User Stories

This section outlines the user stories that guide the functional development of the AgroClima Climate Risk Prediction System. User stories are structured descriptions of system features from the perspective of end users, helping the development team stay aligned with user needs. To ensure consistency, clarity, and prioritization in planning and execution, this section also includes:

- **Priority Rubric:** A framework for classifying stories as High, Medium, or Low priority based on business impact, user value, and technical dependencies.

- **Estimation Metrics:** A story point-based system used to estimate the relative effort required for implementing each user story.

Each user story is presented in a standardized format and includes clearly defined acceptance criteria to support testing and validation. The stories are grouped by user role (Client, Analyst, Administrator) to reflect the different system interactions.

Priority Rubrics

The priority rubric defines how each user story is categorized based on its importance to the system's core functionality, user impact, and time sensitivity. This classification helps the team focus on delivering the most critical features first, ensuring that essential needs are met in early development phases. It should be noted that the priority levels assigned to each user story are based on the defined scope of the project. This does not imply that some stories are inherently more important than others, but rather that certain functionalities are more critical to meet the objectives of the current delivery stage of the system.

Priority Level	Description	Typical Characteristics
High	Essential for system functionality or user satisfaction. Must be delivered in the MVP (Minimum Viable Product).	- Core business functionality - Direct impact on user safety or decision-making - Regulatory or compliance requirement
Medium	Important but not critical. Enhances usability or performance. Can be delivered after core features.	- Improves user experience - Optimizes workflows or data processing - Moderate business value
Low	Non-essential. Can be deferred without major consequences.	- Low usage frequency - Non-mandatory functionality

Figure 1: Priority Rubrics

Estimation Rubrics

Estimation metrics provide to evaluate the relative effort required to implement each user story. These metrics will help the team to plan sprints more accurately, balance workloads, and assess development complexity without relying on exact time measurements. Points are assigned based on factors such as technical complexity, risk, dependencies, and required resources.

Story Points	Description	Characteristics
1	Very simple task	- No dependencies or logic - Easy to test and deploy
2	Simple feature with minimal logic	- Few input validations - Slight data manipulation - Low technical risk
3	Moderate complexity	- Requires backend/frontend interaction - Conditional logic - Complex read/write transactions with database
4	High complexity	- Multiple components involved - Integration with APIs - High performance in the database

Figure 2: Estimation metrics

User Stories

Based on the priority rubrics and estimation metrics defined earlier, we developed a set of user stories for the AgroClima system to identify and address the primary needs of its users. The user stories are organized by user roles within the system: the Client, typically a farmer or crop owner; the Analyst, who processes, analyzes, and visualizes environmental data; and the Administrator, who manages user access and ensures proper and secure system operation.

User Stories (Client)

Title:	Priority:	Estimate:
Register as a Client	High	3

User Story:

As a client, I want to register using my email account so that I can access climate data and receive tailored recommendations.

Acceptance Criteria:

- The system allows registration via email, Google, or Microsoft.
- Client roles are assigned automatically upon successful registration.
- A confirmation email is sent upon account creation.

Figure 3: User Story 1

Title:	Priority:	Estimate:
View Local Weather Conditions	Medium	4

User Story:

As a client, I want to view real-time and historical weather data for my region so that I can plan activities effectively.

Acceptance Criteria:

- Weather data is displayed for the client's location.
- Data includes temperature, humidity, precipitation, and forecast.
- A time filter (e.g., last 7 days, 1 month) is available.

Figure 4: User Story 2

Title:	Priority:	Estimate:
Receive Weather Alerts	Medium	4

User Story:

As a client, I want to receive automatic alerts for upcoming extreme weather events in my area so that I can take preventive actions.

Acceptance Criteria:

- Alerts are triggered based on predictive models.
- Alerts are displayed in the user dashboard.
- Each alert includes event type, severity and estimated time.

Figure 5: User Story 3

Title:	Priority:	Estimate:
Access Historical Recommendations	High	3

User Story:

As a client, I want to view past recommendations and actions taken so I can evaluate their effectiveness over time.

Acceptance Criteria:

- A history tab shows all past recommendations received.
- Each entry includes date, context, and whether the advice was followed.
- The user can filter history by date range or type.

Figure 6: User Story 4

Title:	Priority:	Estimate:
Receive Farming Recommendations	Low	4

User Story:

As a client, I want to receive personalized recommendations based on weather predictions and soil conditions so I can optimize my crop yield.

Acceptance Criteria:

- Recommendations are shown on the dashboard.
- Data includes suggestions on irrigation, fertilization, and planting.
- Alerts are sent for critical weather risks (e.g., frost, drought).

Figure 7: User Story 5

User Stories (Analyst)

Title:	Priority:	Estimate:
Access and Analyze Climate Data	Medium	4
User Story: As an analyst, I want to access real-time and historical climate data from all monitored stations so I can analyze environmental trends.		
Acceptance Criteria: • A dashboard shows station data in real time. • Filters allow data segmentation by location and date.		

Figure 8: User Story 6

Title:	Priority:	Estimate:
Generate Analytical Reports	Medium	3
User Story: As an analyst, I want to generate reports about climate conditions and risk trends to support decision-making for stakeholders.		
Acceptance Criteria: • Reports can be generated monthly or weekly. • Data visualizations (charts, graphs) are included.		

Figure 9: User Story 7

User Stories (Administrator)

Title:	Priority:	Estimate:
Manage Users and Roles	High	2
User Story: As an administrator, I want to manage user accounts and assign roles so that access control is enforced throughout the platform.		
Acceptance Criteria: • Admin dashboard lists all users with filters by role. • Roles can be assigned or changed. • User accounts can be deactivated or deleted.		

Figure 10: User Story 8

Title:	Priority:	Estimate:
Audit User Activity Logs	Low	4

User Story:

As an administrator, I want to access logs of user activities so I can ensure compliance and investigate anomalies.

Acceptance Criteria:

- Logs include login times, data access, configuration changes.
- Filters by user, date, and activity type are available.
- Logs can be exported in CSV format.

Figure 11: User Story 9