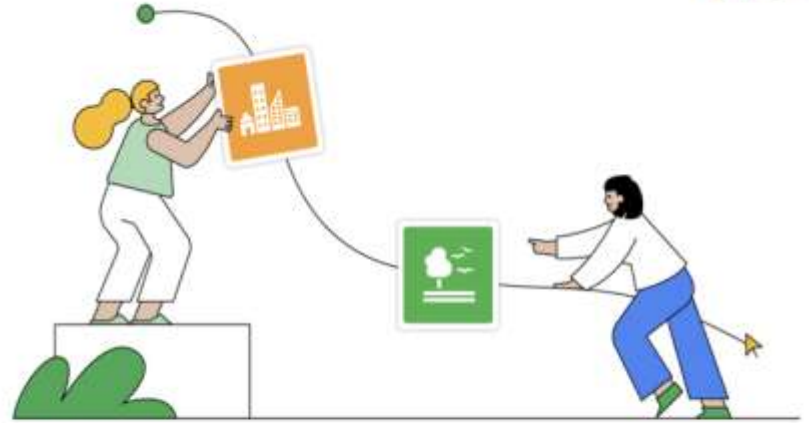




# Solution Challenge



## Team Details

- a. Team name: 404 Team Error
- b. Team leader name: Aman Nirmalkar
- c. Problem Statement: Open Innovation for a better tomorrow

## Brief about your solution

**CareSync** is a secure, AI-powered digital platform designed to centralize and streamline medical documentation for **patients, doctors, and hospitals**. It replaces outdated paper records with **real-time, role-based access**, allowing patients to control who sees their data through **live permissions** and **emergency QR codes**.

To ensure trust and transparency, every interaction is recorded on a **blockchain-based audit trail**, making logs tamper-proof and legally valid.

The platform also leverages **AI/ML** to analyze health trends, predict risks, and generate insights, while simplifying **insurance claim processing** with complete, verifiable medical records — all in one secure place.

## Opportunities

### 🔍 What Sets CareSync Apart?

Unlike typical health apps or record systems, CareSync offers **real-time record access**, **emergency QR codes**, and a **blockchain-backed audit layer** — combining speed, security, and trust in one platform.










#### ☐ Solving Real Problems

- Eliminates **paper-based delays** and manual handling
- Provides instant access in **critical emergencies**
- Reduces fraud and delays in **insurance claim processing**
- Empowers patients with **full control over their data**

#### ★ Our Unique Selling Points (USP)

- **WebSocket-based live permission system**
- **AI-driven health alerts & predictions**
- **Dual-role support** for doctors (as patients too)
- **Tamper-proof audit logs** using blockchain
- **Time-bound QR codes** for emergency responders

## List of features offered by CareSync

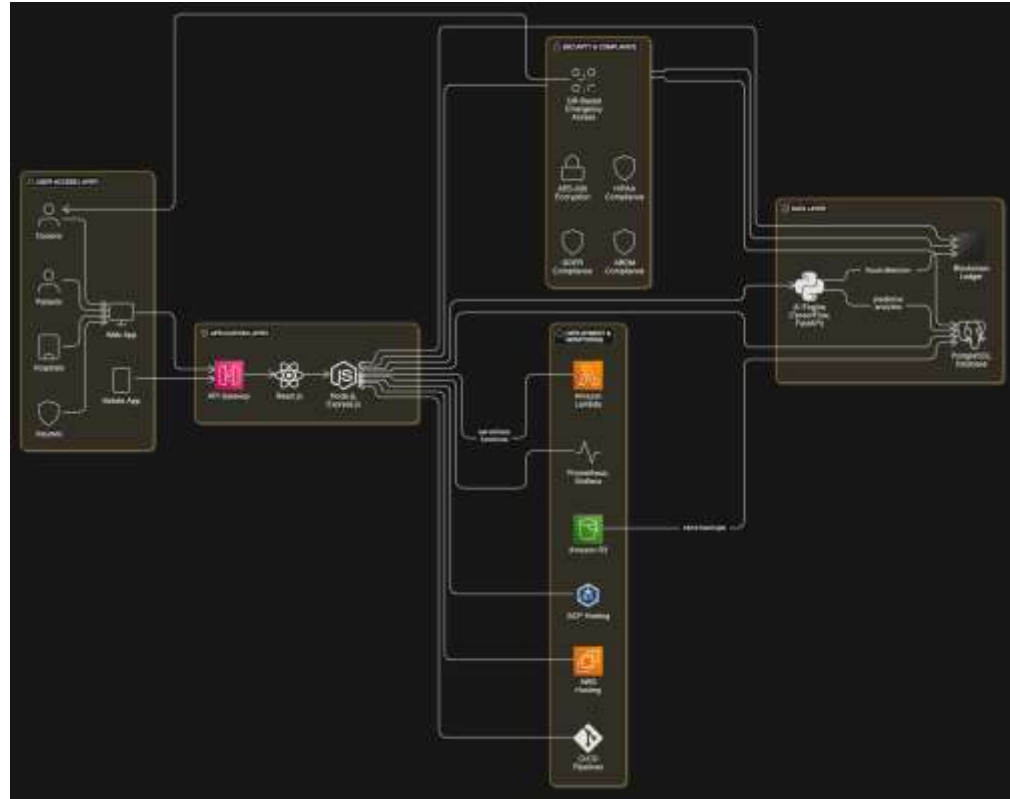
-  **Role-Based Access Control**  
Separate dashboards for Users, Doctors, and Admins
-  **Digital Health Record Management**  
Upload, view, and manage personal or patient medical documents
-  **Real-Time Access via WebSockets**  
Live permission requests and approvals between doctors and patients
-  **Emergency QR Code**  
Instant, time-bound access to critical health info during emergencies
-  **Hospital Discovery**  
Find nearby hospitals and their contact info
-  **Blockchain Audit Logging**  
Tamper-proof logs for every access or modification action
-  **Dual-Role Doctor Mode**  
Doctors can also manage their own records as patients
-  **AI/ML Health Insights (Future)**  
Predictive analytics, risk alerts, and trends from health history
-  **Insurance-Ready Documentation**  
Structured records and logs for faster claim verification

