Complete system

Define Ground Rules:

- BARCODE FORMAT: All items will be tracked via a 16 digit barcode number, this number must never repeat nor duplicate across any location, the ID of the table could be the default one, but within the plants inventory tables there must be a barcode column.
- TABLE RELATION: relations between tables should be done via IDs to keep it consistent across the entire system.
- We must never hard delete anything, for traceability purposes everything must be soft delete
- We must also keep logs of all actions, action name, change, who did it and when it was done.
- Cultivation Module will track Plants
- Inventory Module will track Inventory Items
- **System will consist of a single sign on page**
- **We need to establish a set of Test panels to be used in the testing module, you can use industry standard test panels as default.**
- **Interface design details**
    - **IT will be one single interface**
    - **Keep all menu options and modules on the left hand side in a panel starting with location information at the tap, followed by the different modules depending on level of access**
    - **Add ability to expand or collapse menu panel**
    - **When a user clicks on a module on the right hand side it will display module functionality**
- There is going to be 3 major types of users
    - **Admin user**
        - **Can access all module, however when an admin clicks on for example the cultivation module, they would need to preset the license number to access the module**
        - **Access into licensee modules must be in read only**
    - **State Users**
        - **Can access State Module and Licensee modules similar to admin user, access must be in read only**
    - **Licensee Users**
        - **Can only access Licensee modules within the UBI they have access to.**

Default Inventory types:

- **(What are inventory types - these are the parent category assigned to all inventory types depending on how it is created)**
- **Conversions flow from: - Wet inventory types → Dry Inventory types/Lot Inventory types/Extraction Inventory Types → Finished Goods.**

    - **Source Inventory Types**
        - Clones
        - Seeds
    - **Waste Inventory type**
        - Waste
            - Cannot be used it is only used for logging purposes
            - Must be destroyed
    - **Wet inventory types (From Harvest)**
        - Wet Flower — Freshly harvested whole flower (wet weight). Unit: grams/kg.
        - Wet Trim — Fresh trim from harvest (leaves/sugar trim). Unit: grams/kg.
        - Wet Whole Plant — Whole plant wet biomass (includes stems). Unit: kg.
        - Fresh Frozen Flower — Immediately frozen flower for extraction. Unit: grams/kg.
        - Fresh Frozen Trim — Trim frozen post-harvest for extraction. Unit: grams/kg.
    - **Dry Inventory types (From cure)**
        - Dry Flower (Cured) — Dried and cured flower ready for inventory/lots. Unit: grams/kg.
        - Dry Trim — Dried trim separated from cured flower (for extracts). Unit: grams/kg.
        - Cured Whole Plant — Cured whole-plant biomass (rare). Unit: kg.
        - Bucked Flower — Flower removed from stems and cured. Unit: grams/kg.
        - Smalls/Shake — Loose cured flower pieces and shake. Unit: grams/kg.
    - **Lot Inventory types (From “Create Lot” functionality - which is the combination of wet/dry inventory type items to make lots)**
        - Lot of Wet Flower - A batch of freshly harvested cannabis flower that has not yet been dried or cured. Unit of Measure (UOM): Pounds (lbs) or Kilograms (kg)
        - Lot of Dry Flower - A batch of cannabis flower that has been dried and cured, ready for further processing or sale. Unit of Measure (UOM): Pounds (lbs) or Kilograms (kg)

