

GrassRoots: Feature Requirements

1. User Authentication System

Description

A secure user authentication system that allows users to create accounts, log in, and manage their sessions.

Requirements

- User Registration
 - Users can create accounts with:
 - Full name
 - Email address (must be unique)
 - Password (with security requirements)
 - Password requirements:
 - Minimum 6 characters
 - Maximum 20 characters
 - At least 1 special character
 - At least 1 digit
 - At least 1 uppercase letter
 - Email validation for proper format
 - Password confirmation matching
- User Login
 - Email and password authentication
 - Session management
- Security Features
 - Password hashing using PBKDF2 with SHA256
 - Session management with secure cookies
 - Protection against common security vulnerabilities

2. Interactive Map

Description

An interactive map interface that displays weather information, environmental alerts, and user location.

Requirements

- Map Interface
 - Interactive map using [Leaflet.js](#)
 - User's current location detection
 - Zoom and pan controls
 - Responsive design for different screen sizes
- Location Features
 - Automatic geolocation detection
 - Location-based weather information

3. Weather and Alerts Functionality

Description

Real-time weather information and environmental alerts for the user's location.

Requirements

- Weather Information
 - Current temperature
 - Weekly forecast
 - Wind speed and direction
 - Weather conditions with icons
 - City and state information
 - Air Quality
 - Air Quality Index (AQI) display
- Environmental Alerts
 - Active alerts display
 - Alert severity levels
 - Alert descriptions
 - Advisory instructions
 - Visual representation of affected areas
- Real-time updates

4. Community Forum

Description

An interactive community platform for users to share and discuss environmental topics.

Requirements

- Post Management
 - Create new posts with Title, Content, Tags, Image
 - Location information (ZIP Code)
- Content Features
 - Rich text formatting
 - Image upload with drag-and-drop support
 - Image preview
 - URL image linking
- Category/tag system
 - Organization and Search
 - Sort posts by:
 - Popularity
 - Newest
 - Oldest
 - Title
 - Filter by tags/categories
 - Search functionality
 - Location-based filtering
- User Interaction
 - Authentication required for posting
 - Public viewing of posts
 - User attribution for posts

5. Environmental Events Page

Description

A platform to discover local environmental events and activities, pulled from location-based EventBrite events.

Requirements

- Event Discovery
 - Automatic location-based event search
 - Event details including:
 - Event name
 - Date and time
 - Location
 - Description

- Event image
 - External link to event page
- Event Display
 - Grid layout for event cards
 - Image thumbnails
- Loading states and error handling
- Integration
 - Eventbrite API integration
 - Geolocation services
 - Reverse geocoding for location data
 - External event linking

Technical Requirements

Backend

- Flask web framework
- SQLite database
- RESTful API endpoints
- Secure session management
- File upload handling
- External API integrations

Frontend

- Responsive design
- Modern UI/UX
- Cross-browser compatibility

Security

- Input validation
- XSS protection
- CSRF protection
- Secure password handling
- API key management
- File upload security

Performance

- Efficient database queries
- Optimized image handling

- Caching where appropriate
- Minimal external dependencies
- Fast page load times