Meeting Log

Date & Time	Attendance	Agenda	Meeting Minutes/Notes
- 2/17/2025 1:00PM	- Ronnie Burns II - CJ Mitchell - Jamal Person - Jarrett Gilbert	- Milestone 1	- At 1:00 Discussed what the milestone entailed and answered any questions concerned with it - At 1:15 delegated all task to appropriate members
- 2/24/2025 5:30PM	- CJ Mitchell - Jamal Person - Jarrett Gilbert	- Milestone 2	- At 5:30 Discussed what the milestone entailed and answered any questions concerned with it - At 6:15pm delegated all task to appropriate members

Project Na	Project Ma	Charge Co	Customer	Project Sta	Task Name	Planned Start Date	Planned Fi	Planned D
MNat.ai - C	Calvin Mitchell			Planning	1. Project	2/25/2025	4/1/2025	25 days
MNat.ai - C	Calvin Mitchell			Planning	1.1 Project	2/25/2025	########	10 days
MNat.ai - C	Calvin Mitchell			Planning	1.2 Risk M	3/10/2025	########	8 days
MNat.ai - C	Calvin Mitchell			Planning	1.3 Stakeh	3/20/2025	########	8 days
MNat.ai - C	Calvin Mitchell			Planning	1.4 Project	4/1/2025	4/1/2025	
MNat.ai - C	Calvin Mitchell			Planning	2. Require	4/1/2025	5/6/2025	26 days
MNat.ai - C	Calvin Mitchell			Planning	2.1 Gather	4/1/2025	########	9 days
MNat.ai - C	Calvin Mitchell			Planning	2.2 Define	4/14/2025	########	8 days
MNat.ai - C	Calvin Mitchell			Planning	2.3 Docum	4/24/2025	5/6/2025	9 days
MNat.ai - C	Calvin Mitchell			Planning	3. System	5/14/2025	########	29 days
MNat.ai - C	Calvin Mitchell			Planning	3.1 Databa	5/14/2025	########	11 days
MNat.ai - C	Calvin Mitchell			Planning	3.2 UI/UX	5/22/2025	6/6/2025	12 days
MNat.ai - C	Calvin Mitchell			Planning	3.3 Secure	6/9/2025	########	11 days
MNat.ai - C	Calvin Mitchell			Planning	4. Develop	6/30/2025	########	31 days
MNat.ai - C	Calvin Mitchell			Planning	4.1 Code D	6/30/2025	########	16 days
MNat.ai - C	Calvin Mitchell			Planning	4.2 Testing	7/14/2025	########	12 days
MNat.ai - C	Calvin Mitchell			Planning	4.3 Final I	7/30/2025	########	9 days

Planned Hours	Planned Cost	Planned Resource C	Percent Complete	Actual Sta	Actual Fini
744 hours	$42,665.00	$20,000.00	0		
240 hours	$12,075.00	$16,000.00	0		
192 hours	$5,865.00	$4,000.00	0		
192 hours	$13,685.00		0		
120 hours	$11,040.00		0		
624 hours	$50,140.00		0		
216 hours	$15,410.00		0		
192 hours	$17,365.00		0		
216 hours	$17,365.00		0		
816 hours	$64,745.00		0		
264 hours	$23,862.50		0		
288 hours	$20,182.50		0		
264 hours	$20,700.00		0		
888 hours	$109,135.00		0		
384 hours	$42,435.00		0		
288 hours	$33,350.00		0		
216 hours	$33,350.00		0		

Actual Dur	Actual Hou	Actual Cos	Actual Res	Remaining	Milestone	Complete	Priority	WBS	Locked
				744 hours	False	False	Medium	1	False
				240 hours	False	False	Medium	1.1	False
				192 hours	False	False		1.2	False
				192 hours	False	False	High	1.3	False
				120 hours	True	False	Critical	1.4	False
				624 hours	False	False	Medium	2	False
				216 hours	False	False	Medium	2.1	False
				192 hours	False	False	Medium	2.2	False
				216 hours	True	False	Critical	2.3	False
				816 hours	False	False	Medium	3	False
				264 hours	False	False	Medium	3.1	False
				288 hours	False	False	Medium	3.2	False
				264 hours	True	False	Critical	3.3	False
				888 hours	False	False	Medium	4	False
				384 hours	False	False	Medium	4.1	False
				288 hours	False	False	Medium	4.2	False
				216 hours	True	False	Critical	4.3	False

