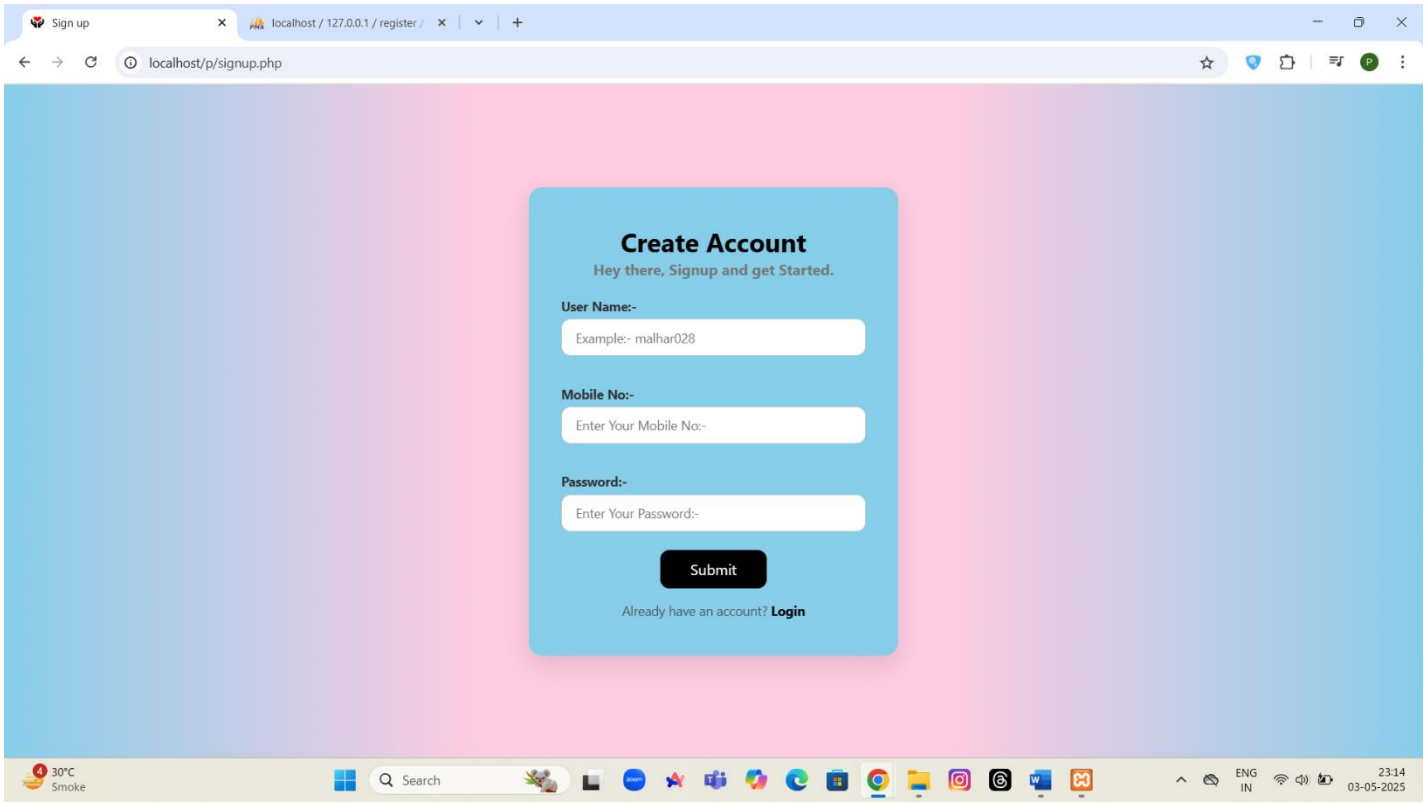
