

## **1 . Problem Statement: “AI-Powered Event Recommendation and Discovery Platform”**

### **Background:**

In universities, professional communities, and online learning ecosystems, students and professionals frequently miss out on valuable **workshops, seminars, hackathons, and networking events** because the information is **scattered across multiple channels** — emails, WhatsApp groups, LinkedIn posts, and university notice boards.

This lack of centralized, intelligent discovery reduces participation in growth opportunities. A personalized recommendation engine, powered by AI, can transform how users **discover and engage** with relevant events aligned with their **skills, interests, and career aspirations**.

### **Challenge:**

Build an **AI-driven web platform** that acts as a personalized event discovery assistant for users. The system should intelligently learn each user's preferences (based on their academic background, skills, interests, and past participation) and recommend **relevant campus or online events** in a “For You” feed.

At the same time, event organizers should have an intuitive dashboard to **post, tag, and manage events** with keywords for visibility. The goal is to increase engagement and awareness while reducing information clutter.

### **Requirements:**

- **User Profiles:**  
Allow users to create detailed profiles capturing their **skills, academic background, professional goals, and interests** (e.g., AI, startups, sustainability). Use this data to tailor event recommendations.
- **Organizer Portal:**  
Create an **admin interface** where verified event organizers can post events, add event details (time, location, mode, capacity), and **tag them with keywords or categories**.
- **AI Recommendation Engine:**  
Use machine learning models (e.g., content-based filtering or hybrid recommenders) to generate personalized event feeds for each user based on similarity between user interests and event tags.
- **Event Discovery Feed:**  
Display events in a visually appealing “For You” section with filters for time, type (online/offline), category (tech, business, art), and location.
- **Reminders and RSVP System:**  
Let users bookmark or RSVP to events and receive automated reminders via email or in-app notifications.

- **Analytics Dashboard:**

Provide organizers insights into **engagement metrics** — number of RSVPs, event popularity, and interest categories trending among users.

#### **Extra Points:**

- **Calendar Integration:**

Integrate with **Google Calendar or Outlook** so users can add upcoming events directly to their schedule with reminders.

- **Smart Notifications:**

Send proactive AI-generated notifications — e.g., “A new AI workshop is happening near you this weekend!”

- **Social & Collaborative Features:**

Allow users to share events, form event groups, or network with others who have similar interests.

- **AI Feedback Loop:**

Continuously improve recommendations by analyzing user engagement patterns — e.g., which events they attend, skip, or rate highly.

- **Gamification (Optional):**

Introduce badges or points for attending or sharing events to boost participation.

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### **3. Problem Statement: “Decentralized Micro-Blogging Platform for User-Owned Content”**

#### **Background:**

Traditional social media platforms such as X (Twitter), Instagram, and Threads operate under **centralized control**, meaning user data, content, and even identities are stored and managed by corporations. This centralization leads to major concerns — **data privacy breaches, content censorship, shadow banning, and lack of ownership** over the very content users create.

In contrast, **Web3 technologies** enable a new form of social media — one where **users truly own their identity and posts** through cryptographic wallets and decentralized storage. By combining **blockchain and IPFS**, creators can maintain full control and transparency over their data, while audiences can directly engage and reward them through crypto payments.

#### **Challenge:**

Build a **Web3-based decentralized micro-blogging platform** where users can **post short text updates, follow others, and interact freely** — all while **owning their content, identity, and engagement data**.

The platform should replicate the simplicity of modern micro-blogging (e.g., short posts, likes, follows) while ensuring transparency and censorship resistance through decentralized infrastructure.

## Requirements:

- **Web3 Wallet Authentication:**

Users log in using crypto wallets such as **MetaMask** or **WalletConnect**, ensuring decentralized identity (no username-password).

Each wallet address acts as a **unique digital identity**, tied cryptographically to posts and actions on the platform.

- **Decentralized Content Storage:**

Posts (short text messages) should be stored off-chain using **IPFS (InterPlanetary File System)** to minimize costs.

Each post generates a **Content Identifier (CID)** stored on-chain alongside the **author's address, timestamp, and optional metadata (tags, language, etc.)**.

- **On-Chain Smart Contracts:**

A lightweight smart contract manages core functionalities:

- Mapping of user → post pointers (CIDs).
- Event logging for posts, follows, and likes.
- Support for **crypto tipping** (ETH or ERC-20 tokens).

- **Off-Chain Indexer + Feed System:**

An **indexing service** listens to blockchain events and compiles a **public feed** that's fast and searchable.

This ensures scalability — users can query timelines, discover trending posts, or filter content without directly querying the blockchain.

- **User Interface (Web App):**

A clean, Twitter-like interface where users can:

- Post text updates.
- View personalized feeds.
- Follow wallet addresses.
- Send crypto tips to content creators directly.

- **Crypto-Based Tipping System:**

Integrate tipping to allow direct **peer-to-peer appreciation** of creators.

Implement safe **withdrawal patterns** (to avoid reentrancy or gas abuse) for users to

claim their earnings.

