

## 1. Vision Summary

The *Farmer Weather Notes (Offline First)* app is designed to help smallholder farmers record daily weather observations and farming activities by location, even without internet access. The application emphasizes ease of use, offline functionality, and local data storage. By enabling farmers to track rainfall, temperature, and agricultural tasks such as planting and harvesting, the app supports better planning, improved productivity, and knowledge sharing among rural communities.

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## 2. Stakeholder Identification

| Stakeholder                     | Role / Interest   |
|---------------------------------|---|
| Smallholder Farmers             | Primary users; record weather and farming activities.   |
| Agricultural Extension Officers | Use data summaries to provide guidance and training.    |
| Local NGOs / Cooperatives       | Support adoption and provide feedback for improvements. |
| Developers / Project Team       | Build, test, and maintain the app.                      |
| Researchers / Agronomists       | Analyze aggregated data for agricultural studies.       |

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## 3. Problem Statement

Smallholder farmers often lack access to reliable digital tools for recording local weather and farm activity data. Existing mobile apps rely heavily on internet access and are not optimized for low-literacy users. This makes it difficult for farmers in remote areas to log information consistently or benefit from data-driven farming advice.

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## 4. Project Goals

1. Enable farmers to **record daily weather and farm activities offline**.
2. Provide a **simple, icon-based interface** suitable for low-literacy users.
3. Allow **data organization by location and date**.
4. Support **data sharing and export** when the user regains connectivity.

5. Offer **reminders and seasonal tips** to encourage consistent use.

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## 5. Functional Requirements

| ID  | Requirement   | Priority | Related User Story |
|-----|---|----------|--------------------|
| FR1 | Users can create and manage multiple farm locations.        | Must     | US1                |
| FR2 | Users can log daily notes including weather and activities. | Must     | US2                |
| FR3 | App stores all data offline and syncs later if possible.    | Must     | US3                |
| FR4 | Users can filter notes by season or location.               | Should   | US4                |
| FR5 | Users can export or share notes as text.                    | Could    | US5                |
| FR6 | App provides daily reminder notifications.                  | Could    | US6                |

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## 6. Non-Functional Requirements

| ID   | Requirement               | Description  |
|------|---------------------------|--|
| NFR1 | Offline-first performance | Must work fully offline; data saved locally.               |
| NFR2 | Ease of use               | Clear icons, large buttons, minimal text.                  |
| NFR3 | Reliability               | Data should not be lost after app restarts.                |
| NFR4 | Low resource usage        | Should run smoothly on low-end devices ( $\leq 2$ GB RAM). |
| NFR5 | Accessibility             | Simple UI for low-literacy users and local languages.      |

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## 7. User Stories with Acceptance Criteria

| User Story  | Acceptance Criteria  |
|---|--|
| US1: As a farmer, I want to add my farm's location so that I can log activities per area. | <ul style="list-style-type: none"><li>- User can create, edit, delete a location.</li><li>- Location name is required.</li></ul> |
| US2: As a farmer, I want to record daily  | <ul style="list-style-type: none"><li>- Must include date, rain</li></ul>  |

| User Story  | Acceptance Criteria                                 |
|---|---|
| weather or activity notes so that I can track my work and rainfall.                                 | observation, and optional comments.                 |
| <b>US3:</b> As a farmer, I want the app to work offline so that I can use it anywhere.              | - App opens and saves data without network.         |
| <b>US4:</b> As a farmer, I want to view notes by location or season so that I can compare progress. | - Filter buttons available; correct data displayed. |
| <b>US5:</b> As a farmer, I want to export my data so that I can share it with extension officers.   | - Export as .txt or .csv works successfully.        |
| <b>US6:</b> As a farmer, I want reminders at day-end so that I don't forget to log weather.         | - Notification appears at selected time.            |

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## 8. Assumptions, Constraints, and Risks

### Assumptions:

Users have Android smartphones.

Farmers can perform basic navigation on a phone.

GPS or manual entry will be used for location setup.

### Constraints:

App limited to Android version 7.0 and above.

No constant internet connection guaranteed.

Limited screen space; UI must remain simple.

### Risks:

Low literacy may affect usability.

Device storage limitations for older phones.

Delays in syncing may cause data duplication.

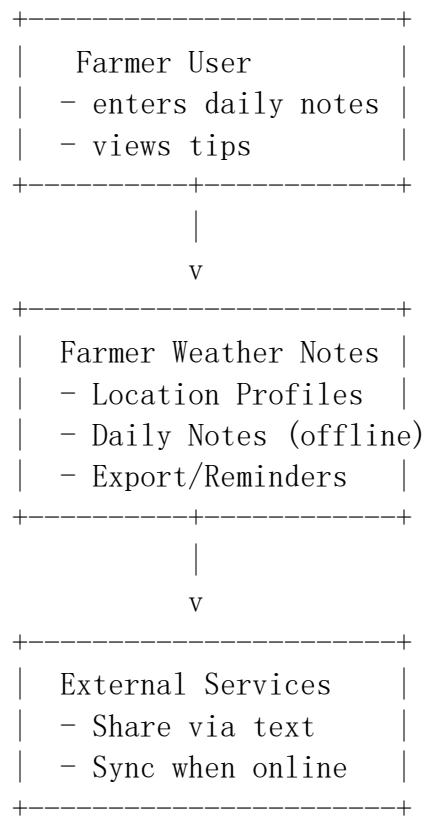
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## 9. Initial Domain Glossary

| Term            | Definition   |
|-----------------|--|
| LocationProfile | A record storing farm name and basic info.                       |
| DailyNote       | A daily log of weather or farm activity.                         |
| rainObs         | Observation of rainfall (none, light, heavy).                    |
| Season          | Time of year grouped by farming phase (e.g., planting, harvest). |
| Tips Library    | Collection of seasonal agricultural advice.                      |

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## 10. Context Diagram (Textual Representation)



## 11. Draft Backlog for Week 2 (Controllers Phase)

| Task  | Description                             | Priority |
|-------|---|----------|
| Setup | Create NotesActivity, LocationActivity, | Must     |

| Task            | Description                                       | Priority |
|-----------------|---|----------|
| Activities      | TipsActivity.                                     |          |
| Implement Rules | Ensure one note per location per day.             | Must     |
| Add Filtering   | Filter by season/location.                        | Should   |
| Data Passing    | Pass LocationProfile into Notes using Parcelable. | Must     |
| Reminder        | Implement optional day-end reminder.              | Could    |

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**Prepared by:** GROUP H – Week 1 Submission

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