Farm Requirements (Full Module Requirements)

1. Functional Requirements (FR)

FR-FARM-01: Add Farm

- **The system shall allow the user to create a new farm.**

- **Required fields:**

  - **Farm Name (mandatory)**

  - **City (mandatory)**

  - **Soil Type (mandatory)**

  - **Water Source (mandatory)**

  - **Farm Size (mandatory)**

- **Latitude (mandatory)**
  Must be within the valid range: –90° to +90°

- **Longitude (mandatory)**
  Must be within the valid range: –180° to +180

  - **Status (mandatory)**

- **The system shall validate all required fields.**

- **The system shall reject invalid coordinates.**

- **The system shall display a success message after creating the farm.**

FR-FARM-02: Edit Farm

- **The system shall allow users to update existing farm information.**

- **The system shall pre-fill the current farm data.**

- **The system shall validate all updated fields before saving.**

- **The system shall show a confirmation message after edit is successful.**

FR-FARM-03: Delete Farm

- **The system shall allow deleting an existing farm.**

- **The system shall ask for confirmation before deletion.**

- **The system shall remove the farm from the database and update the farm list.**

FR-FARM-04: View All Farms

- **The system shall display all farms in a table.**

- **Table columns include:**
  - **Farm ID**
  - **Farm Name**
  - **Size**
  - **City**
  - **Status**

- **The system shall allow clicking on any farm to view full details.**

FR-FARM-05: Farm Details Page

- **The system shall display detailed information for the selected farm.**

- **The page shall include:**

  - ○ **Name**

  - ○ **Size**

  - ○ **Soil Type**

  - ○ **Water Source**

  - ○ **Location (Lat/Long)**

  - ○ **Status**

- **The system shall show a list of zones under this farm.**

FR-FARM-06: Validation Rules

- **Latitude range: –90 to +90**

- **Longitude range: –180 to +180**

- **Size must be a positive numeric value.**

- **Name must be unique.**

FR-FARM-07: Search Farm

- **The system shall allow searching farms by:**

    - ○ **Farm Name**

    - ○ **City**

    - ○ **Status**

FR-FARM-08: Filter Farms

- **The system shall allow filtering by:**

    - ○ **Active / Inactive**

    - ○ **Soil type**

    - ○ **Water source**

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2. Non-Functional Requirements (NFR)

NFR-FARM-01: Performance

- **Farm list must load in less than 3 seconds.**

- **Search results must load in less than 2 seconds.**

NFR-FARM-02: Usability

- **Error messages must be clear and shown under the invalid field.**

- **All labels must be readable and consistent.**

NFR-FARM-03: Security

- **Only authorized users can add/edit/delete farms.**

- **Data must be validated server-side.**

NFR-FARM-04: Reliability

- **System must prevent duplicate farm names.**

System must not accept invalid coordinates

Zone Requirements (Full Module Requirements)

1. Functional Requirements

FR-ZONE-01: Add Zone

- The system shall allow the user to add a new zone within a farm.
- Required fields:
    - Zone Name
    - Soil Type
      Zone area
- The system shall validate all fields before submitting.

FR-ZONE-02: Edit Zone

- The system shall allow updating an existing zone.
- System validates updated fields.
- Shows confirmation message after update.

FR-ZONE-03: Delete Zone

- The system shall confirm deletion before removing a zone.
- Zone is removed from database and list view.

FR-ZONE-04: View Zones

- The system shall display a list of all zones belonging to a specific farm.
- Fields include:

    - Zone Name
    - Soil Type
      Current Crop
    - Status

- User can click zone for detailed view.

FR-ZONE-05: Validation Rules

- Latitude (−90 to +90)
- Longitude (−180 to +180)
- Zone name cannot be empty.
- Farm ID must be valid and exist.

FR-ZONE-06: Filter Zones

- The system allows filtering zones by:
    - Soil Type
    - Status

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2. Non-Functional Requirements

NFR-ZONE-01: Performance

- Zone list loads in < 2 seconds.

NFR-ZONE-02: Security

- Only authorized users can add/edit/delete zones.

NFR-ZONE-03: Reliability

- System prevents adding a zone with a non-existing Farm ID.