- **Minimal On-Chain State:**

To optimize speed and minimize gas costs, only essential details (CID + author + timestamp) should be on-chain.

Rich content remains decentralized on IPFS.

#### **Extra Points:**

- **Reputation & Identity Layer:**

Implement ENS (Ethereum Name Service) or Lens Protocol-style identity integration for recognizable profiles (e.g., `alice.eth`).

- **End-to-End Encryption for DMs:**

Add secure, wallet-based peer-to-peer messaging.

- **AI-Powered Moderation (Optional):**

Integrate an on-device or federated AI model to detect and flag spam or harmful content without central control.

- **Cross-Chain Support:**

Use Polygon or Avalanche subnet to ensure faster and cheaper transactions.

- **Community-Driven Governance:**

Introduce DAO-like voting for platform rules, trending algorithms, and creator incentives.

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### **3. Problem Statement: “AI-Based Mental Health Companion and Mood Analyser”**

#### **Background:**

In today's fast-paced world, mental health concerns such as stress, anxiety, and burnout are becoming increasingly common among students and professionals. Despite growing awareness, access to timely, affordable, and stigma-free mental health support remains limited.

Artificial Intelligence offers a unique opportunity to bridge this gap by providing a **virtual mental health companion** that can interact empathetically, monitor emotional well-being, and deliver personalized recommendations to help users manage their mental health more effectively.

#### **Challenge:**

Design and develop a **web-based AI mental wellness platform** that acts as a supportive companion for users. The system should intelligently analyze user emotions through text or voice interactions, detect mood trends over time, and recommend personalized coping mechanisms such as meditation, journaling, or breathing exercises.

The goal is to create an engaging and trustworthy digital companion that promotes self-awareness, emotional regulation, and mental well-being — while ensuring user privacy and ethical AI usage.

## Requirements:

- **AI Chatbot for Emotional Support:**  
Build an empathetic chatbot capable of understanding user input (text or voice) and responding in a supportive, non-judgmental tone. It should use sentiment and emotion analysis (via NLP models) to detect the user's current emotional state.
- **Mood & Emotion Analytics Dashboard:**  
Visualize daily, weekly, and monthly emotional trends using intuitive charts or mood trackers, allowing users to reflect on their progress.
- **Personalized Wellness Recommendations:**  
Based on detected moods, recommend tailored activities such as mindfulness sessions, physical activities, or motivational content.
- **Privacy and Security:**  
Store all data securely with user consent, anonymization, and encryption to ensure data protection and trust.
- **User Profiles:**  
Allow users to set personal goals, emotional check-in frequency, and preferred content types (music therapy, meditation, journaling).

## Extra Points:

- **Wearable/Smartphone Data Integration:**  
Use APIs to analyze external data (sleep duration, physical activity, heart rate, or screen time) to enhance mood prediction accuracy.
- **Multimodal Emotion Detection:**  
Incorporate facial expression or voice tone analysis using AI models for deeper emotional insight.
- **Gamification:**  
Introduce streaks, badges, or positive reinforcement to motivate users to maintain emotional wellness habits.
- **Crisis Mode:**  
Detect signs of severe distress and suggest emergency helplines or mental health professional contacts.

## 4. Problem Statement: “Community Donation Tracker”

### Background:

While online donations have made it easier for people to contribute to social causes, **transparency and accountability** remain major concerns. Donors often have little to no visibility into **how their funds are being used**, which projects their money supports, or what measurable impact it creates.

This lack of transparency leads to **trust issues, lower donor engagement**, and reduced long-term support for NGOs and charities — especially small, local ones without sophisticated infrastructure.

### Challenge:

Design and develop a **web-based transparent donation tracking platform** that connects donors, NGOs, and social impact initiatives in one ecosystem. The platform should enable **NGOs to list active projects**, receive donations securely, and update progress in real-time.

Donors, in turn, should be able to **track their contributions**, view how funds are allocated, and see tangible outcomes — such as meals distributed, trees planted, or students educated — creating a sense of trust and continued engagement.

### Requirements:

- **User roles:**

- **Donors** can register, explore verified NGOs/projects, donate online, and track their past donations.
- **NGOs/Organizations** can create verified profiles, list ongoing and completed projects, upload media/progress updates, and generate reports.

- **Donation dashboard:**

- A personalized dashboard showing all contributions, project impact summaries, and transaction history.

- **Transparency features:**

- Each donation and update should be traceable — showing where and how funds are being spent.

- **Impact insights:**

- Visual dashboards displaying metrics like “Meals Served,” “Children Educated,” “Trees Planted,” etc., in real-time.

### Extra Points:

- **Blockchain-based Transparency Ledger:**

Store donation transactions and project updates on a public or semi-public

blockchain (e.g., Polygon, Ethereum testnet) to ensure data immutability and verifiable transparency.

- **Data Visualization:**

Interactive dashboards with charts and infographics that reflect community impact metrics and donor contributions.

