

DisasterGuard: Real-Time Natural Disaster Prediction and Safety Advisory App

Requirement Analysis

1. Location and Notification Access:

Functional Requirements:

1. The app shall request permission to access the user's location.
2. The app shall request permission to send push notifications.
3. There will be one popup message box requesting for the location and notifications access from the user.
4. There will be yes/no button to communicate with this page.

Priority Level: High

Preconditions: User's device must have location and notification services enabled.

2. Software Signup:

Functional Requirements:

1. The app shall provide a signup page for new users.
2. The signup page will include Text fields for username, email, and password.
3. The app shall verify the uniqueness of the chosen username and email.
4. If the given username or email is already available in the database, then there will be one popup message saying to insert different usernames and email.
5. Upon successful signup, the user's credentials shall be stored securely in the database.

Priority Level: Medium

Preconditions: None

3. Software Sign In:

- Functional Requirements:

1. The app shall provide a sign-in page for existing users.
2. The sign-in page shall include Text fields for username and password.
3. The app shall verify the correctness of the entered credentials against the database.
4. Upon successful sign-in, the user shall be redirected to the app's home screen.

- Priority Level: Medium

- Preconditions: User must have a registered account.

4. Continue without sign in/sign up

- Functional Requirements:

1. The app shall provide a 'continue without sign in/ sign up' option to the users.
2. Users can directly go to the apps home screen by clicking on the 'continue without sign in/sign up' option.
3. It will be a text in which users will click to go to the home screen.

- Priority Level: Medium

- Preconditions: Users have already given the location and notification access.

5. Forgot Password:

- Functional Requirements:

1. The app shall provide a "Forgot Password" option on the sign-in page.
2. It will be a separate page users can recover their account when they forgot their password.
3. The user shall be prompted to enter their email address.
4. The app shall send a password reset link to the user's email address.
5. Users have to click on the link sent to their email address in order to recover their

- **Priority Level:** Medium

- **Preconditions:** User must have a registered email address.

6. Reset Password:

- Functional Requirements:

1. The app shall provide a page for users to reset their password.
2. The page shall include fields for entering a new password and confirming it.
3. The app shall validate the new password and update it in the database upon submission.

- **Priority Level:** Medium

- **Preconditions:** User must have received a password reset link.

6. Real-Time Temperature Monitoring:

- Functional Requirements:

1. The app shall display real-time temperature data for the user's current location.
2. The current location will be fetched from the GPS system.
3. The app shall update temperature data at regular intervals.
4. This feature will be displayed in the home screen in the app.
5. Users can also view temperature and weather of other locations and cities.

- **Priority Level:** High

- **Preconditions:** User must have granted location access.

7. Disaster Alerts and Forecast:

- Functional Requirements:

1. The app shall provide alerts for various types of natural disasters based on real-time data.
2. The color of the specific container or widget displaying the alerts will be changed according to the emergency level.

3. The app shall display forecasts for upcoming natural disasters.
4. There will be information in the alerts regarding which type of disaster it will be, the intensity level of the disaster and also contains the alert title.

- **Priority Level:** High

- **Preconditions:** None

8.Location-Based Alerts:

- Functional Requirements:

1. The app shall send alerts specific to the user's current location.
2. This will be not a notification alert but a in app alert.
3. Specific alert text/ option will be present in the app.
4. Users can click on the alert option and see upcoming / ongoing alert based on their current location.
5. The app shall use GPS technology to determine the user's location.

- **Priority Level:** High

- **Preconditions:** User must have granted location access to avail this feature.

9. Safety Guidelines and Procedure:

- Functional Requirements:

1. The app shall provide safety guidelines and procedures for various natural disasters.
2. It will provide necessary guidelines and precautions need for a specific disaster.
3. The guidelines shall include evacuation routes, emergency contacts, and safety tips.

- **Priority Level:** High

- **Preconditions:** None

10. User Reporting in Emergency:

- Functional Requirements:

1. The app shall allow users to report emergencies or hazards they encounter.
2. There will be a option of 'report emergency' inside the app. Users can click on the option
3. and a new page will be open. User can there write the emergency they faced or facing and submit to the app.
4. The app shall provide a option and a form for users to submit relevant information.

- Priority Level: Medium

- Preconditions: None

11. Multi-Language Support:

- Functional Requirements:

1. The app shall support multiple languages for user interface and content.
2. Users shall be able to select their preferred language from the app settings.
3. Multiple languages will be available in a list view.
4. Users can select their desired language from the list view language option.

