# Sarantini Analysis

The backend architecture will be organized into **four main modules**, each responsible for a distinct set of functionalities:

* **System function**: Manages the definition of all application pages.
* **Settings**: Handles global system configurations, including user and role management, currencies, and language options.
* **Website**: Stores and manages content for dynamic website pages.
* **E-Commerce**: Covers all commerce-related features, such as product management, customer data, order processing, and reporting.

General Notes:

* When a record is deleted, all associated translations must also be removed.
* Keep track and attention to the order of some entities. Some rules are listed, if not it’s a simple integer, but keep in mind that orders are positive integer.
* In duplicate forms, all unique fields must be either updated or verified. If a field uses a formula, it should be recalculated automatically when the page loads.
* View Pages are table view, if the view page isn’t a table the type will be mentioned within.

# Backend login

## Form

* Username: string \*
* Password: string \*
* OTP: string

# Change Password:

## Form:

* Old password: string \*
* New password: string \*
* Confirm new password: string \*
* Forgot password: button (if clicked the new password reset will be send via email/sms).

# Module 1: System function

## Form

* Code: string \* ^
* Type: number \*
  + 0: module
  + 1: menu-view
  + 2: page
  + 3: action
* Order: number \*
* Icon: string | null
* URL: string \*
* Parent: autocomplete | null
* Translations: + (at least one detail, max number of details is the number of languages in the settings)
  + Name : string \*
  + Language: autocomplete \*

## View Page

* Code
* Type
* Order
* Icon
* URL
* Parent
* Default Name

## Notes

Only the **dev team** have access to this module.

### **Order Rules**

To ensure consistency and traceability across the system, each function will follow a structured numbering scheme based on its hierarchical level:

* **Module**: Represented by a **single digit** (e.g., 1, 2, …).
* **Menu-View**: Represented by **three digits** (e.g., 101, 102, …).
  + The **first digit** corresponds to the module number.
  + The following **two digits** define the menu-view order within that module.
* **Page**:
  + If related to a menu-view → represented by **five digits** (e.g., 10101, 10102, …).
    - The **first digit** corresponds to the module.
    - The next **two digits** correspond to the menu-view.
    - The last **two digits** define the page order within the menu-view.
  + If independent (not related to a menu-view) → represented by **three digits** (e.g., 103, 204, …).
    - The **first digit** corresponds to the module.
    - The following **two digits** define the page order within the module.
* **Action**: Represented by **five or seven digits**, depending on its context.
  + If tied to a page within a menu-view → follows the five-digit page code and appends **two additional digits** for the action (e.g., 1010101, 1010102, …).
  + If tied directly to a module or standalone page → represented by **five digits**, where the last two define the action order (e.g., 10301, 20402, …).

### **Delete Rules**

* **Parent Restriction**: A record cannot be deleted if it has existing child records.
* **Permission Restriction**: A record cannot be deleted if it is associated with active permissions.
* **Soft Deletion**: When a record is deleted, its **status indicator** changes from A (Active) to I (Inactive) in both the system menu and its translations, rather than being physically removed from the database.

# Module 2: Settings

## Languages

### Form

* Code: autocomplete (displayed as name) \* ^(e.g., en, fr, ar)
* Is Default: checkbox \* (indicates if the language is the system’s default)
  + 0: not default
  + 1: default

### View Page

* Code
* Name
* Is Default

### Notes

#### **Default Rule**

* Only **one language** can be set as the default (is\_default = 1).
* **Default Rule**: At least one language must always be set as default. The default language cannot be deactivated unless another language is promoted as default.

#### **Delete Rule**

Languages cannot be deleted if related to any translations table:

* Classifications\_translations
* Company\_addresses\_translations
* Menu\_items\_translations
* Sections\_translations
* Product\_translations
* Attributes\_translations
* Company\_profile\_translations
* Seo\_meta\_translations
* Attributes\_values\_translations
* Currencies\_translations
* Products\_details\_translations
* Variants\_translations
* System\_menu\_translations
* Categories\_translations
* Section\_contents\_translations

## Currencies

### Form

* Code: autocomplete (displayed as name) \*^ ( e.g., USD, EUR, LBP)
* Is Default: checkbox \* (indicates if the currency is the system’s default)
  + 0: not default
  + 1: default

### View Page

* Name
* Code
* Is Default

### Notes

#### **Default Rule**

* Only **one currency** can be set as the default (is\_default = 1).
* **Default Rule**: At least one currency must always be designated as the default. The default currency cannot be changed unless another currency is promoted as default.

