Coffee Chain ERP Manual

Managing Outlets, Sales, CRM, and Menu Items with Odoo

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Preface

The Coffee Chain ERP is designed to streamline operations across multiple outlets while ensuring efficiency, transparency, and growth. This manual documents the structure, functionality, and guiding principles of the ERP system built on the Odoo platform. It is intended for developers, managers, and users responsible for operating and expanding the coffee chain.

The ERP integrates outlets, sales, CRM, and menu management into a single system. It provides performance metrics via sales reports, ensures role-based accountability, and allows modular expansion for future needs.

Contents

Part I: The Strategic Foundation

Chapter 1

The TAO of the Odoo Coffee Chain Module: Guiding Philosophy

More than just a software system, the Coffee Chain ERP embodies a philosophy that brings together people, processes, and purpose. Guided by the TAO, which emphasizes harmony and flow, the ERP aims to harmonize operational efficiency, customer delight, and organizational growth. In doing so, it ensures that every action within the coffee chain supports a broader vision of excellence, consistency, and sustainable progress.

1.1 The Core Philosophy: Harmonizing People, Process, and Purpose

The ERP's philosophy is built on the understanding that technology should serve human intent, not dictate it. Its core principles include:

- **Unified Vision:** All outlets, teams, and customer touchpoints are aligned within a single coherent framework. This creates a seamless experience for both staff and customers.
- **Empowerment Through Clarity:** By providing clear visibility into operations, the ERP empowers managers and staff to act decisively and responsibly, transforming data into meaningful insights.
- **Customer-Centric Mindset:** Every menu choice, transaction, and engagement is designed to enhance customer satisfaction, fostering loyalty and trust.
- **Sustainable Growth:** Systems are conceived to support the coffee chain's expansion, ensuring that scaling operations never compromises quality or culture.

- **Harmony Between Technology and Human Judgment:** Automation is leveraged to reduce errors and inefficiencies, yet decisions remain guided by human insight and discretion.

1.2 Guiding Principles: The Values that Shape ERP Decisions

These principles provide a moral and operational compass for the ERP, ensuring that daily actions align with strategic objectives:

- **Simplicity and Elegance:** The system is designed to streamline complexity, presenting information and workflows in a clear, understandable manner.
- **Transparency and Accountability:** Roles, responsibilities, and processes are explicit, enabling trust and fairness within teams.
- **Continuous Improvement:** Insights and feedback from operations are used to refine processes, cultivating a culture of learning and excellence.
- **Collaboration and Synergy:** Departments and outlets operate not as silos but as interconnected units, sharing knowledge and working toward common goals.
- **Resilience and Adaptability:** The ERP encourages flexibility, allowing the organization to respond to changing market conditions, customer needs, or internal challenges without losing strategic focus.
- **Integrity and Ethical Operations:** Every feature and process within the ERP is designed to maintain honesty, accuracy, and ethical treatment of data and customers.

1.3 Frame of Reference: Guiding the Coffee Chain Towards Excellence

The ERP acts as a **philosophical and strategic lens** for decision-making, ensuring that operational choices reflect the chain's broader mission:

- **Strategic Alignment:** Every menu update, sales initiative, or customer engagement is anchored to long-term business objectives.
- **Cultural Integration:** The ERP embodies the coffee chain's values — quality, respect, and customer delight — reinforcing them in every interaction.

- **Guided Flexibility:** While providing structure and consistency, the system allows local adaptation, enabling outlets to respond to unique customer demands while remaining aligned with the brand's ethos.
- **Forward-Looking Orientation:** Decisions made within the system are informed by foresight, preparing the organization for expansion, evolving customer preferences, and emerging market opportunities.
- **Holistic Perspective:** Operations are viewed as part of a larger ecosystem, connecting outlets, teams, and customers in a continuous flow of value creation.

Insights

The philosophical foundation of the Coffee Chain ERP ensures that:

- Technology serves as a facilitator, harmonizing human judgment with operational processes.
- Staff and managers are empowered with clarity, accountability, and purpose.
- Customer experiences are consistently enhanced across all touchpoints.
- Continuous improvement and learning are embedded into the organizational culture.
- Growth and scalability are achieved without compromising operational excellence or brand integrity.
- The ERP functions not just as a tool, but as a strategic partner in achieving the coffee chain's vision.

Chapter 2

Strategic Context and Business Purpose

This chapter provides a comprehensive view of the Coffee Chain ERP system, linking its strategic objectives with operational processes and highlighting the value it creates. It covers system context, process mapping, module roles, scope, and the problems addressed by the ERP, along with the tangible benefits it delivers to stakeholders.

2.1 System Context (C4-Level 1): Departments, Roles, and Interactions

Understanding the system context is the first step in appreciating how the ERP organizes and streamlines operations. The Coffee Chain ERP system aligns organizational departments into structured digital workflows, ensuring clarity in roles, accountability, and information flow across the entire coffee chain.

Departments Covered

The ERP system organizes departmental responsibilities to ensure smooth coordination and operational efficiency (see Figure 2.1):

- **Outlet Management:** Maintains details of each coffee outlet such as name, location, and management assignments, ensuring visibility of operational capacity across the chain.
- **Sales:** Records daily transactions, revenue, and order details in real time to support operational monitoring and long-term planning.
- **Customer Relationship Management (CRM):** Tracks leads, customer details, and engagement history, enhancing marketing and customer retention.

- **Menu Management:** Provides a master list of products, categories, and pricing, synchronized with the sales process for consistent ordering.