    - Lot of Trim - A batch of cannabis trim material collected during harvesting, used for extraction or other products. Unit of Measure (UOM): Pounds (lbs) or Kilograms (kg)
- **Extraction Inventory Types (These are created with "Conversion" functionality from wet,dry,lot inventory types)**
    - Crude Extract (Solvent) — Initial solvent-based crude (ethanol/BHO/CO2). Unit: grams/kg.
    - Distillate — Refined, high-potency distillate (THC/CBD). Unit: grams/ml.
    - Winterized Oil — Solvent-extracted oil after winterization. Unit: grams/ml.
    - Full-Spectrum Extract — Less-refined extract retaining minor cannabinoids/terpenes. Unit: grams/ml.
    - Live Resin — Flash-frozen fresh plant extraction preserving terpenes. Unit: grams/ml.
    - Rosin — Solventless press-extracted concentrate. Unit: grams.
    - Hash / Kief — Concentrated trichome product (dry sift or collected). Unit: grams.
    - Isolate (THC/CBD) — Pure cannabinoid isolate (powder or crystalline). Unit: grams.
    - Resin Sauce / Hybrid Concentrate — High-terpene viscous extract (sauce/badder). Unit: grams.
    - RSO (Rick Simpson Oil) / Full Extract Oil — Whole-plant, high-fat carrier oil extract. Unit: grams/ml.
- **Finished Goods - (These are created with "Conversion" functionality from wet,dry,lot inventory,Extraction Inventory types items)**
    - Pre-Rolls - *Description:* Pre-rolled cannabis flower joints ready for consumption. - *UOM:* Each (ea)
    - Edibles (Gummies) - *Description:* Cannabis-infused gummy candies in various flavors and dosages.- *UOM:* Each (ea) or Package
    - Edibles (Baked Goods) - *Description:* Cannabis-infused baked products such as cookies, brownies, or cakes. *UOM:* Each (ea) or Package
    - Tinctures - *Description:* Cannabis extracts in liquid form, administered sublingually via dropper. *UOM:* Milliliters (ml)
    - Topicals (Creams/Lotions) *Description:* Cannabis-infused creams or lotions applied to the skin for localized relief. - *UOM:* Ounces (oz) or Grams (g)
    - Capsules - *Description:* Cannabis oil or powder encapsulated for oral ingestion. *UOM:* Each (ea) or Bottle
    - Vape Cartridges - *Description:* Pre-filled cannabis oil cartridges for use with vape pens. *UOM:* Milliliters (ml)
    - Beverages - *Description:* Cannabis-infused drinks such as sodas, teas, or waters. *UOM:* Each (ea) or Bottle
    - Concentrate Pens - *Description:* Disposable or rechargeable vape pens pre-loaded with cannabis concentrate. *UOM:* Each (ea)

    - Transdermal Patches - *Description:* Adhesive patches delivering cannabinoids through the skin over time.
      UOM: Each (ea)
    - Suppositories - *Description:* Cannabis-infused suppositories for rectal or vaginal administration. *UOM:* Each (ea)
    - Infused Chocolates *Description:* Cannabis-infused chocolate bars or pieces. *UOM:* Each (ea) or Package
    - Infused Mints *Description:* Cannabis-infused breath mints or lozenges. *UOM:* Each (ea) or Package
    - Sublingual Strips *Description:* Thin strips infused with cannabis extract placed under the tongue for fast absorption. *UOM:* Each (ea) or Package
    - Flower Packaging (Ready for Sale) *Description:* Packaged cannabis flower prepared for retail sale, labeled and sealed. *UOM:* Grams (g) or Ounces (oz)

There is going to be a single interface for all with different modules depending on user access level, this is to be determine at login, there is not need to present UBI#

- **Parent location main identifier (UBI)**
    - Child locations - Main identifier (License #), License type
        - **Each location will be categorized by a License Type:**
            - Cultivator
            - Manufacturer
            - Cultivator/Manufacturer
            - Retail
            - Full Vertical
            - Testing Laboratory
        - **These license types will determine the Modules enabled in each location**
            - Here are the default license types and modules:
            - Cultivator will have the following Modules
            - Cultivation Module
            - Inventory Module
            - Testing Module
            - Transfer Module
            - Licensee Reporting Module
        - **Manufacturers will have the following Modules**
            - Inventory Module
            - Conversion Module
            - Testing Module (for sample generation)
            - Transfer Module
            - Licensee Reporting Module
        - **Cultivator/Manufacturer will have the following Modules**

        - Cultivation Module
        - Inventory Module
        - Conversion Module
        - Testing Module (for sample generation)
        - Transfer Module
        - Licensee Reporting Module
    - **Retail will have the following Modules**
        - Retail Module
        - Inventory Module
        - Conversion Module
        - Testing Module (for sample generation)
        - Transfer Module
        - Licensee Reporting Module
    - **Full Vertical will have the following Modules**
        - Cultivation Module
        - Retail Module
        - Inventory Module
        - Conversion Module
        - Testing Module (for sample generation)
        - Transfer Module
        - Licensee Reporting Module
    - **Testing Laboratory will have the following Modules**
        - Lab Module (for entering results)