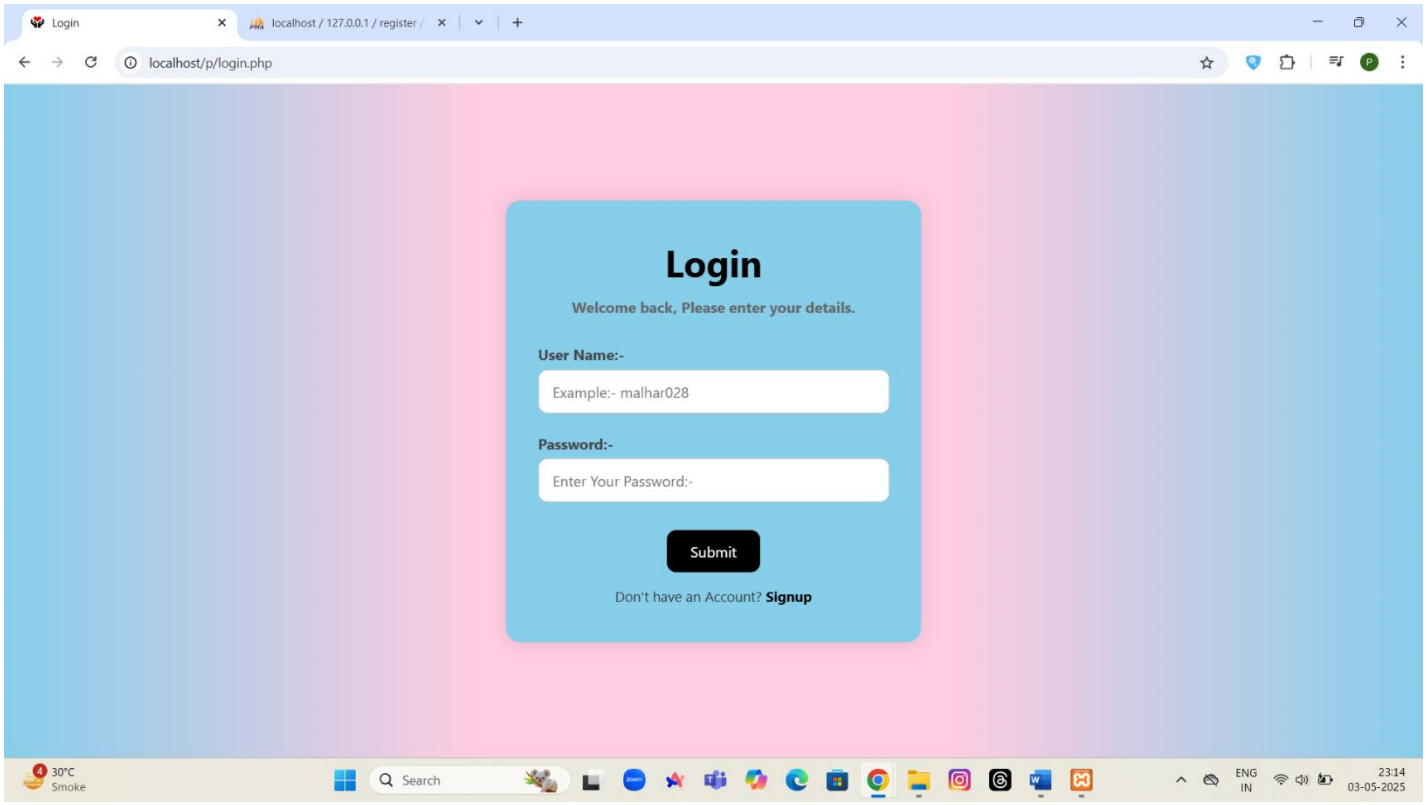
5.7 Screenshots