Integration with QMS and PDCA

The ERP embeds a quality-driven approach through the PDCA (Plan-Do-Check-Act) cycle. This ensures that departmental activities not only execute daily operations but also continuously improve processes:

- **Plan:** Define objectives such as increasing sales, improving customer engagement, or optimizing outlet operations.
- **Do:** Execute daily activities through ERP modules, standardizing operations across all outlets.
- **Check:** Track performance indicators in dashboards to measure actual outcomes against planned objectives.
- **Act:** Managers adjust strategies, update menu items, or refine CRM tactics based on data-driven insights.

Tip

Review KPIs weekly and use PDCA's **Act** phase to refine outlet operations. Small, continuous improvements compound into significant performance gains.

Interaction Diagram

The interactions between departments are visually represented in Figure 2.1, showing how the ERP facilitates seamless communication and data flow across all functional units.

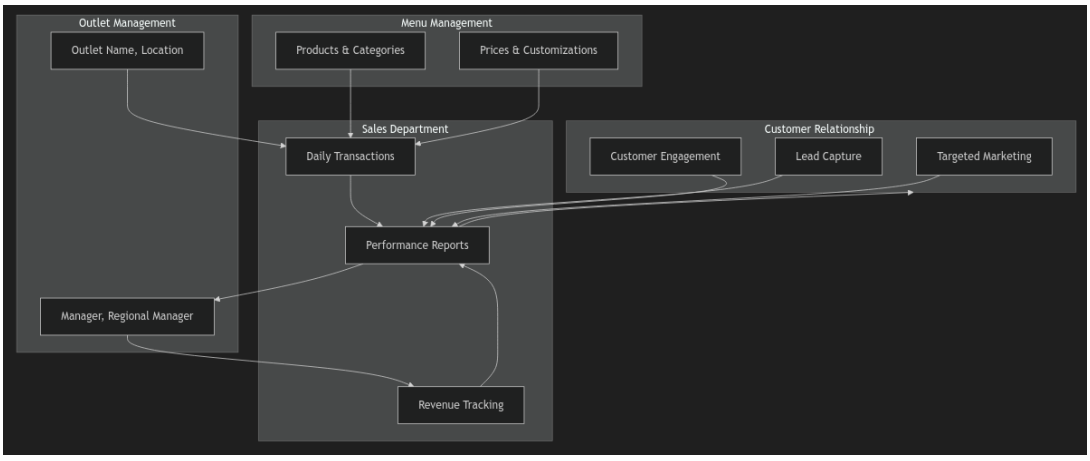

Figure 2.1: Department Interaction Diagram of Coffee Chain ERP

2.2 SIPOC Analysis: Mapping Processes and Stakeholders

To further understand the ERP's operational scope, the SIPOC framework provides a high-level process overview, highlighting Suppliers, Inputs, Processes, Outputs, and Customers (see Table 2.1 and Figure 2.2). This ensures that all stakeholders and activities are mapped for clarity and efficiency.

Purpose of SIPOC

The SIPOC analysis helps management visualize the end-to-end workflow and make informed decisions:

- Identify key suppliers and inputs required for smooth operations.
- Understand critical processes that transform inputs into outputs.
- Ensure outputs meet customer expectations.
- Detect potential gaps or inefficiencies in the workflow.

Tip

When conducting SIPOC analysis, involve representatives from all departments. This ensures that no critical input, process, or customer touchpoint is missed.

Suppliers, Inputs, Processes, Outputs, Customers

Suppliers

- **Coffee Outlets:** Provide sales data, menu updates, and operational feedback.
- **Suppliers:** Supply raw ingredients, coffee beans, and other consumables.
- **CRM:** Provides customer leads and engagement data for marketing and sales tracking.

Inputs

- Product details, pricing, and menu configurations.
- Raw materials and stock updates from suppliers.
- Customer leads and engagement information from the CRM.

Processes

- Tracking daily sales and updating the ERP system.
- Managing product and menu updates in real time.
- Receiving and logging stock from suppliers.
- Capturing customer interactions and monitoring CRM data.

Outputs

- Updated sales reports for each outlet and consolidated regional reports.
- Inventory reports and notifications for low-stock items.
- Real-time product updates for sales and POS systems.
- CRM insights for marketing and customer engagement.

Customers

- Management: Receives comprehensive reports for decision-making.
- Outlet Managers: Use outputs to manage day-to-day operations.
- Marketing/Sales Teams: Leverage CRM insights to plan campaigns.
- Customers: Benefit indirectly through accurate pricing, better product availability, and consistent service.

SIPOC Table

The structured SIPOC table below summarizes the relationships between suppliers, inputs, processes, outputs, and customers:

Suppliers	**Inputs**	**Process**	**Outputs**	**Customers**
Coffee outlets	Product	Track sales, update ERP, manage orders	Sales reports, product updates	Management, Customers
Suppliers	Ingredients, stock	Receive and log stock in ERP	Updated inventory	Outlet managers, Kitchen staff
CRM	Customer leads	Capture and manage leads	Lead reports, CRM data	Marketing, Sales team

Table 2.1: SIPOC for Coffee Chain ERP

Visual SIPOC Diagram

The visual representation in Figure 2.2 provides an intuitive understanding of process flow and interdependencies.