Define Licensee Modules and Functionality:

Licensee User Management Global Module per UBI

- This module can only be accessed by admin level licensee users within a given UBI
- This is for administrative purposes within a UBI, they must be able to manage their own users, create/modify/activate/deactivate as well as level of access

Cultivation Module - This is where plants are stored

- **Functionality include:**
    - **New Plant**
        - There will be 3 ways to bring in new plants
            - Via a Source Inventory (in the Inventory window)
                - Source inventory types Clones, Seed
            - Via Inbound Transfer (Transfer Module)
            - Via “Initial Window” this is a permission enabled by the State at the license location level which gives the location granted the

permission the ability to generate new plants without a transfer, and without a source.

- **Plant Details**
  - Here users would be able to inspect a single plant and view all of its properties such as:
    - Strain name
    - Birthday
    - Phase
    - Status
    - Action history (any actions taken on that plant)
- **Plant Inbound and Outbound transfers (Utilizes Transfer Module)**
  - This is for wholesale purposes, if a cultivator wants to wholesale plants to another cultivator.
  - There are two types of Plant Transfers
    - Sale Transfer - for wholesale to another UBI vendor's location - must check that receiving vendor is of Cultivator License type
    - Same UBI Transfer - for when you are simply relocating plants to another one of your facilities - this must check to ensure the receiving location is within the same UBI, but still provide the ability to enter sales data as sometimes locations may have separate accounting. Meaning this transfer could be done as a sale, or it can be done for zero dollars.
    - Safeguard, must not allow plants that were previously harvested, or are part of an active harvest to be transferred.
  - This functionality uses the Transfer Module
- **Cultivation rooms**
  - **Move Plants between rooms**
  - These are used to organize the plant inventory
  - They must have the ability to switch between rooms to view the different plants between rooms
  - Ability to create/modify/delete rooms
    - Safeguard, must not allow the deleting of a room containing plants
- **Harvest**
  - Ability to harvest 1 plant, or multiple plants at a time
    - Every harvest whether single plant or multiple plants must generate harvest batch records.
  - Whole Plant Harvest
    - In this case the user only collects Wet Whole Plant weight (this does not generate inventory, instead it sets plant phase to drying, and plant stays in the cultivation) it waits to be cured.
  - Regular Harvest
    - User enters Wet Flower,Wet Trim,Fresh Frozen Flower,Fresh Frozen Trim, Waste

                - In this scenario all of the items collected will generate new inventory items, and plant will disappear since it was technically used for the harvest and change status to harvested for reporting purposes
            - Additional Collection Harvest
                - user enters Wet Flower,Wet Trim,Fresh Frozen Flower,Fresh Frozen Trim, Waste
                - In this scenario all of the items collected will generate new inventory items, however the plant will not disappear, technically when doing additional collection the user only collects a portion of the plant.

    - **Cure**
        - Cure can only be done on plants previously harvested as Whole plant Harvest
        - User enters Dry Flower (Cured), Dry Trim, Cured Whole Plant, Bucked Flower, Smalls/Shake, Waste
        - In this scenario all of the items collected will generate new inventory items, and the plant will disappear since it was technically used for the cure and change status to cured for reporting purposes.
    - **Ability to set plants to "Mother Plant" Status**
        - This will allow these plants to be used as a 'source" for the creation of Clones, Seeds, Plant Tissue.
    - **Destruction of plant/s**
        - Destruction must log waste, and reason for destruction
        - Logs must show the user that destroyed the item
    - **Undo capabilities for actions such as:**
        - Room Move
        - Harvest
        - Cure
        - Destruction

Inventory Module - This is where inventory is stored

- Functionality included:
    - **New Inventory**
        - There will be 3 ways to bring in new inventory
            - Via a Mother plant
                - Using a mother plant to generate new Clones, Seed
            - Via Inbound Transfer (Transfer Module)
            - Via "Initial Window" this is a permission enabled by the State at the license location level which gives the location granted the permission the ability to generate new inventory without a transfer,

and without a source, in this case any inventory type can be created.