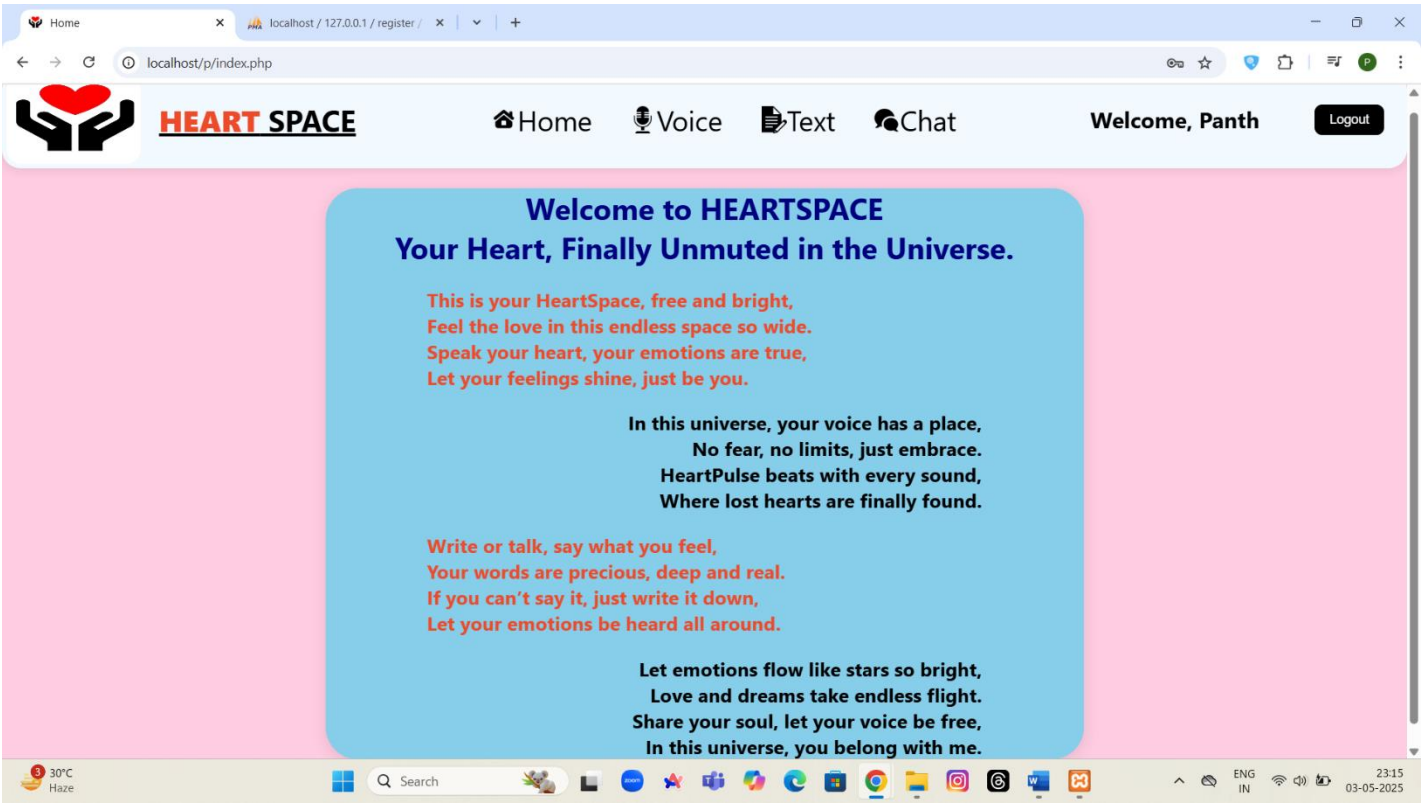
Signup Page



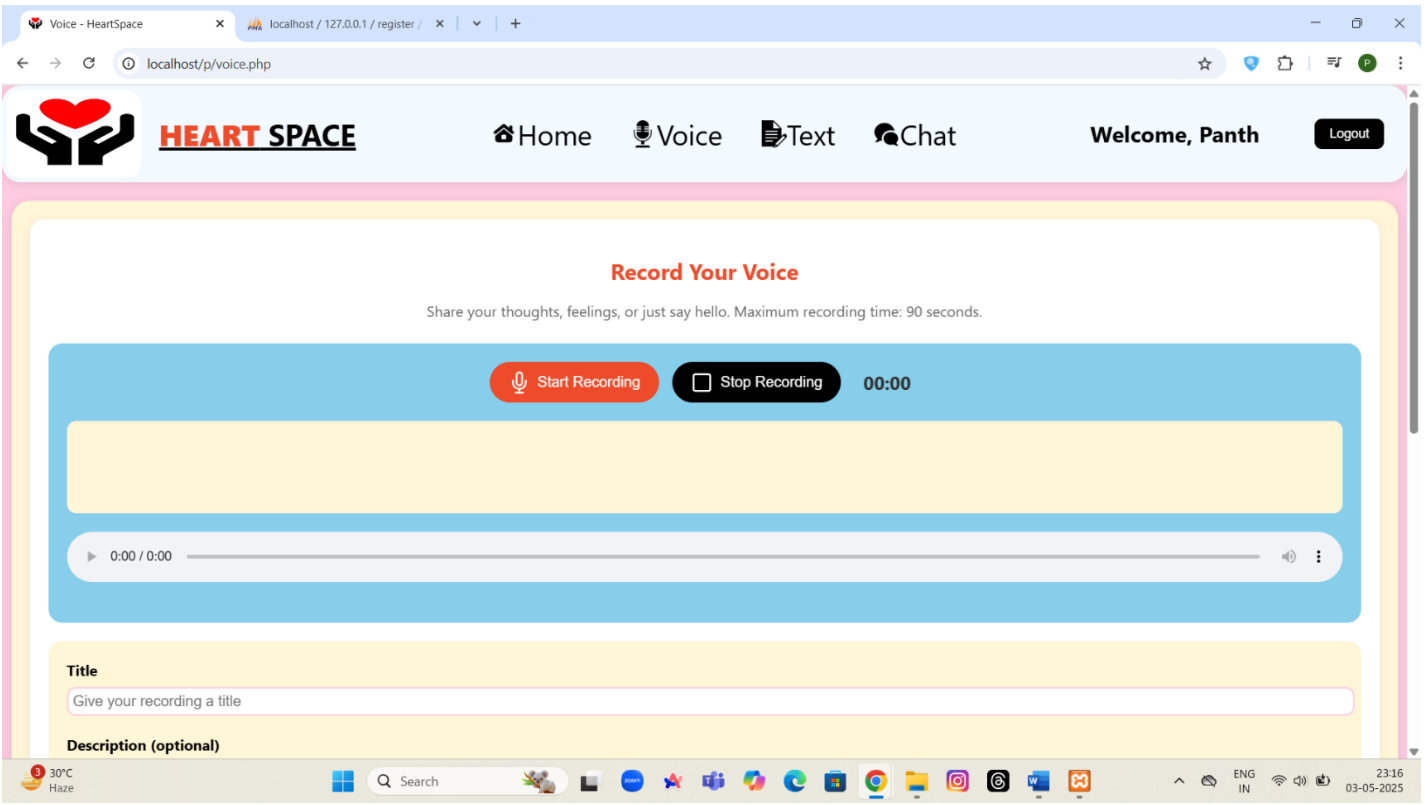
Login Page



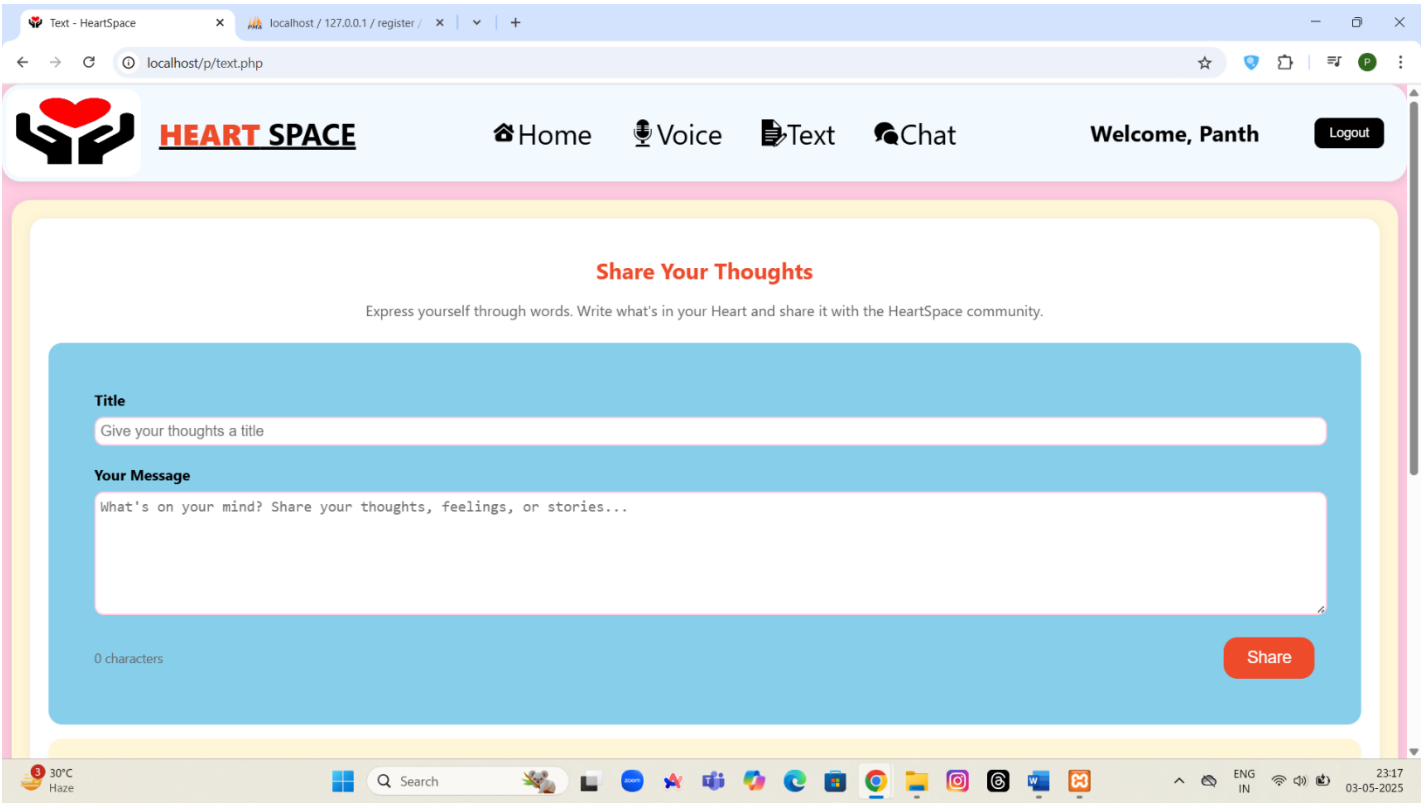
Home Page with poetry



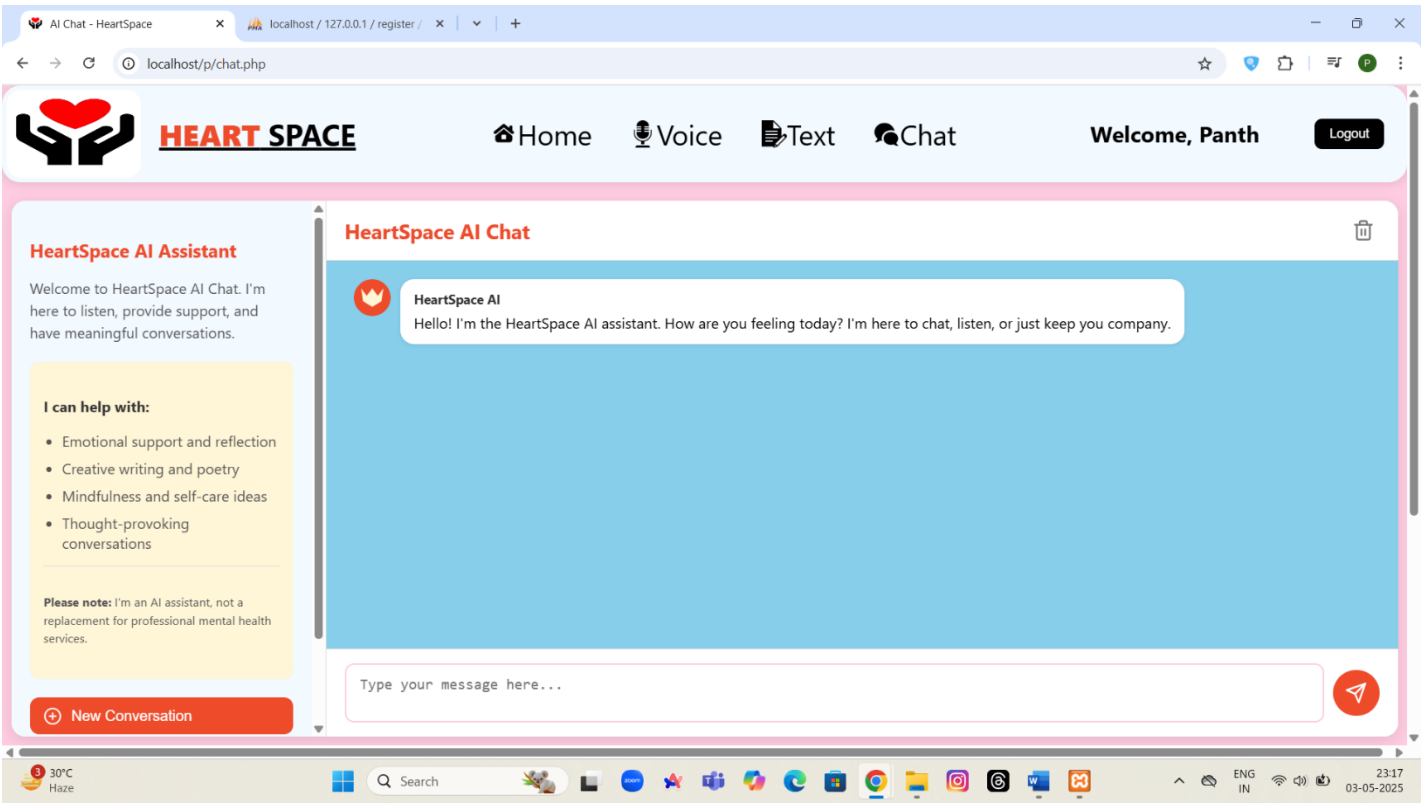
Voice Page



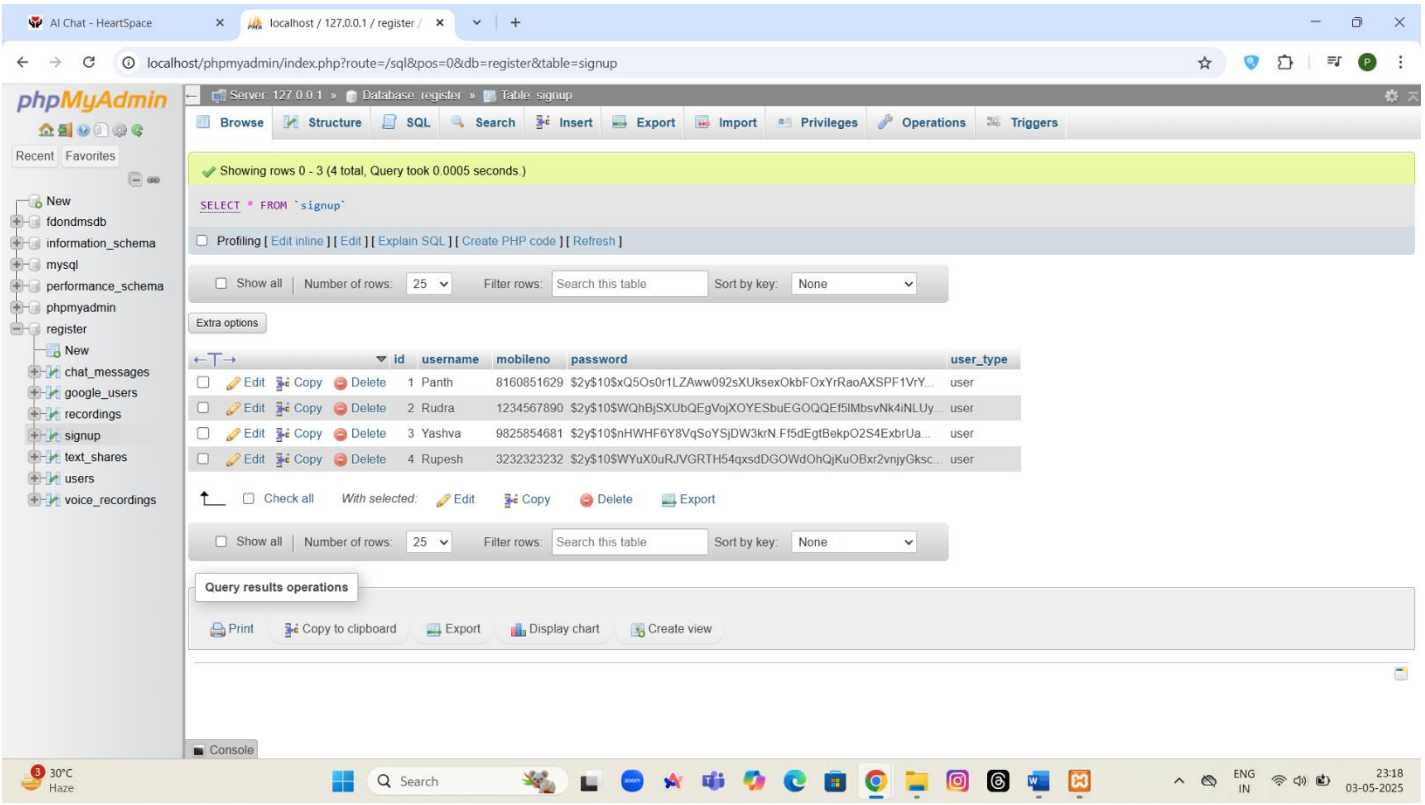
Text Page



Chat with Heart AI Page



PHP Database Tables



4

5.8 Summary

The implementation of *Heart Space* was carried out systematically by integrating frontend forms, back-end logic, file storage, and database communication. Security, usability, and emotional design were key factors throughout development. The result is a stable and functional web-based platform for voice and text expression with AI support.

CHAPTER-6 TESTING AND VALIDATION

6.1 Introduction

Testing and validation are essential phases in software development to ensure that the system meets the specified requirements and performs reliably in real-world scenarios. For *Heart Space*, rigorous testing was conducted across multiple components including the frontend UI, backend logic, database operations, and API integrations. This chapter outlines the various types of tests performed and documents the outcomes to verify system functionality, security, and usability.