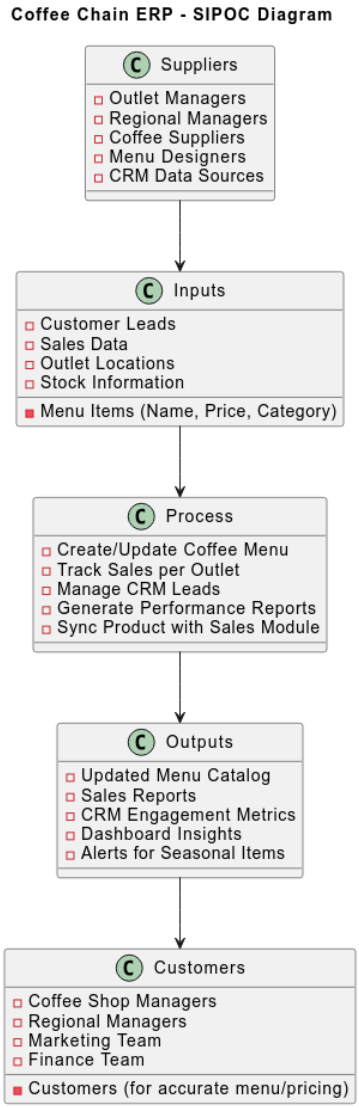

Figure 2.2: Visual SIPOC Diagram of Coffee Chain ERP

2.3 Module Role and Scope: Defining Responsibilities and Boundaries

Having established the system context and process flows, it is essential to define the module's role and scope to clarify responsibilities and set boundaries for operational functionality.

Role of the ERP Module

The Coffee Chain ERP acts as an integrative backbone for all coffee chain operations:

- **Unification:** Combines outlet, menu, sales, and CRM functions into one system.
- **Consistency:** Ensures standardized processes across all outlets.
- **Insight:** Provides managers with real-time and historical data for decision-making.
- **Scalability:** Prepares the system for future growth, such as adding loyalty features or advanced analytics.

Scope of the Coffee Chain ERP

- Covers active coffee outlets and their daily operations.
- Includes menu item management, pricing, and categorization.
- Captures all sales orders and integrates them with reporting dashboards.
- Synchronizes CRM data with sales transactions for lead tracking.
- Excludes loyalty and reward systems, outlet capacity tracking, and HR functions.

Tip

Clearly communicate module scope to all stakeholders. This avoids scope creep, prevents misaligned expectations, and ensures efficient ERP implementation.

Stakeholders and KPIs

- **Outlet Managers:** Track efficiency and revenue. *KPIs: daily revenue, sales per product.*
- **Regional Managers:** Compare multiple outlets. *KPIs: average outlet growth, variance analysis.*
- **Employees:** Maintain data quality. *KPIs: error rate in transactions, product data accuracy.*
- **Top Management:** Align operations with strategy. *KPIs: conversion rates, long-term revenue growth.*

Context Diagram (C1)

The C1-level context diagram (Figure 2.3) illustrates the module boundaries and interactions between stakeholders and system components.

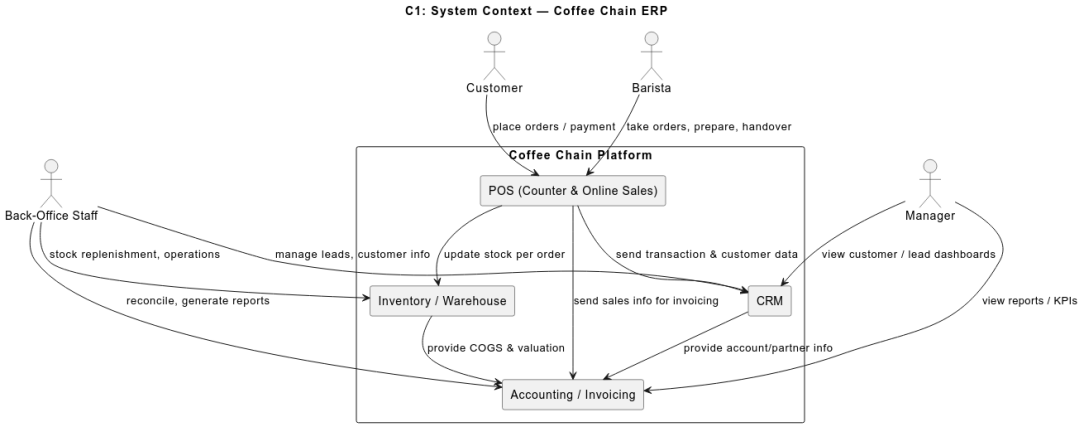

Figure 2.3: C1-Level Context Diagram of Coffee Chain ERP

2.4 The Pain-Gain Canvas: Problems Solved and Value Created by the Module

Finally, the Pain-Gain Canvas provides a structured overview of operational challenges (Pains) and the tangible value (Gains) delivered by the ERP system, connecting directly to the system's role and scope.

Pains: Operational Challenges

- Manual sales tracking across outlets.
- Menu updates not automatically reflected in sales.
- Limited visibility into customer leads and engagement.
- Difficulty generating consolidated reports.
- Data entry and pricing errors.
- Fragmented CRM data across outlets.

Gains: Value Additions

- Centralized ERP platform integrating outlets, sales, menu, and CRM.
- Real-time menu updates across all sales channels.

- Automated reporting dashboards with actionable metrics.
- Enhanced decision-making via consolidated and accurate information.
- Improved customer engagement through centralized CRM.
- Reduced errors via automation of pricing, stock management, and sales tracking.

Tip

Revisit the Pain-Gain Canvas quarterly. Business needs evolve, and aligning ERP functionality with changing pains ensures continued ROI.

Visual Pain-Gain Canvas

The visual Pain-Gain Canvas (Figure 2.4) reinforces the connection between operational challenges and system benefits.