Baseline D	Baseline H	Baseline S	Baseline F	Baseline C	Notes	Summary	Dependen	Dependen	Tags
					Do stuff he	True			
					Everything	False			Meeting
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Board	**To Do list**
To Do	
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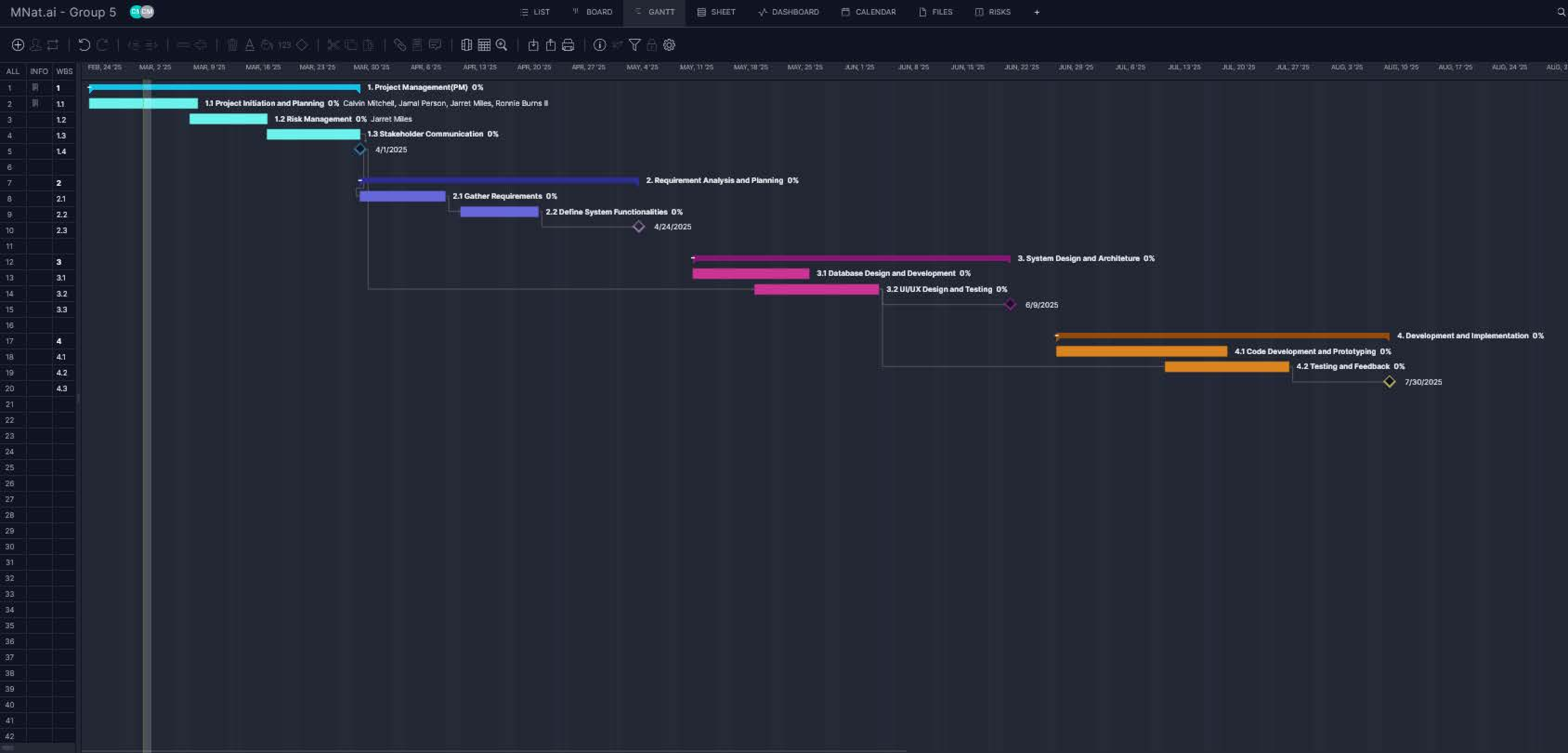
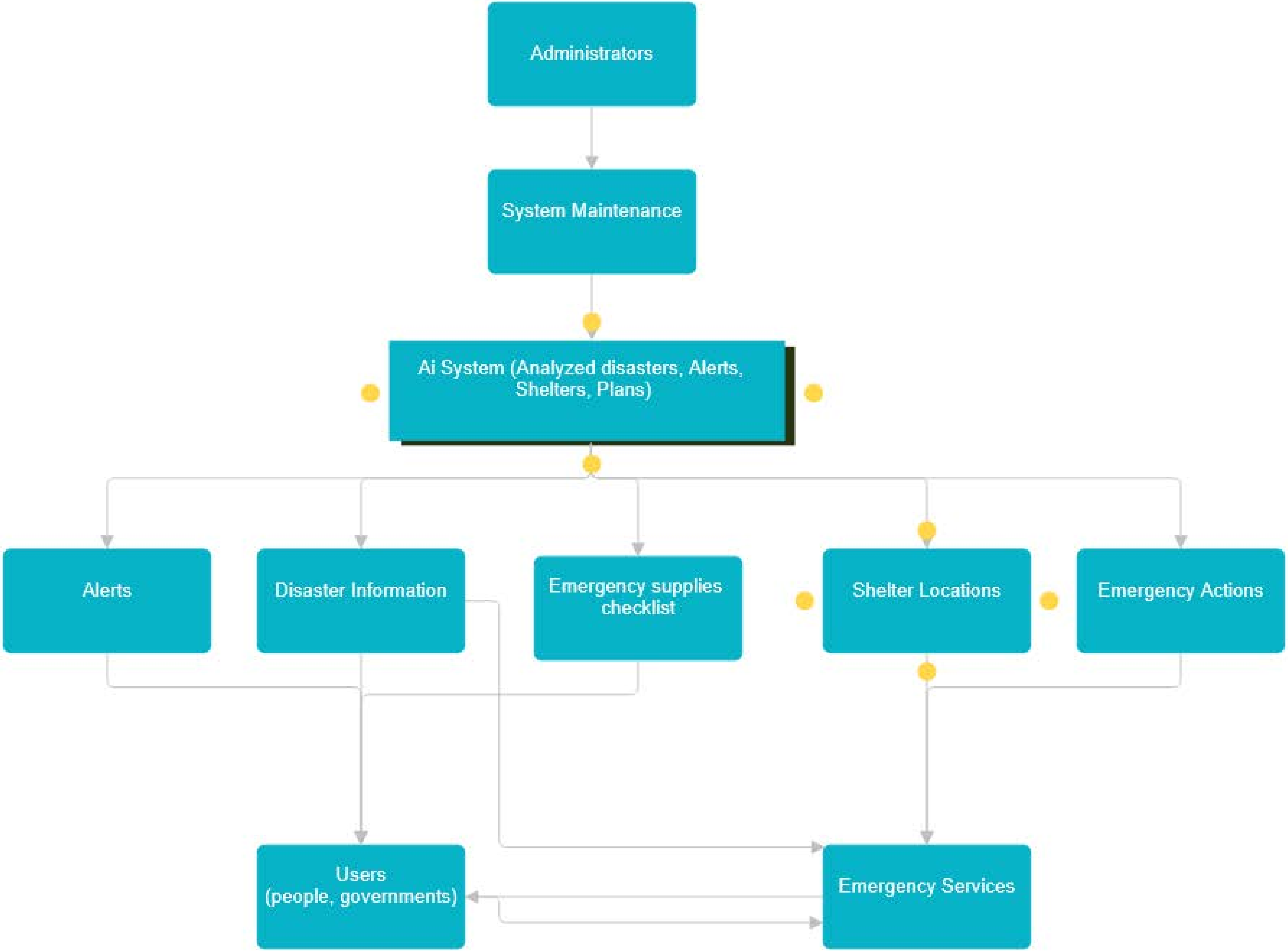