- **Gamification and Engagement:**

Introduce features like donor badges, leaderboards, or “impact milestones” to encourage recurring donations.

- **Integration Possibilities:**

- Payment gateway integration (e.g., Razorpay, Stripe).
  - Google Maps integration for project geolocation (to show where impact is happening).
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## 5. Problem Statement: “AI-Powered Smart Tourism Companion for India”

### Background:

India, with its diverse culture, history, and geography, attracts millions of travelers every year. However, tourists — both domestic and international — often struggle with **information overload, fragmented resources, and lack of personalization** when planning trips.

Existing tourism websites provide static information, but not intelligent guidance tailored to a traveler's **interests, time, budget, and location**. Moreover, small local attractions, hidden gems, and cultural experiences often remain undiscovered due to poor digital visibility.

### Challenge:

Develop an **AI-powered web platform** that acts as a **personalized travel companion** for tourists in India. The system should intelligently plan itineraries, recommend destinations, cultural events, and local food experiences based on user preferences, travel dates, and current weather or crowd conditions.

The goal is to create an **intelligent and sustainable tourism assistant** that enhances user experience, promotes local tourism, and supports eco-friendly travel decisions.

### Requirements:

- **User Profiles:** Collect traveler preferences like interests (heritage, adventure, food, nature), travel duration, and budget.

- **AI Recommendation Engine:** Suggest personalized itineraries, destinations, stays, and local attractions using machine learning or LLM-based recommendation models.
- **Real-Time Context Awareness:** Integrate APIs for weather, crowd density, and public transport updates to recommend the best time or route to visit.
- **Interactive Map Interface:** Visualize nearby attractions, eateries, and cultural events using Google Maps API.
- **Multilingual Chatbot:** Provide AI-based conversational assistance in **multiple Indian languages** for accessibility (e.g., Hindi, Tamil, Bengali, English).
- **Cultural Insights:** Include snippets of local traditions, must-try food, and sustainable travel tips for each destination.

#### **Extra Points:**

- **Integration with Indian Tourism APIs:** Use open data sources like **Incredible India API** or **state tourism boards' APIs** for authentic information.
- **AI Image Recognition:** Allow users to upload a photo of a landmark, and the system identifies it, gives details, and suggests nearby places.
- **Smart Budget Planner:** Estimate trip costs, split expenses, and optimize routes for affordability.
- **Sustainability Focus:** Highlight eco-friendly hotels, local homestays, and carbon-light travel options.
- **Community Layer:** Allow travelers to share itineraries, photos, and reviews — promoting authentic user-generated content.

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## **6. Problem Statement: “AI-Blockchain Powered Medical Data Management and Diagnosis Assistant”**

#### **Background:**

India's healthcare ecosystem faces major challenges in **data fragmentation, lack of interoperability, and limited patient control over medical records**. Patients often visit multiple hospitals or labs, but their health data remains scattered, insecure, or even inaccessible when needed.

At the same time, AI has shown immense potential in **predictive diagnosis, medical image analysis, and personalised treatment recommendations**. Combining Blockchain and AI can revolutionise healthcare by ensuring **secure, tamper-proof medical data sharing** while enabling **intelligent, privacy-preserving insights** for doctors and patients alike.

### **Challenge:**

Build a **web-based platform** that allows patients and healthcare providers to securely store, access, and share medical data using **Blockchain for trust and transparency** and **AI for predictive health insights or diagnosis assistance**.

The system should empower users to **own their health data**, ensure secure sharing with authorised doctors, and utilise AI models to analyse health records or symptoms for early diagnosis and personalised care.

### **Requirements:**

- **Decentralized Health Record System:**  
Use **Blockchain** to securely store metadata and manage access permissions for health records (actual data can be stored on IPFS or encrypted cloud storage).
- **User Roles:**  
Separate interfaces for **patients, doctors, and labs** — each with access rights controlled via blockchain smart contracts.
- **AI Health Assistant:**  
Integrate AI models for tasks like symptom analysis, report summarization, or preliminary disease prediction based on uploaded data (e.g., lab results, prescriptions).
- **Data Privacy & Consent Management:**  
Allow patients to grant/revoke data-sharing permissions dynamically, ensuring GDPR and HIPAA-style privacy compliance.
- **Dashboard & Analytics:**  
Provide an intuitive dashboard for both patients (health trends, prescriptions) and doctors (aggregated patient summaries, early alerts).

### **Extra Points:**

- **Interoperability:**  
Support standardized formats (like FHIR) for seamless integration with hospital management systems or wearable devices.
- **AI-Driven Preventive Care:**  
Use AI to predict potential health risks (like diabetes, hypertension) and recommend lifestyle or diet changes.
- **On-Chain Audit Trail:**  
Maintain an immutable history of every access, modification, or sharing event for transparency.
- **Integration with National Health Stack (India):**  
Use APIs aligned with **Ayushman Bharat Digital Mission (ABDM)** for identity and

health record interoperability.

- **Emergency Access Feature:**

Allow temporary access for emergency healthcare providers through blockchain smart contracts.