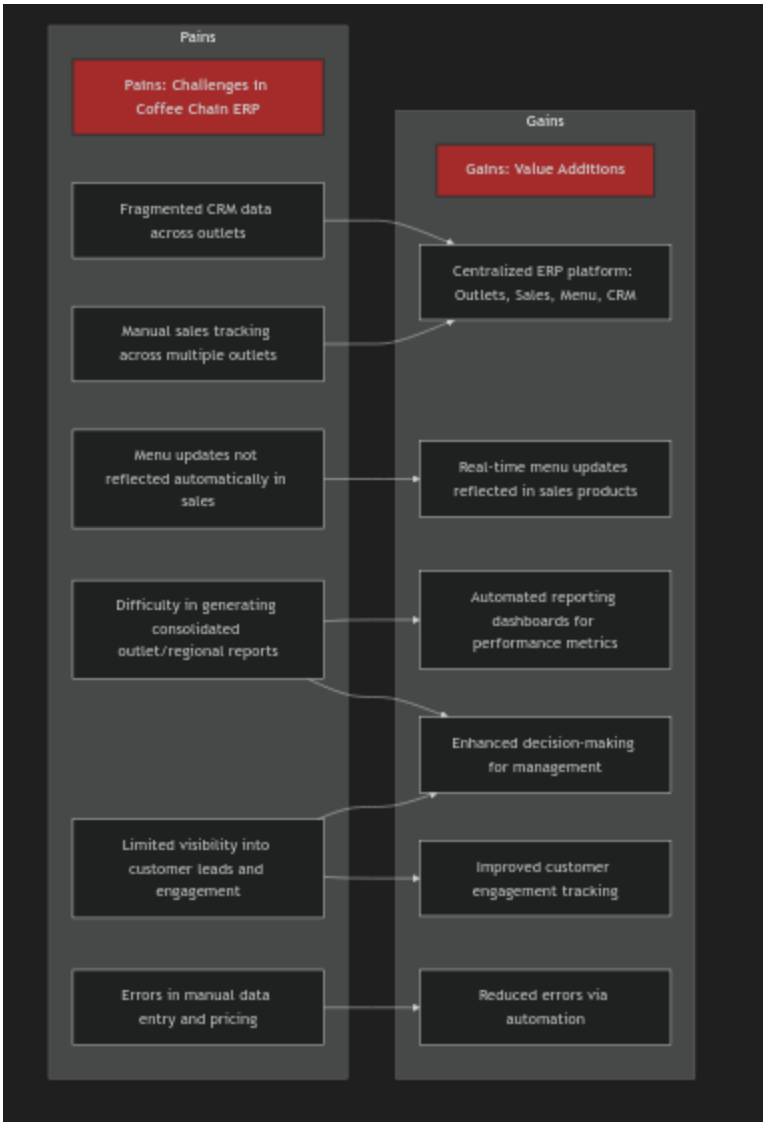

Figure 2.4: Pain-Gain Canvas of Coffee Chain ERP

Insights

Bringing together system context, process mapping, role and scope, and the Pain-Gain Canvas, the Coffee Chain ERP demonstrates clear strategic value:

- Departments are digitally connected, reducing data fragmentation and ensuring clarity in responsibilities.
- ERP modules unify operations, enforce consistency, and provide scalability for future growth.
- SIPOC analysis highlights key process dependencies, integration points, and potential operational bottlenecks.

- Pain-Gain analysis demonstrates how the ERP resolves operational challenges while delivering tangible benefits for management, staff, and customers.
- KPIs and dashboards provide actionable insights to support data-driven decision-making.
- Integration with QMS and PDCA ensures continuous improvement across all outlets.
- Overall, the ERP ensures smooth daily operations, real-time visibility into sales, menu, and CRM data, improved customer engagement, and strategic alignment across the coffee chain.

Part II: Architectural and Conceptual Framework

Chapter 3

Components & Containers

This chapter provides a detailed breakdown of the Coffee Chain ERP system in terms of its **containers** (modules) and the internal **components** of each module. Understanding the containers and components is essential for grasping the system architecture and how different parts interact to achieve operational efficiency.

Definition of a Container

In the context of Coffee Chain ERP, a **container** represents a deployable or executable part of the system, such as a web application, microservice, or database, that encapsulates a set of functionality. Containers can be thought of as the high-level building blocks of the system. For example, the Sales Module is a container because it is a standalone web application managing sales transactions, linked to menu and CRM modules.

Containers of Coffee Chain ERP (C2 Diagram)

The following containers constitute the Coffee Chain ERP system:

- **Outlet Management:** Web application managing outlet details, managers, and regional assignments.
- **Sales Module:** Web application capturing daily sales, linking products to orders, and generating performance reports.
- **CRM Module:** Web application tracking customer leads, interactions, and supporting targeted marketing.
- **Menu Module:** Web application managing products, categories, and prices, synchronized with Sales.

- **Reporting & Analytics:** Web application providing dashboards and consolidated performance insights.

