

Business Rules Documentation

1. Users

- **Mandatory Fields:**
 - **User ID** (Primary Key)
 - **Username**
 - **First Name**
 - **Last Name**
 - **Address** (Mandatory)
 - **Contact Information** (Mandatory)
- **Additional Rules:**
 - **Username** must be unique across the system.
 - **Contact Information** must include a valid phone number or email address.
 - **Address** must include at least the city, state, and postal code for accurate location mapping.

2. Roles

- **Mandatory Fields:**
 - **Role ID** (Primary Key)
 - **Role Name** (Mandatory)
- **Roles:**
 - **Supplier**
 - **NGO**
 - **Logistics**
 - **Government Official**
- **Additional Rules:**
 - Only the above four roles are allowed in the system.
 - **Role Name** must be unique to avoid duplication.

3. Suppliers

- **Mandatory Fields:**
 - **Supplier ID** (Primary Key)
 - **Supplier Name** (Mandatory)
 - **Food Name** (Mandatory)

- **Food Description** (Mandatory)
- **Food Prepared Time** (Date and Time, Mandatory)
- **Perishable By** (Date and Time, Mandatory)
- **Additional Rules:**
 - **Food Prepared Time** must be less than or equal to the current time.
 - **Perishable By** must be greater than **Food Prepared Time**.
 - If the current time exceeds **Perishable By** by 8 hours, the food status must automatically change to "unavailable".

4. Food Source Data

- **Mandatory Fields:**
 - **Quantity** (Dynamic, Mandatory)
 - **Status** (Mandatory)
- **Additional Rules:**
 - **Quantity** must always be greater than 0.
 - **Status** can only be "available" or "unavailable".
 - If **Quantity** reaches 0, the status must automatically change to "unavailable".

5. NGO Requests

- **Mandatory Fields:**
 - **User ID** (Mandatory)
 - **NGO Request ID** (Mandatory, Unique)
 - **Food Quantity** (Mandatory)
 - **NGO Request Status** (Mandatory, Default: "Open")
- **Additional Rules:**
 - **Food Quantity** must be greater than 0.
 - **NGO Request Status** can only be "Open" (approved) or "Closed" (rejected).
 - A user can only make one request per food item at a time to avoid duplication.

6. Logistics

- **Mandatory Fields:**

- **Logistics ID** (Mandatory)
- **Driver** (Mandatory)
- **Delivery Status** (Mandatory)
- **Additional Rules:**
 - **Delivery Status** can only be "Pending" or "Delivered".
 - The system must map logistics to NGOs based on the user's address and location for efficient delivery.

7. Quality

- **Mandatory Fields:**
 - **Quality Points** (Calculated based on **Food Prepared Time** and **Perishable By**)
- **Additional Rules:**
 - If the time difference between **Food Prepared Time** and **Perishable By** is less than 5 hours, the food is considered "good" (quality points > 5).
 - If the time difference is between 5 and 10 hours, the food is considered "average" (quality points between 5 and 10).
 - If the time difference exceeds 10 hours, the food is considered "not good" (quality points < 5) and is not allowed for distribution.

8. Wastage Analytics

- **Mandatory Fields:**
 - **Supplier ID** (Mandatory)
 - **Wastage Avoided** (Calculated as **Quantity Raised** - **Quantity Remaining**)
- **Additional Rules:**
 - **Quantity Raised** must be greater than or equal to **Quantity Remaining**.
 - If **Quantity Remaining** is 0, **Wastage Avoided** is equal to **Quantity Raised**.

Additional Business Rules

1. Order Quantity Validation

- **Rule:** Order quantity cannot be zero.
- **Implementation:** Ensure that **Food Quantity** in the **NGO Request** table is always greater than 0.

2. Food Status Update

- **Rule:** Food status must be updated to "unavailable" if the current time exceeds **Perishable By** by 8 hours.
- **Implementation:** Implement a scheduled job or trigger to automatically update the status when the time condition is met.

3. Quality Points Calculation

- **Rule:** Quality points must be recalculated whenever **Food Prepared Time** or **Perishable By** is updated.
 - **Implementation:** Add a trigger to recalculate **Quality Points** whenever these fields are modified.
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