#### **Delete Rule**

Currencies cannot be deleted if referenced by:

* Variant\_prices
* Orders
* Customers
* Transactions

## Users

### Form

* Name: string \* (full name of the user)
* Username: string \*^
* Password: string \* (hashed password for authentication)
* Email: string \*^
* Mobile: string | null
* Phone: string | null
* Role: autocomplete \*

### View Page

* Name
* Username
* Email
* Mobile
* Phone
* Role Name (from Roles table)

### Notes

#### **Default Rule**

Users must have a valid role always assigned.

#### **Delete Rule**

Users cannot be physically deleted if linked to transactions or system activity.

## Roles

### Form

* Name: string \*^ (role name, e.g., Admin, Manager, User)
* Permissions: Tree \* (from system functions)

### View Page

* Name
* Users

### Notes

#### **Many-to-Many Relationship**

Each role can have multiple permissions, and each menu item can be assigned to multiple roles.

#### **Delete Rule**

Roles cannot be deleted if referenced by users or permissions.

# Module 3: Website

## Company Information

### Form/ View

* Logo: string | null (company logo file path)
* Icon: string | null (company icon file path)
* Email 1: string \* (primary company email)
* Email 2: string | null
* Email 3: string | null
* Facebook: string | null
* Facebook: string | null
* Twitter: string | null
* Instagram: string | null
* YouTube: string | null
* LinkedIn: string | null
* Pinterest: string | null
* Google: string | null
* TikTok: string | null
* Company translation +: (at least one detail representing the default language)
  + Title: string \* (company name in specific language)
  + Description: longtext | null (company description in specific language)
  + Language: code \*(foreign key referencing Languages)
* Addresses
  + Fax: string | null
  + Phone: string \*
  + Mobile: string
  + Email: string \*
  + Latitude: string | null
  + Longitude: string | null
  + Icon: string | null
  + Address Translation +: (at least 1 detail -> default)
    - Title: string \*
    - Address: string \*
    - Location: string | null
    - Language ID: code \* (foreign key referencing Languages)

### Notes

#### **Rules**

* **Multi-Language Support**: Each company profile and address can have multiple translations, linked to the available languages.
* **Multiple Addresses**: A company can have several addresses (head office, branches), each with translations.
* **Parent-Child Rule**: Company addresses are linked to a parent company profile; cannot exist independently.

#### **Delete Rule**

Records cannot be physically deleted just edited. Only addresses and translations can be deleted.

## SEO

### Form / View

* Entity Type: enum \* (type of entity the SEO applies to)
  + 0 : page
  + 1: content\_item
  + 2: content\_category
* Entity ID: number \* (reference to the specific entity record)
* OG Image: string | null (Open Graph image URL)
* Canonical URL: string | null (preferred URL for SEO purposes)
* Meta Translations+: (at least 1 detail -> default)
  + Meta Title: string \*
  + Meta Author: string | null
  + Meta Content: longtext | null
  + Meta Description: longtext | null
  + Meta Keywords: string | null
  + OG Title: : string | null
  + OG Description: longtext | null
  + Robots: string | null
  + Language ID: code \* (foreign key referencing Languages)

### Notes

#### **Rules**

* **Multi-Language Support**: Each SEO record can have multiple translations according to system languages.
* **Translation Rule**: At least one translation must exist for each SEO Meta record.
* **Entity Integrity**: SEO Meta records must reference a valid entity (page, section, or section\_contents) that exists in the system.

#### **Delete Rule**

Records cannot be physically deleted just edited. Only translations can be deleted.

## Menus

Menus are pre-divided into two sections: **Main Menu** and **Footer Menu**. These cannot be deleted not edited, only their items can be added, edited, duplicated or deleted.

### Form

* URL: string \* (link the menu item points to)
* Sort Order: number \*
* Is Icon: boolean | null
  + 0: false
  + 1: true
* Icon: string | null **(\*\* if is Icon is checked)**
* Parent ID: autocomplete | null
* Menu Items Translations +: (at least 1 detail -> default)
  + Name: string \*
  + Language ID: code \* (foreign key referencing Languages)

### View Page

* Name (from translations)
* URL
* Icon
* Is Icon
* Sort Order
* Parent Menu Item

### Notes

#### **Rules**

* **Translation Rule**: Each menu item must have at least one translation; additional translations depend on system languages.
* **Sort Order Rules:**
  + **Top-level menu items (no parent): 2 digits**
    - sort\_order determines the order in which the items appear in the main menu.
    - Must be unique among all top-level items in the same menu type.
  + **Child menu items (has a parent): 2 digits after parent order**
    - sort\_order determines the order among sibling items under the same parent.
    - Must be unique among all items sharing the same parent order.