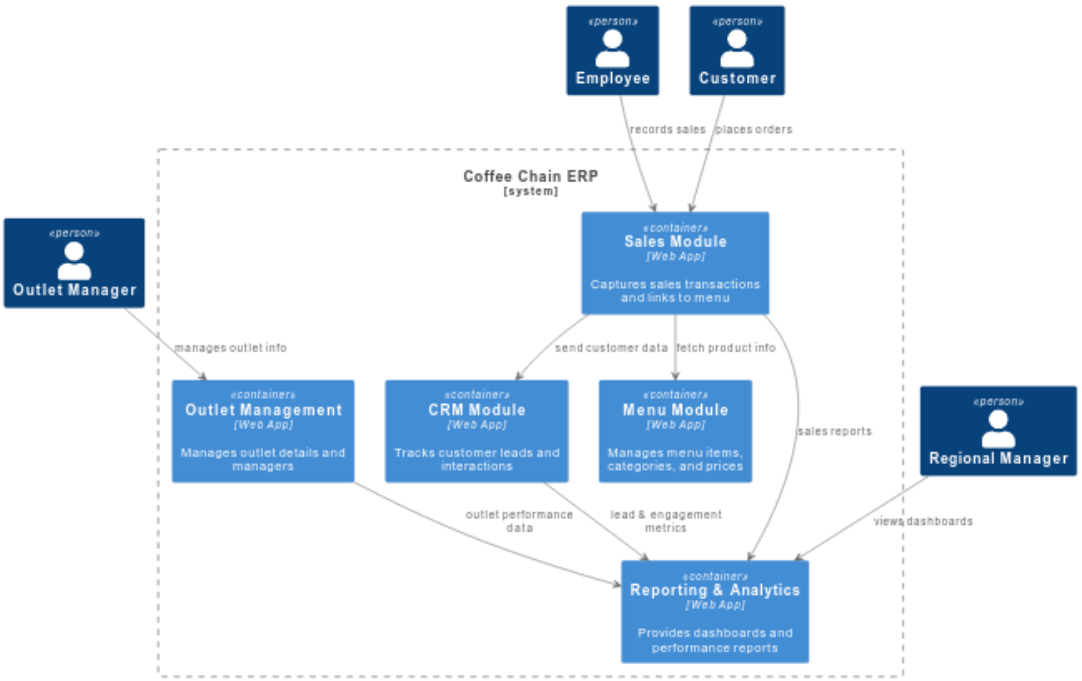

Figure 3.1: C2-Level Container Diagram of Coffee Chain ERP

Insights

The C2 diagram illustrates how each module (container) interacts with other modules and external actors (employees, managers, customers). This high-level view helps stakeholders understand dependencies, system boundaries, and data flow without needing to inspect individual module internals.

Components of Each Container (C3 Diagrams)

Each container is composed of internal components that define its functionality and interactions. These components are depicted in C3-level component diagrams.

Outlet Management Module Components

- Outlet Information Management
- Manager Assignment Component
- Regional Performance Component
- Reporting Component

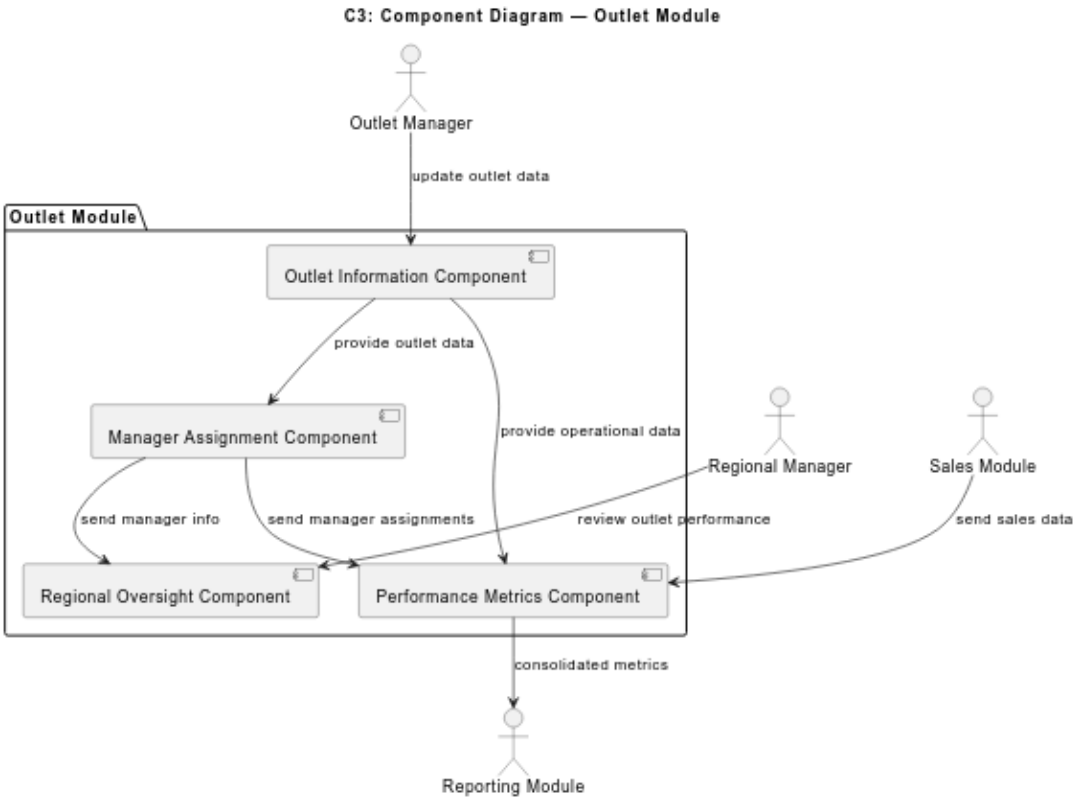

Figure 3.2: C3-Level Component Diagram — Outlet Management

Sales Module Components

- Transaction Processing Component
- Reporting Component
- Product Link Component
- Payment Processing Component