- **Inventory Details**
  - Here users would be able to inspect a single inventory item and view all of its properties such as:
    - Strain name
    - Available Quantity
    - Create Date
    - Status
    - Action history (any actions taken on that inventory item)
    - Usable weight (for finished goods)
  - Ability to change Product name
    - The product name is a sub categorization mechanism that allows users to give the item a custom detailed name
    - Product name does not change inventory type
    - Products must have POS customization properties such as pricing, discounts, loyalty program
    - A Single product can have multiple inventory items under it
    - Product inventory type must match item inventory type in order to be linked.
- **Inventory rooms**
  - Move Plants between rooms
  - These are used to organize the inventory items
  - They must have the ability to switch between rooms to view the different inventory items between rooms
  - Ability to create/modify/delete rooms
    - Safeguard must not allow the deletion of a room containing inventory items.
- **Inventory Inbound or Outbound Transfer (Utilizes Transfer Module)**
  - This is for wholesale purposes, if a vendor wants to wholesale Inventory to another vendor.
  - There are two types of Inventory transfers
    - Sales Transfer - for wholesale to another UBI vendor's location
    - Same UBI Transfer - for when you are simply relocating inventory to another one of your facilities - this must check to ensure the receiving location is within the same UBI, but still provide the ability to enter sales data as sometimes locations may have separate accounting. Meaning this transfer could be done as a sale, or it can be done for zero dollars.
    - Safeguard, must not allow inventory items that are part of an active transfer.
- **Inventory Conversion (Utilizes Conversion Module)**
  - Ability to convert inventory items from inventory type to inventory type.
- **Inventory Adjustments**

        - Ability to adjust inventory up or down
        - Always request for a reason as to why it's being adjusted
        - When adjusting up, warn the user that this type of adjustment will be logged as a red flag so as to be very detailed in their reason to avoid compliance/regulatory fines.
    - **Create Lot**
        - Create lot will be the ability to lot wet/dry items
        - This functionality can be part of the (Conversion Module)
    - **Destruction of Inventory**
        - Destruction must log waste, and reason for destruction
        - Logs must show the user that destroyed the item
    - **Inventory Testing (utilizes Testing Module (for sample generation))**
        - This is to be able to create a sample from an item, assigned it to a Testing Laboratory
    - **Inventory Split**
        - Ability to split off quantity from an item to generate a new item of the same inventory type/characteristics/testing values (if present)
        - For traceability purposes we must track relation between Parent and child
        - New item must have a "sublot" identifier and cannot be further split
    - **Inventory Combination**
        - Ability to combine multiple items into a single item
        - Items must be the same inventory type
        - In the event it's different strains, it must alert user to let it know the new item will automatically have "mixed strain" indicator
        - There are two types of inventory combination
            - Combine into exiting item
                - This is where 1 of the items in the combination will be set as the receiver of all the combination quantity
            - Combine into new item
                - This is where all items are combined into a brand new inventory item
    - **Undo capabilities for actions such as:**
        - Room Move
        - Inventory Split
        - Combination
        - Adjustments
        - Create Lot
        - Conversion
        - Destruction