#### **Delete Rule:**

* **Parent-Child Rule**: A menu item cannot be deleted if it has child menu items.

## Pages

Only the **dev team** will have access to the actions of this page.

### Form

* Slug: string \*^ e.g., "home", "about")
* URL: string | null (custom URL for the page, optional)
* Pages Translations+: (at least 1 detail -> default)
  + Title: string \*
  + Language ID: code \* (foreign key referencing Languages)

### View Page

* Slug
* URL
* Title (from translations)

### Notes

#### **Rules**

* **Translation Rule**: Each page must have at least one translation; additional translations depend on system languages.
* **URL Rule**: If a custom URL is provided, it must be unique; otherwise, the system can generate a URL based on the slug.

#### **Delete Rule**

Pages cannot be deleted if they’re related to sections.

## Section Types

Only the **dev team** will have access to the actions of this page.

### Form

* Slug: string \*^
* Code: number \* (enumeration defining the type of section)
  + 0: Block
  + 1: Gallery
  + 2: Image Slider
  + 3: Text Slider
  + 4: Video
  + 5: Hero
  + 6: Image
  + 7: Banner
  + 8: Blog

### View Page

* Slug
* Code

### Notes

#### **Rules**

* **Enumeration Rule**: The code field defines the type of the section and must be unique.
* **Usage Rule**: Section types are referenced by the **Sections** table to classify the nature of content displayed on pages.

#### **Deletion Rule**

Section types cannot be deleted if any sections are linked to them.

## Sections

As for this page, there will be no duplicate actions. Only the **dev team** will have access to add and delete sections. Other users will have access to edit and view.

### Form

* Slug: string \*^
* Image: string | null
* Section Type ID: autocomplete \* (foreign key referencing Section Types) **(Hidden in edit/view)**
* Sections Translations+: (at least 1 detail -> default)
  + Title: string \*
  + Description: longtext | null
  + Language ID: code \* (foreign key referencing Languages)
* Section Contents+:
  + Image: string | null (\*\* according to section type)
  + Image Link: string | null (\*\* according to section type)
  + Video: string | null (\*\* according to section type)
  + Video Link: string | null (\*\* according to section type)
  + Icon: string | null (\*\* according to section type)
  + Link: string | null (\*\* according to section type)
  + Order: number \* (defines content order within section)
  + Is Main: checkbox | null (indicates primary content for the section)
  + Section Contents Translations+: (at least 1 detail -> default)
    - Title: string | null (\*\* according to section type)
    - Text: longtext | null (\*\* according to section type)
    - Image Description: longtext | null (\*\* according to section type)
    - Alt Image: string | null (\*\* according to section type)
    - Video Description: longtext | null (\*\* according to section type)
    - Alt Video: string | null (\*\* according to section type)
    - Language ID: code \* (foreign key referencing Languages)

### View Page

In sections the view page will be **cards** containing:

* Page title/ slug
* Page sections list with actions

### Notes

#### **Rules**

* **Content Ordering**: Order field determines the sequence of content within a section. There is no format for the order, a simple integer.
* **Translation Rule**: Each section and content detail must have at least one translation; additional translations depend on system languages.
* **Parent-Child Rule**: Section contents are linked to a parent section; they cannot exist independently.
* **Unique Slug**: Each section slug must be unique across the system.

#### **Delete Rule:**

Only dev team can delete sections and when a section is deleted all related information will be deleted (translation, contents and contents translation).

# Module 4: E-commerce

## Dashboard

## Customers

### Form:

* First Name: string \*
* Last Name: string \*
* Email: string \*^
* Phone: string | null
* Mobile: string | null
* VAT Number: string | null
* Company: string | null
* Password: string \* (hashed, required for authentication)
* Image: string | null
* Default Currency ID: autocomplete \* (foreign key → currencies.id)
* Addresses +: (at least one to be able to order)
  + Type: number \* (classification of address)
    - 0: both
    - 1: billing
    - 2: shipping
  + First Name: string \*
  + Last Name: string \*
  + Company: string | null
  + Country: string \*
  + Phone: string \*
  + Mobile: string | null
  + City: string \*
  + Emirate: string | null
  + Street Name: string | null
  + POB (P.O. Box): string | null
  + State: string | null
  + Address 1: text | null
  + Address 2: text | null
  + Building: string | null
  + Apartment No: string | null

### View Page

Each row will have an additional In addition It will have a

* First Name
* Last Name
* Email
* Mobile
* Phone
* Additional actions:
  + reset password button to send an email with the new password to the customer.
  + list button which redirects the user to the order reports with this user id, so he can track all the orders of this particular user.

