**Functional Requirements Document (FRD)**

**1. Overview**

The system is a multi-tenant, phase-based product tracking and processing platform.  
It allows an admin to design workflows (phases), create phase head/user profiles, dynamically define product forms, and manage items as they move forward or backward in the workflow. Bulk operations, returns, real-time dashboards, and historical tracking are included.

**Functional Specification – Item Lifecycle & Bulk Operations**

**1. What is an Item**

* An **Item** = a single physical or logical unit of a product/order in the workflow.
* Each item:
  + Belongs to **exactly one tenant**
  + Belongs to **exactly one phase at a time**
  + Can have:
    - **Unique Tracking ID** (e.g., 000123) → *ID-based tracking*
    - **No Tracking ID** → *Count-based tracking*
* Items are processed **sequentially forward** or **non-sequentially backward** (returns).

**2. What is Bulk**

* **Bulk** = Group of items **within a specific phase** at a given moment.
* Bulk changes dynamically when items are sent/received.
* Bulk types:
  + **Count-based bulk** → Only quantity is tracked (no unique IDs per item).
  + **ID-based bulk** → Each item has a unique ID; movement operations require list of IDs.

**3. Bulk Example**

**Phases**: Kora → Phase 1 → Phase 2 → Phase 3

|  |  |  |  |
| --- | --- | --- | --- |
| Phase | Action | Bulk Before | Bulk After |
| Kora | Receive 1000 items | 0 | 1000 |
| Kora → P1 | Send 100 items | 1000 | 900 |
| Phase 1 | Receive 100 items | 0 | 100 |
| Phase 1 → P2 | Send 40 items | 100 | 60 |
| Phase 2 | Receive 40 items | 0 | 40 |

**4. Operations per Phase**

At **any phase**, a user can:

**Receiving Items**

* Receive items **in bulk** or **single**
* Data needed:
  + count (for count-based bulk) OR ids (for ID-based bulk)
  + fromPhaseId
  + Optional note

**Sending Items Forward**

* Move items to **next sequential phase**
* Can send **partial or full bulk**
* Data needed:
  + count or ids
  + toPhaseId (must be next in sequence)

**Returning Items Backward**

* Move items to **previous non-sequential phase** (via return request)
* Requires approval by receiving phase
* Data needed:
  + count or ids
  + toPhaseId
  + reason

**Dashboard Viewing**

* View status of **all phases** for current tenant
* Info per phase:
  + Phase name
  + Item type
  + Number of items
  + Other metadata (dates, images, etc.)

**5. Item Lifecycle Flow**

1. **Create Item** (Kora phase only)
   * Assign **Global Tracking ID** (6-digit, zero-padded, human-readable)
   * Add optional metadata (formData, images)
2. **Bulk Add / Bulk Remove**
   * Add items from CSV/manual input
   * Remove items from bulk
3. **Move Forward**
   * Send to next phase
4. **Return Request**
   * Request to send backward to a previous phase
   * Approval required by destination phase
5. **Return Approval/Rejection**
   * Destination phase user accepts/rejects request
6. **History Logging**
   * Every action is logged:
     + Timestamp
     + Phase name
     + User
     + Action type
     + Count or IDs moved
7. **Completion**
   * Items in last phase are marked **COMPLETED**

**6. APIs Needed (Draft List)**

**Item Management**

|  |  |  |  |
| --- | --- | --- | --- |
| Operation | Method | Endpoint | Auth Role |
| Create Item | POST | /items | PHASE\_USER |
| Bulk Add Items | POST | /items/bulk-add | PHASE\_USER |
| Bulk Remove Items | POST | /items/bulk-remove | PHASE\_USER |
| Move Forward | POST | /items/move-forward | PHASE\_USER |
| Request Return | POST | /items/return-request | PHASE\_USER |
| Approve Return | POST | /items/return-approve/:id | PHASE\_USER |
| Reject Return | POST | /items/return-reject/:id | PHASE\_USER |
| View Dashboard | GET | /items/dashboard | ANY\_USER |
| Get Item History | GET | /items/:id/history | ANY\_USER |