Transfer Module

- Functionality included:
    - Alert Mechanism

        - Alert when there is an inbound transfer
        - Alert when there is an outbound transfer
        - Alert when transfer has been received
            - On full acceptance
            - On partial acceptance
        - Alert when transfer has been voided/canceled
        - Alert when transfer has been rejected
    - Inbound Transfers
        - Intake process must be an item at a time, this is to reduce inventory discrepancies
        - There will be 3 intake options per item
            - Full acceptance
                - In this case the item item's quantity is accepted
            - Partial Acceptance
                - In this case the user can accept a smaller quantity, in this case the receiver will take in the barcode sent with the quantity received and the difference goes back to send in the form of an inventory split, meaning they receive a newly generated barcode number.
            - Full reject
                - In this case the user rejects the entire item, and the same barcode along with the original quantity is sent back to the sender.
        - If intaking plants these must land in the Cultivation Module
            - User should be able to select exact cultivation room
        - If intaking inventory these must land in the Inventory Module
            - User should be able to select exact inventory room
        - Ability to enter purchase price per inventory item
        - Ability to reject entire manifest
            - If the receiver decides to not accept any of the items in the manifest
            - All items go back to the sender.
    - Outbound Transfer
        - For plants it must use the following rules:
            - There are two types of Plant Transfers
                - Sale Transfer - for wholesale to another UBI vendor's location - must check that receiving vendor is of Cultivator License type
                - Same UBI Transfer - for when you are simply relocating plants to another one of your facilities - this must check to ensure the receiving location is within the same UBI, but still provide the ability to enter sales data as sometimes locations may have separate accounting. Meaning this

transfer could be done as a sale, or it can be done for zero dollars.
        - Safeguard, must not allow plants that were previously harvested, or are part of an active harvest to be transferred.
    - For inventory items it must use the following rules:
        - There are two types of Inventory transfers
            - Sales Transfer - for wholesale to another UBI vendor's location
            - Same UBI Transfer - for when you are simply relocating inventory to another one of your facilities - this must check to ensure the receiving location is within the same UBI, but still provide the ability to enter sales data as sometimes locations may have separate accounting. Meaning this transfer could be done as a sale, or it can be done for zero dollars.
            - Safeguard, must not allow inventory items that are part of an active transfer.
    - Ability to assign drivers, and vehicles to transfer
    - Ability to select the exact items to send along with the quantity to send out, since the system does not allow for barcode # duplication in the event an item with 50 units is selected but only transfer 25, the system must generate (using inventory split functionality) a new item (child) for 25 units and attach that to the manifest, it must keep traceability to the
    - Generate purchase order and detailed manifest
    - Transfer must also transfer testing data for items with test results along with attached COAs (if any)
    - After an outbound transfer is generated, the items part of the transfer must have its status changed to "Transfer initiated" to then "in transit" once the items go out the door.
    - Ability to void this transfer so long as it has not been received.
        - If item has already been received then the only way to get the items back is via an outbound transfer from where the items are located

Conversion Module

- Functionality included:
    - Handle all conversion aspects
    - Ability to convert inventory from inventory type to inventory type
    - To initiate a conversion the user must select the inventory type they want to convert to, the system must then display available inventory items that can be converted into the selected inventory type
    - There will be 3 types of conversions

        - 1 to 1 conversion
            - This is when 1 item is used to convert into a single new item
        - Many to 1
            - This is where many items are used to convert into a single item
        - Many to Many
            - This is where many items are used to convert into many items
            - For this type of conversion the user will need to specify how many new items they are creating and the quantity per item

- When converting to end products the user must enter the usable weight per unit of the item being created, there must be safeguard in place to throw warning if the usable is too high or too low depending on the inventory type, but default usable weight is calculated based on quantity of product introduced in the conversion divided by number of units created.

Retail Module

- Functionality included:
    - POS
        - This is where users can load up patient profiles
        - Add items to cart
        - Apply discounts
        - Make sales
            - There will be 3 times of sales
                - Regular sale
                    - This is a regular in person sale
                - Pick up sale
                    - This is a sale where the patient picks up the item at a later time
                    - This type of sale must reserve inventory once it's made so that there are no inventory discrepancies
                - Delivery sale
                    - This is a sale that will require the creation of a manifest in order to deliver the items to the patient
                    - This type of sale must reserve inventory once it's made so that there are no inventory discrepancies
        - Loyalty Program
        - Product Customization
            - Name
            - Category
            - Pricing structure
            - Discounts

        - The POS must have the ability to integrate into external patient portals to retrieve the patient allotment so that as items are added to the cart the user knows how much limits the patient has left (for testing purposes we could stage this, however there must be a mechanism in place to make the connection to the patient portal)
        - Ability to void sales
            - This can only be done if the sale is voided the same day it was made
            - May need admin
        - Ability to refund sales
            - This can be done at any time
            - Restock is done at dispensaries discretion, usually if items are unused/unopened
            - Patient allotment restoration, if items are unused/unopened
            - Ability to refund per item