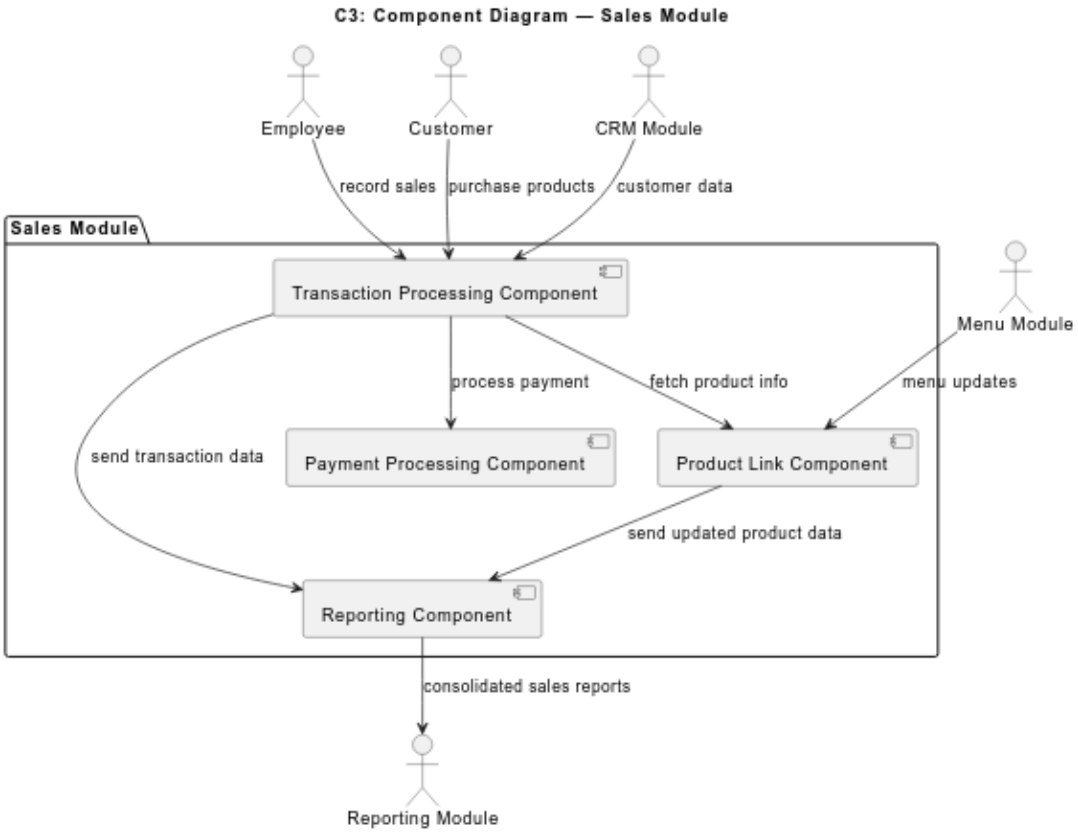

Figure 3.3: C3-Level Component Diagram — Sales Module

CRM Module Components

- Lead Management Component
- Customer Interaction Component
- Customer Segmentation Component
- CRM Reporting Component

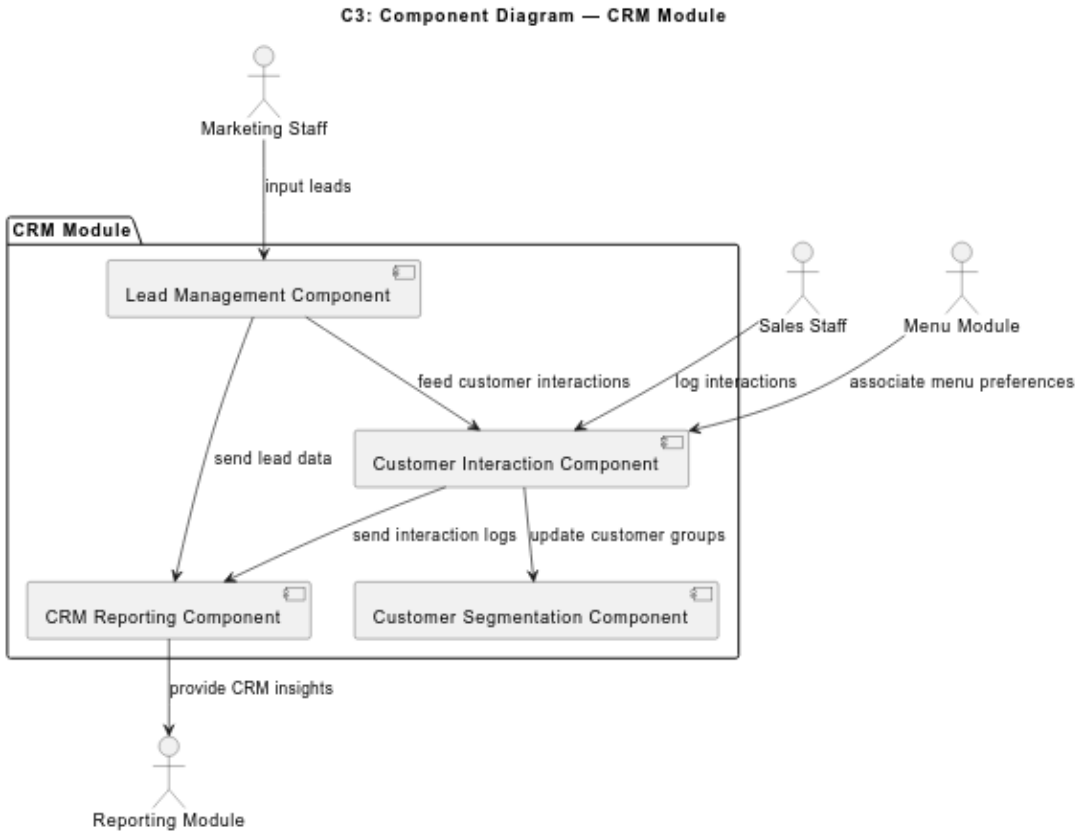

Figure 3.4: C3-Level Component Diagram — CRM Module

Menu Module Components

- Menu Item Management Component
- Category Management Component
- Pricing Component
- Menu-Sales Synchronization Component