- Priority Level: Medium

- Preconditions: None

12. Regular Notification Alerts:

- Functional Requirements:

1. The app shall send regular notifications for important updates and reminders.
2. Regularly the app will send notification of weather updates and forecast.
3. There will be some specific time in which notifications will be pushed to the users like in morning.
4. Users shall have the option to enable or disable these notifications in the settings.

- Priority Level: High

- Preconditions: User must have granted notification access.

13. Emergency Notifications with Guidelines:

Functional Requirements:

1. The app shall send emergency notifications with relevant safety guidelines to the user.
2. The guidelines shall be specific to the type and severity of the emergency.
3. Again this notification option can of enable or disable by the users.

- Priority Level: High

- Preconditions: None

14. Rescue Team in Emergency situation upon users request

- Functional Requirements:

1. The app shall send emergency rescue team to the user upon users request for emergency help.
2. The app will verify the users request using real time data.
3. Then the rescue team will track the location of the victim user and will go to rescue .
4. The app will track the real time location of the victim to communicate with the rescue team And victim

- Priority Level: High

- Preconditions: None

15. Real time map with accurate data of weather and natural disaster

- Functional Requirements:

1. The app shall have a real time map in which the weather condition of all over the world.

2. The users can see the real time weather conditions inside the map.
3. Using real time map, users can see and stay alert of upcoming extreme weather and disasters.

- **Priority Level:** High

- **Preconditions:** User must have given location access

16. Offline Mode for Critical Information

- Functional Requirements:

1. The app shall store essential safety information and guidelines offline so that users can view them even in offline mode.
2. Users shall have access to critical safety tips, evacuation routes, and emergency contacts without an internet connection.
3. The app shall periodically sync data when connected to the internet to ensure information is up to date.

- **Priority Level:** High

- **Preconditions:** Users must initially download the necessary data while online.

17. Community Reporting and Feedback

Functional Requirements:

1. The app shall include a feature for users to report on-ground conditions and provide feedback.
2. Users can upload photos, videos, and descriptions of local conditions, which will be shared with other users and emergency services.
3. The app shall display these reports on a map to provide real-time updates on local disaster conditions.

- **Priority Level:** Medium

- **Preconditions:** Users must grant access to their device's camera and storage for uploading media.

18. Emergency Contact List

- Functional Requirements:

1. The app shall allow users to create and manage a list of emergency contacts.
2. Users can quickly call or send a notification to their contacts during an emergency.
3. The app shall automatically notify selected contacts when a user is in a disaster-affected area.

- Priority Level: Medium

- Preconditions: Users must input and save contact information within the app.

19. Disaster Preparation Checklists

- Functional Requirements:

1. The app shall provide checklists for users to prepare for various types of natural disasters.
2. Users can customize these checklists to fit their personal needs and circumstances.
3. The app shall send reminders to users to complete preparation tasks as deadlines approach.

- **Priority Level:** Medium

- **Preconditions:** None

20. Integration with Smart Home Devices

- Functional Requirements:

1. The app shall support integration with smart home devices for enhanced emergency response.
2. Users can receive alerts and control smart home systems (like , turning off gas lines, securing doors) directly through the app.
3. The app shall provide instructions for connecting compatible smart home devices.

- **Priority Level:** Medium

- **Preconditions:** Users must have compatible smart home devices and authorize integration.

21. Weather and Disaster Educational Resources

- Functional Requirements:

1. The app shall include a library of educational materials on weather patterns, climate change, and disaster preparedness.
2. Users can access articles, videos, and interactive tutorials to better understand the causes and impacts of natural disasters.

- **Priority Level:** Low

- **Preconditions:** None

22. Backup and Data Sync

- Functional Requirements:

1. The app shall provide a feature to back up user data and settings to the cloud.
2. Users can sync their data across multiple devices for continuity and easy recovery.
3. The app shall offer options for manual and automatic backup scheduling.

- **Priority Level:** Medium

- **Preconditions:** Users must create an account for cloud backup and syncing.

23. Volunteer Coordination and Support

- Functional Requirements:

1. The app shall include a feature for coordinating volunteer efforts and support during disasters.
2. Users can sign up to volunteer, track available opportunities, and receive updates on volunteer needs.
3. The app shall provide a communication platform for volunteers and organizations to coordinate efforts.

- Priority Level: Low

- Preconditions: Cooperation with volunteer organizations is required.

24. Accessible Interface for Users with Disabilities

- Functional Requirements:

1. The app shall include features to support users with disabilities, such as text-to-speech, high-contrast modes, and customizable font sizes.
2. Users can enable accessibility features from the settings menu.
3. The app shall comply with accessibility standards to ensure usability for all users.

- Priority Level: Medium

- Preconditions: None