ALL	WBS	Task
1	1	1. Project Management(PM) 0%
2	1.1	1.1 Project Initiation and Planning 0% Calvin Mitchell, Jamal Person, Jarret Miles, Ronnie Burns II
3	1.2	1.2 Risk Management 0% Jarret Miles
4	1.3	1.3 Stakeholder Communication 0%
5	1.4	4/1/2025
6		
7	2	2. Requirement Analysis and Planning 0%
8	2.1	2.1 Gather Requirements 0%
9	2.2	2.2 Define System Functionalities 0%
10	2.3	4/24/2025
11		
12	3	3. System Design and Architeture 0%
13	3.1	3.1 Database Design and Development 0%
14	3.2	3.2 UI/UX Design and Testing 0%
15	3.3	6/9/2025
16		
17	4	4. Development and Implementation 0%
18	4.1	4.1 Code Development and Prototyping 0%
19	4.2	4.2 Testing and Feedback 0%
20	4.3	7/30/2025


Administrators
System Maintenance
Ai System (Analyzed disasters, Alerts, Shelters, Plans)
Alerts
Disaster Information
Emergency supplies checklist
Shelter Locations
Emergency Actions
Users (people, governments)
Emergency Services

Product Requirements Document

Project Information

Details or description of the product that will improve the customer experience.

The application provides individuals in high-risk natural disaster areas with personalized emergency escape plans and real-time resources to enhance their safety and preparedness. It offers customized evacuation routes, supply checklists, and local shelter information, along with a chatbot for real-time disaster-related assistance.

Objectives/Goals

Define the product in an easy-to-understand, actionable, achievable, and measurable way.

- Provide real-time emergency preparedness assistance.
- Enable personalized evacuation planning.
- Enhance user safety with AI-driven recommendations.
- Facilitate access to shelter and emergency services.
- Deliver multilingual chatbot support for disaster-related queries.

Assumptions & Constraints

Note what you expect to have but aren’t certain of (such as internet) and what implementation can’t require.

- The application assumes consistent access to GPS and internet connectivity but provides offline features where feasible.
- Government and relief agency databases must be accessible for real-time shelter updates.
- Security measures must comply with GDPR and CCPA regulations.

Background & Strategic Fit

What is the problem you’re solving or niche you’re filling, and how does your organization have the capabilities to exploit this?

With natural disasters becoming more frequent and severe, there is a critical need for a personalized emergency preparedness tool. This application leverages GIS mapping, AI-driven insights, and real-time weather data to enhance emergency readiness. The growing focus on disaster resilience creates market opportunities through premium subscriptions, affiliate partnerships, and collaborations with emergency retailers.

Scope: User Stories & Requirements

Define features and functions of the product, including a general explanation of those requirements from a user's perspective.

- As a user, I want to create an emergency profile with location and medical needs.
- As a user, I want to receive real-time disaster alerts relevant to my area.
- As a user, I want to generate evacuation routes that adapt dynamically.
- As a user, I want access to a chatbot for immediate disaster-related queries.
- As an emergency service provider, I want to update shelter capacities in real-time.

Product Features

List all the product features, including a description, goal, and use case.

- **User Registration & Authentication:** Secure login and profile management.
- **Personalized Emergency Planning:** Customized evacuation routes and digital emergency plans.
- **Real-Time Disaster Alerts:** Integration with weather APIs for timely warnings.
- **GIS Mapping & Navigation:** Dynamic evacuation routes with offline access.
- **Supply Checklist & Recommendations:** AI-driven emergency kit suggestions.
- **Shelter Locator:** Real-time updates on nearby shelters and medical services.
- **Chatbot Assistance:** AI-powered support for disaster-related inquiries.
- **Community Support:** Peer-to-peer information sharing and verified reports.

Release Criteria

Covers functionality, usability, reliability, performance, and supportability.

- The application must function on iOS and Android.
- Minimum 99.99% uptime availability.
- Scalable infrastructure supporting 1 million concurrent users.
- Secure encryption for user data.
- Offline access to critical features.

Success Metrics

Define quantifiable measurements to track the product and see if it's meeting objectives.

- 80% of users complete emergency profile setup.
- 95% accuracy in AI-driven evacuation route suggestions.
- Less than 5-second latency for real-time alerts.
- 1 million active users within the first year.
- High user engagement and retention rates in premium subscriptions.

Full Dressed-Use Cases

Case 1: Weather Alarm and Evacuation Notice

Primary Actor:

Administrators

Stakeholders:

Public users: People who want to know the danger and how to avoid it.

Local governments: To see which areas will be affected and issues emergency response for civilians.

Preconditions:

- The AI system has access to real-time weather data from sensors and satellites.
- The user has an active mobile app, social media, or communication tool to receive alerts.
- Local authorities are prepared to issue evacuation orders if necessary.