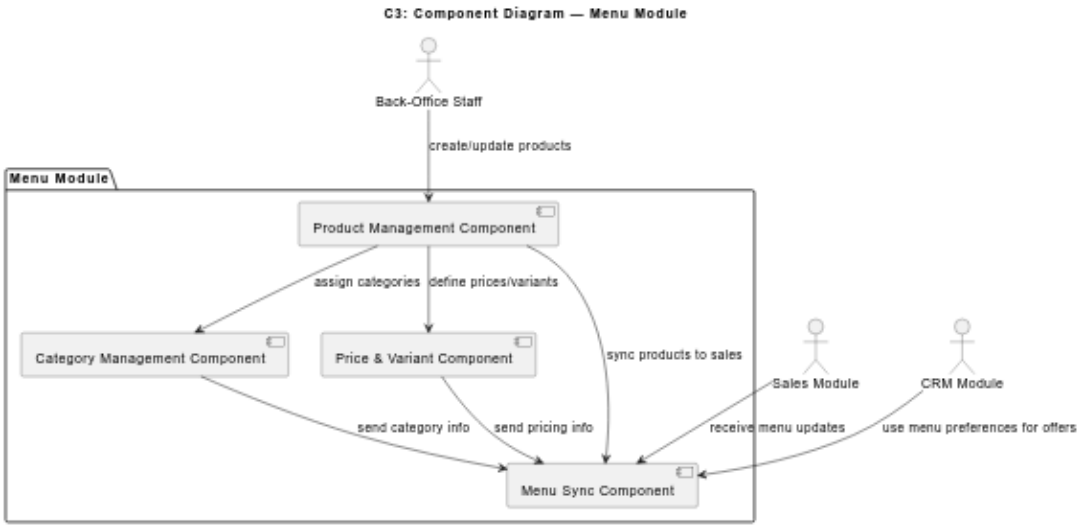

Figure 3.5: C3-Level Component Diagram — Menu Module

Insights

Analyzing the C3 diagrams reveals the following:

- Each module has a clear separation of responsibilities via components.
- Internal components communicate with external actors (employees, customers, managers) and other modules to provide seamless operations.
- The ERP system's modular architecture enables future extension, such as adding Loyalty & Rewards or Inventory Management, without disrupting existing modules.
- Real-time synchronization between Menu, Sales, and CRM is critical for accurate reporting and decision-making.

Chapter 4

Components & Integration

Chapter 5

Concepts & Documentation

What is ERP?

Enterprise Resource Planning (ERP) is a system that integrates business functions into a unified platform. In the Coffee Chain ERP, ERP connects menu management, sales, customer tracking, and outlet operations to reduce redundancy and increase efficiency.

ERP Integration in the Coffee Chain

Data flows seamlessly across modules:

- A sale connects menu items, customers, and outlet records automatically.
- Menu updates reflect immediately in sales transactions.
- Customers are linked with sales orders for record-keeping and CRM purposes.

Key Concepts

Coffee Menu Items

- Name, price, category, description, and status (draft, active, seasonal, retired).
- Customization options: milk type, size, syrup flavor, extra shot.
- Linked to Odoo products to integrate with sales.

Outlets

- Stores outlet details, including name, manager, and location.
- Linked to sales orders to track which outlet processed each sale.

- Managers oversee staff and validate transactions.

Customers and Sales Orders

- Customers are tracked in the CRM and linked to sales orders.
- Sales orders record menu items sold, outlet, customer, payment, and timestamp.
- Acts as the central point connecting menu items, outlets, and customers.

Important Documents in the Workflow

- **Menu Master List:** Stores all coffee items with categories, prices, and customization options. Serves as the single reference for all outlets.
- **Sales Records:** Include transaction ID, menu items sold, outlet, customer, and payment details.
- **Customer Records:** Store contact details and link to sales orders.
- **Outlet Data Sheets:** Maintain outlet name, location, and manager information.

Module-Document Integration

- Sales orders link menu items to the outlet and customer.
- Menu master list ensures all outlets use consistent item data.
- Customer records are connected to sales orders for traceability.

Listing 5.1: Example: Linking Outlet and Customer in Sales Order

```
class SaleOrder(models.Model):
    _inherit = 'sale.order'

    outlet_id = fields.Many2one('coffee.outlet', string='Outlet')
    customer_id = fields.Many2one('res.partner', string='Customer')
```