### Notes

#### **Rules**

* **Consistency Rule:** Country, city, and phone are mandatory to ensure the address can be used for delivery.
* **Verification Rule:** Customers must verify their email (is\_verified = 1) before being fully active in the system.

#### **Deletion Rule**

Addresses cannot be hard deleted if used in orders. And users can’t be deleted if they already have at least an order active.

## Categories

### Form

* Image: string | null (path or URL of category image)
* Video: string | null
* Category ID: number (self-referencing foreign key → parent category ID, for hierarchy)
* Category Translation+: (at least one -> default)
  + Name: string \*^
  + Description: text | null
  + Language ID: code \* (foreign key → languages.id)
  + Alt image: string | null (\*\* if image is provided)
  + Alt video: string| null (\*\* if video is provided)

### View Page

* ID
* Name (from translations)
* Image
* Parent Category (if any)

### Notes

#### **Deletion Rule**

Categories with subcategories or products should not be deleted. Orders related to products can’t be deleted.

## Classifications

### Form

* Type: string \*
* Is Shown: checkbox \* (0 = hidden, 1 = visible; controls UI display)
* Classification Translation+: (at least one -> default)
  + Name: string \*^
  + Language ID: code \* (foreign key → languages.id)

### View Page

* Type
* Is Shown
* Name

### Notes

#### **Deletion Rule**

Classifications should not be deleted if any is related to variants.

## Attributes

### Form

* Type: string \* (name/type of the attribute, e.g., Color, Size)
* Sort Order: number \*(positioning/order of the attribute in lists)
* Attributes Translations: + (at least one -> default)
  + Name: string \*
  + Language ID: code \* (FK → languages.id)
* Attribute Values
  + Code: string | null
  + Sort Order: number | null
  + Attributes Translations: + (at least one -> default)
    - Value: string \*
    - Description: longtext | null
    - Language ID: code \* (FK → languages.id)

### View Page

* Type
* Sort Order
* Name

### Notes

#### **Deletion Rule**

Attributes cannot be deleted if they have associated values. And values can’t be removed if related to a variant.

## Shipping

### Form

* Company: string \*^ (shipping provider name)
* Fee: float positive\* (shipping fee; default = 0)
* Currency ID: autocomplete \* (foreign key → currencies.id)
* Note: string | null (additional info about shipping method)

### View Page

* Company
* Fee
* Currency
* Note

### Notes

#### **Deletion Rule**

Shipping methods should not be deleted if they were used in any order.

## Discounts

### Form

* Code: string \*^
* Start Date: date
* Expiry Date: date
* Percentage: float \*
* Min Amount: float positive | null
* Min Quantity: float positive | null
* Max Amount: float positive| null
* Discount translation +:
  + Description: string | null
  + Language ID: code \* (foreign key → languages.id)
* Discount Variants +:
  + Variant ID: autocomplete (FK → variants.id)

### View Page

* Code
* Percentage
* Min Amount
* Min Quantity
* Max Amount
* Start Date
* Expiry Date

### Notes

#### **Rules**

* The details **links discounts to specific product variants**, making discounts applicable only to selected products.
* If a discount has no entry in discount\_variants, it is assumed to be a **global discount** (applies to all items meeting conditions).
* Dates restriction: Expiry date can’t be in the past.

#### **Deletion Rule**

Discount methods should not be deleted if they were used in any order.