Main Flow:

1. The AI receives weather data from weather satellites, sensors, and meteorological systems.
2. The AI processes this data to detect the impending weather disaster.
3. The AI assesses the level of risk for the user's location based on real-time data.
4. The AI sends weather alerts to users via emergency broadcast systems.
5. The alert includes information about the disaster and what actions to take.
6. If the risk level is high, the AI suggests evacuation routes based on real-time traffic conditions, the user's location, and the weather event's predicted path.
7. The AI integrates with local authorities' systems to ensure that evacuation centers are prepared and that roads are clear.
8. The user receives the alert on their phone, informing them of the imminent weather disaster and providing evacuation instructions.
9. Local government authorities issue official evacuation orders and guide users toward safe zones or shelters.

10. Emergency responders are alerted by the AI, and they use the AI system for situational awareness and to coordinate rescue or evacuation activities.
11. The user follows the evacuation instructions provided by the AI system and heads to the recommended shelter or safe zone.

Postconditions:

- The user is safely on an evacuation route or within a shelter.
- Local authorities and emergency responders have coordinated the evacuation effort with the AI system's guidance.

Case 2: Resource Management and Distribution During a Weather Disaster

Primary Actor:

Administrators

Stakeholders:

Public users: People who need to know what supplies are needed to survive the weather disaster.

Supply/Resource Providers: To see what resources are needed to send to which area that needs it the most.

Local governments: Authorities responsible for managing resources, shelters, and aid distribution.

Preconditions:

- The AI system is linked to a resource database that includes food, water, first aid supplies, and medical equipment.
- Emergency responders are aware of the disaster's scope and have access to the AI system for coordination.
- The local government has identified available shelters and is ready to manage resources.

Main Flow:

1. A weather disaster (e.g., hurricane, flood, blizzard) strikes, and the AI system receives real-time data about the affected areas.
2. The AI integrates with the resource database, which includes information about available resources like food, water, medical supplies, and shelters.
3. AI analyzes data from user reports, sensors, and emergency responders to identify areas in critical need of resources.
4. It determines the most efficient way to distribute resources, considering the severity of the disaster and the urgency of needs.
5. The AI guides them to the most affected zones using real-time traffic data and weather conditions.
6. Affected users may request assistance through the AI system (e.g., for food, medical supplies, or shelter).

Postconditions:

- Critical resources (food, water, medical supplies) are delivered to users in need.
- The AI has ensured the efficient allocation and distribution of resources during the disaster.
- Emergency responders and users can continue the recovery process after immediate needs have been met.

Several systems and methodologies share functionalities similar to MNat.AI, particularly in enterprise architecture, design capture rationale, and systems engineering. An overview of notable examples is provided below.

Capella

Capella is an open-source solution for model-based systems engineering (MSBE). Developed by Thales and later released as an Eclipse open-source project, Capella provides a process and tooling for graphical modeling of systems, hardware, or software architectures, aligning with the Arcadia method (A system and software architecture engineering model based on architecture-centric method and model-driven engineering activities). Primarily used for modeling complex and safety-critical systems in industries such as aerospace, transportation, and communications. Capella offers an intuitive interface, guiding engineers in their activities and allowing them to focus on defining architectures rather than learning complex modeling languages.

Enterprise Systems Engineering

Enterprise Systems Engineering (ESE) involves applying systems engineering principles to the enterprise as a whole, integrating both business and technology needs. It encompasses processes such as technology planning, capabilities-based engineering analysis, enterprise architecture, and enterprise analysis and assessment. ESE aims to improve decision-making, increase efficiency, and ensure that technological implementations align with organizational goals.

IDEF6

IDEF6, or Integrated Definition for Design Rationale Capture, is a method aimed at facilitating the acquisition, representation, and manipulation of the design rationale used in developing enterprise systems. It focuses on capturing the reasons, justifications, and underlying motivations that drive the decision-making process during design. By explicitly documenting design rationale, IDEF6 helps avoid repeating past mistakes, provides a means for determining the impact of proposed design changes, forces the explicit statement of goals and assumptions, and aids in communicating final system specifications.