6.2 Objectives of Testing

- To verify that each module functions as intended
- To detect and resolve bugs before deployment
- To ensure secure data handling and session management
- To validate file restrictions for audio uploads
- To confirm Gemini API responses are contextually accurate
- To ensure the system is user-friendly and accessible

6.3 Types of Testing Performed

6.3.1 Unit Testing

Scope: Individual functions and modules

- **Voice Upload Validation:** Ensured the system rejects files over 5MB or longer than 90 seconds
- **Login/Signup Logic:** Verified encryption, session creation, and redirects
- **Text Submission:** Tested input length, character restrictions, and database storage
- **Delete Option:** Validated that users can only delete their own uploads

6.3.2 Integration Testing

Scope: Combined modules interacting together

- Tested voice recording and upload with database linking
- Verified text submissions appear correctly in the frontend
- Confirmed Gemini API integrates seamlessly and returns output
- Ensured session data is maintained across pages

6.3.3 System Testing

Scope: Entire application

- All modules tested in a controlled environment
- Checked consistency in dark/light modes
- Validated responsive design on desktop, tablet, and mobile
- Assessed performance under simultaneous multi-user scenarios

6.3.4 User Acceptance Testing (UAT)

Scope: Usability and user feedback

- Non-technical users asked to register, upload, chat, and delete content
- Feedback was collected for ease of use, clarity, and layout
- Suggestions were noted for future improvements

6.4 Test Cases and Results

Test Case ID	Description	Expected Result	Actual Result	Status
TC001	User Login with valid credentials	Dashboard opens	Dashboard opens	Pass
TC002	Upload 3-minute voice file	Rejected with error	Rejected with error	Pass
TC003	Submit text with script tags	Input sanitized	Input sanitized	Pass
TC004	Delete other user's recording	Access denied	Access denied	Pass
TC005	Gemini API message	Relevant response	Relevant response	Pass
TC006	Logout and revisit	Redirect to login	Redirect to login	Pass

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6.5 Validation Techniques Used

- **Input Validation:** Prevented SQL injection and XSS
- **Session Validation:** Ensured logged-in status for content actions
- **Boundary Testing:** Checked limits of text length and file sizes
- **Error Handling:** Clear messages shown for invalid actions

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6.6 Bug Fixes During Testing

- Issue with file size validation fixed using filesize() check in PHP
- Duplicate email registration blocked by adding a unique constraint in the database
- Session timeout issues resolved by explicitly setting timeout duration
- Gemini API timeout errors handled with proper error-catching mechanism

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6.7 Summary

The *Heart Space* system underwent detailed testing at multiple levels to ensure stability, security, and performance. Every critical feature was tested against various inputs and edge cases. All modules passed their respective test cases, and the application is now ready for deployment. Validation steps ensured the integrity of user data, accurate chatbot interactions, and safe file uploads.

CHAPTER-7 RESULTS AND DISCUSSION

7.1 Introduction

The results and discussion chapter presents the outcomes observed after successful implementation and testing of the *Heart Space* platform. It focuses on evaluating whether the objectives set in the initial stages of the project were achieved. This chapter also discusses how the application performed in real-world conditions, its usability, and the satisfaction level of users during demonstration and trial sessions.

7.2 Project Outcomes

The *Heart Space* system successfully met the following intended goals:

- **User Authentication:** The login and signup features are fully functional with session management, restricting access to registered users only.
- **Voice Upload:** Users can record and upload 90-second voice notes. Files above 5MB or beyond time limits are rejected, maintaining performance and storage integrity.
- **Text Submission:** Simple and expressive text thoughts are posted by users and displayed cleanly. Only the author can delete their content.
- **Gemini Chat Integration:** The Gemini chatbot responds to users' inputs meaningfully, offering emotional support and conversation through AI.
- **Responsive UI:** The application is compatible with mobile, tablet, and desktop screen sizes with both dark and light mode options.

7.3 Observed Results

- **Performance:**
  The system loads quickly and smoothly handles real-time operations like chat and voice uploads. The average page load time observed was under 2 seconds.
- **Voice Feature:**
  - Automatic stop after 90 seconds
  - Playback before upload feature was praised by users
  - Server accepted only valid size and format files
- **Text Feature:**
  - Simplicity encouraged more emotional sharing
  - Proper deletion control ensured user privacy and trust
- **Chat Feature:**
  - The Gemini API was consistent in providing contextual responses
  - AI replies were seen as supportive, emotionally intelligent, and helpful

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7.4 User Feedback Highlights

Feedback was collected from a small group of test users. The responses were generally positive and constructive.