Licensee Reporting Module

- Functionality included:
    - Here they should have a series of reports to match all the functionality available in the different Licensee Modules

Testing Module (for sample generation)

- Functionality included:
    - This module allows users to select an item they would like to test and extract a QA sample from it.
        - Relation between Sample and Inventory item is done via the Sample Id column in the inventory table.
        - In the creation process depending on testing rules for the state, the panels will be automatically loaded depending on the inventory type being tested, or user may have to select the panels.
    - Sample is assigned to a lab
    - In conjunctions with Transfer Module the sample/s is/are transferred to the lab
    - There must be the ability to void the sample and transfer so long as it has not been received by the lab, if received by the lab the lab must be the one to cancel the sample on their end.
    - There must be detailed status
        - When an item is sampled - Change item status to “Sample Created”
        - When the sample is transferred - status: “Sample Transferred"
        - When lab received it, Status: “Sample Received”
            - If the lab received it Status “Rejected by lab”

                - In this case the sample item automatically goes back to the sender, they are able to then resent, or assign the sample to a different lab
        - When lab starts testing process “In process”
        - When the results are back
            - For pass testing “ Passed QA”
            - For failed testing “Failed QA”
    - Users must be able to view detailed testing information per item
    - There must be a remediation mechanism
        - This request goes into the **State request approval Module**
        - This is where the user sends a request to the State Module for a State official to approved/denied a retest on the product.
            - If approved - they can retest and send to lab (same or different)
            - If denied - the item must be destroyed

Lab Module (for entering results)

- Functionality included:
    - Alert Mechanism
        - Alert when sample/s have been assigned to them
        - Alert when sample/s have been transferred to them
    - Lab Inbound Transfers
        - Intake process must be an item at a time, this is to reduce inventory discrepancies
        - There will be 2 intake options per item
            - Full acceptance
                - In this case the full item’s quantity is accepted
            - Full reject
                - In this case the user rejects the entire item, and the same barcode along with the original quantity is sent back to the sender.
    - Enter results
        - The lab must be able to enter results once the product has been tested, results will be stored in the sample, and link back to the item via sample id.

Define State Modules and Functionality:

State User Management Global Module

- This is for administrative purposes within the State Module, they must be able to manage their own users, create/modify/activate/deactivate as well as level of access

State Dashboard Modules

- **State** Dashboard and reporting Module
    - Functionality include:
        - This is a birds eye view of the entire market, with a series of reports highlighting the most relevant actions per licensee. As well as red flag actions.
        - There must be configurability capabilities in this dashboard at glace data could be changed around.
- State Licensee Account Management Module
    - Functionality include:
        - The state will be in charge of creating new licensee locations, and managing these locations, activating and deactivating licensee account
        - Licensee will consist of the parent entity which will hold the different locations under it.
        - Within the licensee account management there must be a mechanism to enable the Initial Window.
- State Reporting Module
        - Advanced whole market reporting capabilities.
        - Ability to build custom reports
- State request approval Module
    - Functionality include:
        - This module is where customer request from licenses will come in
        - For now the only custom request will be the one to request remediation on a failed lab sample.
        - More functionality will be added later.

Define System Admin Modules and Functionality:

System Customization Module

- **Functionality include:**
    - Barcode format customization
        - There must be the ability to change the format of the barcode, some states are ok with the 16 digit, while other may prefer to have a format that include license number
    - Inventory types customization
        - Ability to modify inventory type name across entire system
        - Ability to add, or remove inventory types
- **Transfer rules Customization**

    - By default all items can be transferred across all license types
    - Which license types can transfer to which license types
    - Which inventory types can be transferred
    - Which testing status must items have in order to be transferred
- **Testing Rules Customization**
    - Which testing panels are needed for which inventory type
- **Usable weight calculation customization**
    - Additional information on what is usable weight, this is the amount the item will deduct from patient limits upon sale. Some states have a simple formula such as dividing number of grams by number of units on inventory conversions, while others incorporate testing data into the formula to generate equivalency deductions.
- **Location License Types**
    - Location lice type names, and modules must be customizable