1. Google Maps API
Purpose: Provides mapping, geolocation, and routing services for users to find the best escape routes, shelters, and nearby resources.
Endpoints:

- Geocoding API – Converts addresses into geographic coordinates.
- Directions API – Provides route calculations with real-time traffic.
- Places API – Locates essential services (hospitals, gas stations, shelters).
- Distance Matrix API – Calculates travel time and distances based on current traffic.
- Maps JavaScript API – Embeds interactive maps within the app.
- Roads API – Snap-to-road feature for accurate path tracing.

2. FEMA API (Federal Emergency Management Agency)
Purpose: Supplies disaster-related information, including emergency alerts, shelter locations, and federal assistance.
Endpoints:

- Disaster Declarations Summary – Retrieves declared disasters and their details.
- Shelter Locator API – Finds emergency shelters and their availability.
- Weather Alerts API – Provides official FEMA-issued alerts for natural disasters.
- Financial Assistance API – Displays eligibility and application status for aid.

3. NOAA API (National Oceanic and Atmospheric Administration)
Purpose: Supplies weather forecasts, storm tracking, and real-time disaster alerts.
Endpoints:

- Weather Alerts API – Real-time warnings for hurricanes, tornadoes, and floods.
- Forecast API – Hourly and daily weather forecasts for planning escape routes.
- Storm Reports API – Tracks live storms, wind speeds, and precipitation data.
- Tsunami Alerts API – Notifies users of potential tsunamis and safety zones.

4. OpenWeather API
Purpose: Provides real-time and forecasted weather conditions to help users prepare.
Endpoints:

- Current Weather Data – Live temperature, wind speed, and atmospheric pressure.
- Weather Alerts – Warnings based on user location.
- Historical Weather API – Analyzes past weather trends for preparedness.
- Air Pollution API – Reports air quality, useful for wildfire and chemical disaster scenarios.

5. ArcGIS API (Esri Disaster Response Services)
Purpose: Supplies GIS (Geographic Information System) data and layers for disaster zones.
Endpoints:

- Disaster Response API – Maps affected areas with real-time satellite imagery.
- Shelter and Resource Finder – Lists evacuation shelters and relief centers.
- Road Conditions API – Highlights blocked or damaged roads.

6. Red Cross API
Purpose: Provides disaster relief information, emergency contacts, and first-aid guides.
Endpoints:

- Shelter Finder API – Locates available Red Cross shelters.
- Emergency Contacts API – Lists local emergency services.
- First Aid API – Provides instructions for common medical emergencies.

7. Firebase API (Google Cloud Messaging & Database Storage)
Purpose: Ensures real-time data syncing, cloud-based storage, and push notifications.
Endpoints:

- Firestore Database – Stores user-generated emergency plans.
- Cloud Messaging API – Sends push notifications for updates and alerts.
- Authentication API – Manages secure user login and profiles.

8. GPT-4 API (AI Chatbot for Emergency Assistance)
Purpose: Provides a chatbot that answers user questions about disaster preparedness, supplies, and escape plans.
Endpoints:

- Chat Completion API – AI chatbot interaction for emergency questions.
- Knowledge Base API – Custom database integration for disaster FAQs.

9. SafeGraph API (Business & POI Data)
Purpose: Helps locate open businesses, grocery stores, and gas stations during disasters.
Endpoints:

- Places API – Finds nearby businesses and their operating status.
- Mobility API – Analyzes human movement data for disaster response.

10. USPS Address API (United States Postal Service)
Purpose: Verifies user addresses for escape planning and emergency services.
Endpoints:

- Address Validation API – Ensures user-submitted addresses are accurate.
- ZIP Code Lookup API – Converts addresses into postal codes.

11. Waze API (Crowdsourced Traffic & Road Hazard Data)
Purpose: Offers real-time road conditions, accidents, and hazard alerts.
Endpoints:

- Traffic Alerts API – Reports congestion and blocked roads.
- Incident API – Provides updates on road closures and accidents.

12. SendGrid API (Email Notifications & Alerts)
Purpose: Sends emergency preparedness emails and disaster warnings.
Endpoints:

- Transactional Email API – Sends customized emails for emergency updates.
- Marketing API – Notifies users of new safety features.

13. Crowdsource Data API (Custom API for User-Submitted Reports)
Purpose: Allows users to report disasters, blocked roads, and missing persons.
Endpoints:

- Incident Reporting API – Submits real-time disaster reports.
- Verification API – Confirms reports through AI cross-checking.