## Products

### Form:

* Product Translations: + (at least one -> default)
  + Name: string \*
  + Brief Description: string \*
  + Full Description: string | null
  + Language ID: code \*
* Product Details: +
  + Sort Order: number | null
  + Product Details Translations: + (at least one -> default)
    - Language ID: code \*
    - Title: string \*
    - Description: string \*
* Variants: + (at least a product have one default variant)
  + SKU: string \*^
  + Is Default: checkbox \*
  + Price: float positive\*
  + Stock: float positive\*
  + New Item: checkbox
  + Best Seller: checkbox
  + Variant Translations: + (at least one -> default)
    - Description: string \*
    - Language ID: code \*
  + Variant Attribute Values: + (an attribute can’t be chosen twice)
    - Attribute: autocomplete \* (^ for this variant) (just for display and filtering values)
    - Attribute Value ID: autocomplete \* (FK → attribute\_values.id) filtered according to attribute
  + Variant Prices: + (at least one -> default)
    - Price: float \*
    - Currency ID: code \* (FK → currencies.id)
  + Variant Images: +
    - Image URL: string \* (unique)
    - Alt image: string \*
    - Is Primary: boolean | null

### View Page

* Best Seller
* New Item
* Name
* Brief Description
* Full Description

### Notes

* **Uniqueness:**
  + SKU must be unique.
  + Image URLs must be unique per variant.
* **Variant Default:**
  + Each product must have exactly one default variant.
* **Attributes:**
  + Variants must have valid attribute values.
  + Supports filtering, searching, and configuration options for products.
* **Images:**
  + Each variant can have multiple images.
  + Only one image per variant should be marked primary.
* **Deletion Rules:**
  + Variants linked to orders items or discounts cannot be deleted.
  + Products having multiple variants can’t be deleted till all their variants are deleted.
  + Once a variant is deleted all its details should be deleted.
  + Once a product is deleted, all its details should be deleted.
* **Best Practices:**
  + Use sort\_order fields for consistent product listing order.

## Reports

### Product Report

#### **Search criteria**

* Product title
* Product description
* Variant SKU
* Variant description
* Best Seller
* New items

#### **Search Result**

The results will contain mainly the variant information.

* Variant default Image
* Product Name
* Product Brief Description
* Product Full Description
* Variant SKU
* Variant Description
* Variant Stock
* Variant Default Price
* Default Currency code
* Variant New Item
* Best Seller
* Variant Is Default

### Customer Report

#### **Search criteria**

* Name
* Phone
* Email

#### **Search Result**

* First Name
* Last Name
* Email
* Mobile
* Phone
* Additional actions:
  + View Button: View page of the customer
  + List button which redirects the user to the order reports with this user id, so he can track all the orders of this user.

### Orders Report

#### **Search criteria**

* Order number
* Customer name
* Customer email
* Customer phone
* Date
* Status:
  + Draft: 1st saved with payment not done yet
  + Confirmed: payment is successful
  + Shipped: once order is with the shipment company
  + Delivered: order arrived at the customer
  + Cancelled: payment failed, or customer cancelling an order.

#### **Search Result**

* Order number
* Date
* Payment status
* Customer name
* Payment method
* Currency
* Quantity
* Amount
* Discount
* Vat
* Processing fee
* Net amount
* Status
* Additional actions:
  + View Button: View page of the order
  + Delete Button
  + Change order status:
    - If status draft -> confirmed/ cancelled
    - If status confirmed -> shipped/cancelled
    - If Shipped -> delivered
    - If delivered -> can’t change status.

#### **Notes**

**Order Status Rules:**

* Status Transitions:
  + Draft:
    - Can be changed to **Confirmed** or **Cancelled**.
    - Cannot be reverted to **shipped** or **delivered**.
  + Confirmed:
    - Can be changed to **Shipped** or **Cancelled**.
    - Cannot be reverted to **Draft** or changed directly to **Delivered**.
  + Shipped:
    - Can be changed to **Delivered**.
    - Cannot be changed to **Draft**, **Confirmed**, or **Cancelled.**
  + Delivered:
    - Status can’t be updated.
* Deletion Rules:
  + Orders with status Shipped or Delivered cannot be deleted.
  + Orders in Draft, Confirmed, or Cancelled status can be deleted. And their details will be deleted.

#### **Order View Page (only view)**

* Order Number
* Order Reference
* Date
* Status:
  + 1: Draft
  + 2: Confirmed
  + 3: Shipped
  + 4: Delivered
  + 5: Cancelled
* Payment Status:
  + 0: Declined
  + 1: Pending
  + 2: Successful
* Quantity
* Amount
* Discount
* VAT
* Processing Fees
* Net Amount
* Payment Method: tinyint | null
  + 0: Cash on Delivery
  + 1: Online Card
* Note
* Customer Name
* Address: concat country, city, address1
* Discounts code
* Shipping name
* Currency code
* Order Items+:
  + Quantity
  + Price
  + Discount
  + VAT
  + Status
  + Net Amount
  + Variant SKU
  + Discounts code