Feedback Category	Summary of Responses
Usability	Easy to navigate; UI was clean and modern
Accessibility	Functioned well on mobile and tablets
Functionality	All core features worked as expected
Emotional Impact	Users found it soothing to record and read others' content
Suggestions	Add options for anonymous posting; mood tracking in future

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7.5 Discussion

The project has successfully combined emotional expression and AI interaction on a single platform. Unlike traditional platforms focused only on communication or media sharing, *Heart Space* bridges the gap by allowing personal voice and textual thoughts to be heard and stored privately or socially. The feedback loop through AI also adds value, acting like a soft, listening companion.

The clean interface and responsive features make it user-friendly, while proper validations ensure that the system remains secure and efficient.

Some technical challenges faced during development included:

- Managing audio file size restrictions across different browsers
- Handling session expiry properly for long-duration usage
- Ensuring consistent API connectivity for chatbot features

All these were resolved during testing and fine-tuning.

7.6 Summary

The results confirm that *Heart Space* is a functional, reliable, and meaningful application that meets its primary goal—providing a safe and creative emotional outlet. User engagement, AI interaction, and expressive sharing all performed well, with clear areas identified for future enhancements.

CHAPTER-8 CONCLUSION

8.1 Conclusion

The *Heart Space* project set out to develop a digital platform that enables users to express their inner feelings through voice and text, while offering a safe and supportive environment enhanced by AI. The system has successfully achieved its primary objectives by integrating secure user login, voice and text upload functionality, content privacy, and intelligent interaction via the Gemini API.

The platform encourages mental and emotional well-being, providing a simple yet powerful way for users to share their thoughts or speak freely. With its intuitive interface, responsive design, and protective measures against unauthorized access or misuse, *Heart Space* provides a trustworthy space for personal expression.

Throughout the development journey, essential phases such as system design, implementation, testing, and evaluation were completed with detailed attention. The feedback from users validates the effectiveness and emotional value of the platform, confirming its real-world relevance.

8.2 Achievements

- Full integration of voice and text upload modules with proper validation
- Secure authentication and session-based access control
- Chatbot using Gemini API providing intelligent, contextual replies
- Responsive design for all screen sizes
- Aesthetically pleasing UI with light/dark mode options
- Comprehensive testing ensuring data integrity and system reliability

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CHAPTER-9 FUTURE SCOPE

9.1 Future Scope

While the current version of *Heart Space* fulfills the foundational requirements, there are multiple possibilities for future development:

1. Anonymous Posting Options

Introduce a feature that allows users to post anonymously to encourage even more openness and emotional honesty without identity pressure.

2. Sentiment Analysis

Use AI to analyze uploaded text or voice tone and provide sentiment-based insights or responses that are more emotionally aware.

3. Mood Tracker Dashboard

Create a timeline or graph showing the user's emotional state based on their text or voice entries over time.

4. Community Support Features

Enable optional community interaction—like hearts or comments on voice/text—for those who want peer support, with privacy controls.

5. Android/iOS Mobile Application

Expand accessibility by building a native mobile app version of *Heart Space*, keeping offline voice recording and push notification features.

6. Multi-language Support

Enable users to interact and post in different languages to reach a more diverse audience.

9.2 Summary

The *Heart Space* platform stands as a successful effort in bridging technology and human emotion. It offers a structured, secure, and creative space for users to express, reflect, and connect emotionally. With its current capabilities and future potential, *Heart Space* is well-positioned to evolve into a meaningful platform for digital emotional wellness.

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3. https://php.net – Official PHP documentation
4. https://cloud.google.com/gemini – Information on Gemini API integration
5. https://stackoverflow.com – Community-driven help for debugging and best practices
6. https://getbootstrap.com – Framework used for responsive design elements
7. https://fonts.google.com – Font management for UI design
8. https://codepen.io – Live frontend design and testing tool
9. https://fontawesome.com – Icons and UI enhancement
10. https://openai.com/blog/chatgpt – Context about AI-based conversational systems

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10.3 Software Tools Used

- **XAMPP** – For PHP and MySQL local server environment
- **Visual Studio Code** – Source code editor
- **Google Chrome Developer Tools** – For frontend testing and debugging
- **Audacity** – For testing audio files locally before integration
- **Postman** – For testing Gemini API requests and responses

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10.4 Summary

The bibliography provides a comprehensive list of all the references and resources used during the development of the *Heart Space* project.