## Process flow diagram or Use-case diagram



[Use case Diagram Link](#)

## Architecture diagram of the proposed solution



## Technologies to be used

### ☐ Core Tech Stack

- **Frontend:** React.js
- **Backend:** Node.js with Express.js
- **Database:** MongoDB (with field-level encryption)
- **Real-Time Communication:** WebSockets via Socket.io
- **QR Code Generation:** qrcode.react
- **Blockchain Audit Layer:** Ethereum / Hyperledger Fabric for immutable activity logs

### ☐ AI/ML Integration

- Predictive analytics on patient health trends
- Smart alerts for high-risk patterns
- Insurance fraud detection based on behavioral history
- Summary generation of medical records using **Gemini API**

### Security Architecture

- End-to-End Encryption (E2EE)
- OTP-based role-specific authentication
- Role-Based Access Control (RBAC)
- Time-restricted QR tokens for emergency access

### ☐ Bonus Points

- **IDX Integration:** For decentralized identity control and cross-platform health data portability
- **Gemini API:** For generating AI-driven medical history summaries, aiding faster diagnosis

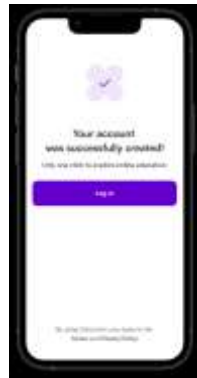
## Estimated Real-Life Implementation Cost for CareSync Deployment

Component	Estimated Cost (INR)	Description
<b>Hospital Onboarding &amp; Integration</b>	₹4,00,000 – ₹6,00,000	Partnering with hospitals, syncing with existing EMR systems, pilot programs
<b>Training &amp; Workshops</b>	₹1,50,000 – ₹2,00,000	Training for doctors, nurses, admin staff on using the platform
<b>Public Awareness Campaigns</b>	₹3,00,000 – ₹5,00,000	Digital ads, hospital posters, community outreach, collaborations
<b>Customer Support Setup (6 months)</b>	₹2,00,000	Basic helpdesk team, FAQs, live chat or call-based support
<b>Legal &amp; Compliance Certifications</b>	₹1,00,000 – ₹1,50,000	Regulatory approvals, MoUs with institutions, insurance compliance
<b>Emergency QR Rollout</b>	₹75,000 – ₹1,00,000	Printing patient QR cards/stickers, hospital-side access infrastructure
<b>Miscellaneous &amp; Contingency</b>	₹50,000	Transport, logistics, feedback events, IT support

|  **Total Estimated Cost** | **₹12,75,000 – ₹17,50,000** |



## Snapshots of the MVP



Provide links to your:

GitHub Public Repository

-> [Github repo](#)

Demo Video Link (3 Minutes)

-> [Video Link](#)



# Solution Challenge



Thank you

