9530

St.MOTHER THERESA ENGINEERING COLLEGE

COMPUTER SCIENCE ENGINEERING

NM-ID: 4e8e73aba9e7f7096f54784bd368a269

REG NO: 953023104023

DATE:13-09-2025

Completed the project named as

Phase 2

FRONT END TECHNOLOGY

CHAT APPLICATION UI

SUBMITTED BY,

B.BENY

9363129503

Phase 2 — Solution Design & Architecture

- **Tech Stack Selection:**
  - **Frontend**: ReactJS, TailwindCSS / CSS Modules
  - **State Management**: React Hooks (useState, useEffect), Context API
  - **Backend (Future)**: Node.js + Express (for REST APIs)
  - **Database (Future)**: MongoDB / Firebase

UI Structure / API Schema Design:

- **UI Components**:
  - ChatApp (root)
  - Sidebar (users list)
  - ChatWindow (messages area)
  - MessageInput (text input + send button)
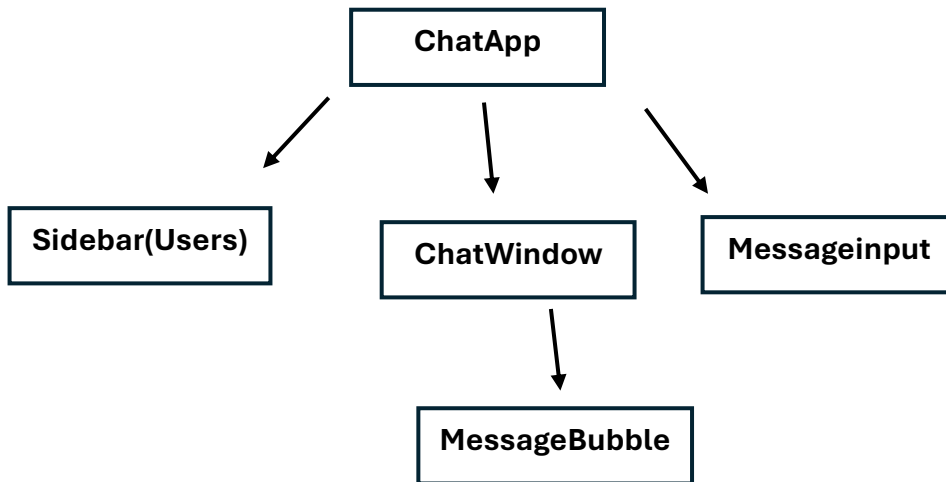 - MessageBubble (individual message)

API Schema (future):

```
{
  "messageId": "123",
  "sender": "User1",
  "text": "Hello!",
  "timestamp": "2025-09-13T12:00:00Z"
}
```

Data Handling Approach:

- Store messages in local React state (array of objects).
- On new message → update state → re-render chat window.
- Future: integrate with backend API.

Component / Module Diagram:

```
                    ┌──────────────┐
                    │   ChatApp    │
                    └──────────────┘
            ┌───────────┼───────────┐
            ▼           ▼           ▼
┌──────────────┐ ┌──────────────┐ ┌──────────────┐
│ Sidebar(Users)│ │  ChatWindow  │ │ Messageinput │
└──────────────┘ └──────────────┘ └──────────────┘
                        │
                        ▼
                 ┌──────────────┐
                 │ MessageBubble │
                 └──────────────┘
```

Basic Flow Diagram:

```
         ┌──────────────────┐
         │  User types text │
         └──────────────────┘
                  ⇩
         ┌──────────────────┐
         │   Clicks send    │
         └──────────────────┘
                  ⇩
         ┌──────────────────────┐
         │ Message added to state│
         └──────────────────────┘
                  ⇩
         ┌──────────────────┐
         │    UI updates    │
         └──────────────────┘
                  ⇩
         ┌──────────────────────┐
         │ Message displayed in │
         │     ChatWindow       │
         └──────────────────────┘
```