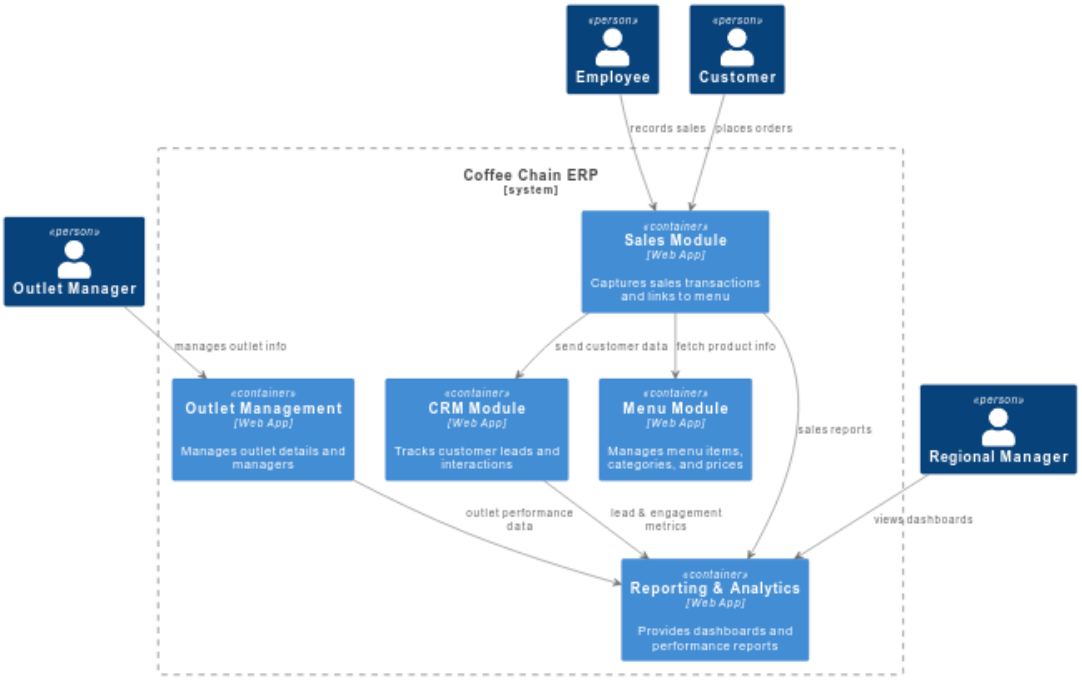

Figure 5.1: Reference Container Diagram for Module and Document Flow

Insights

- The ERP system connects menu, outlets, customers, and sales orders for seamless operations.
- Centralized documentation ensures consistency across outlets.
- Accurate records of menu items, outlets, and sales orders are essential for reliable operations.
- Maintaining a single source of truth for menu items, outlets, and customers simplifies management and improves traceability.

Chapter 6

Workflow and Customer Journey for Coffee Chain ERP System

This chapter details how administrators configure the system and how customers experience transactions at outlets. The workflows highlight the sequence of operations, responsibilities, and ERP automation. Presenting the workflow from multiple perspectives helps readers understand how each actor interacts with the ERP system and how data flows throughout the organization.

System Entities

The ERP system manages multiple entities critical for operations. Table 6.1 summarizes the primary entities.

Entity	Description
`coffee.outlet`	Coffee Outlet details, including location, operational hours, and assigned managers.
`res.partner`	Represents both outlet owners and sale customers, enabling traceable transactions and CRM integration.
`coffee.menu.item`	Menu Items with categories (drinks, snacks, combos) and pricing.
`sale.order`	Captures customer orders linked to specific outlets and menu items.
`crm.lead`	Optional CRM Leads used for marketing and customer engagement tracking.

Table 6.1: Primary System Entities

Administrator Workflow

Administrators configure the backbone of the ERP system. Proper setup ensures consistent operations across outlets and accurate reporting. The typical workflow includes:

1. Create outlet profiles, assign managers, and set operational details such as working hours and location coordinates.
2. Populate the Menu Master with drinks, snacks, combos, and their corresponding pricing.
3. Register sale customers in the system for traceable transactions.
4. Optionally link CRM leads for customer engagement tracking and marketing campaigns.

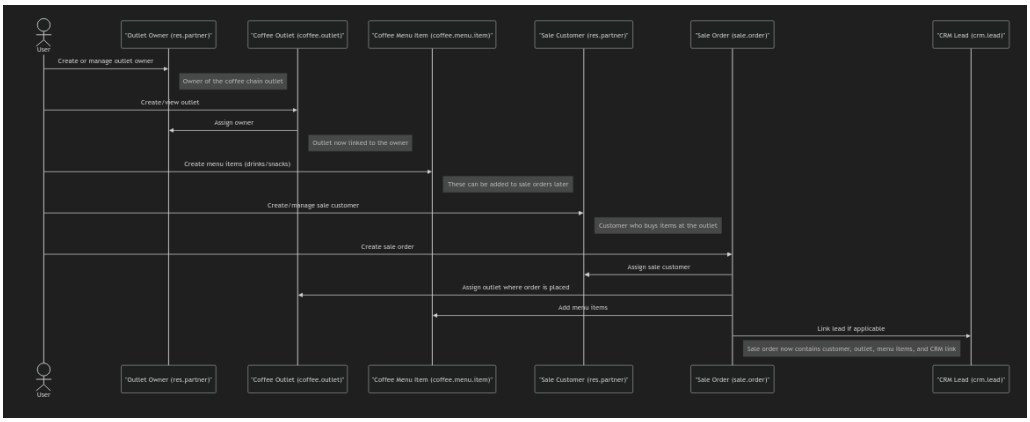

Figure 6.1: Administrator Workflow Sequence Diagram. Proper configuration ensures smooth operations across outlets.

Tip

Ensure all outlets have assigned managers and accurate operational hours to avoid discrepancies in daily reporting.

Customer Journey Through Perspectives

The ERP system streamlines interactions for all stakeholders. Explaining the customer journey through multiple perspectives illustrates the practical impact of the system.

1. Customer's Point of View

Scenario: Anna visits a coffee outlet on a busy morning.

1. Anna browses the menu displayed at the counter or digital screen.
2. She selects a cappuccino and a croissant.
3. Places her order with the staff and completes payment.
4. Receives a receipt instantly and waits for the order.

Tip

If the customer is registered, loyalty points are updated automatically, improving engagement and repeat business.

From the customer's perspective, the experience is seamless, fast, and accurate because the ERP automates order capture and billing.

2. Barista / Staff Point of View

Scenario: The staff prepares Anna's order and manages the transaction.

1. Selects the outlet profile in the ERP system to ensure orders are linked correctly.
2. Adds Anna's menu items to a new sale order in the system.
3. Confirms the order, processes payment, and prints the receipt.
4. ERP automatically updates inventory levels and notifies the preparation team.
5. Marks the order ready for delivery or pickup, maintaining workflow efficiency.

Note

Inventory levels are updated in real-time, helping staff avoid overselling items that are out of stock.

3. Manager's Point of View

Scenario: The outlet manager monitors daily operations and sales.

1. Reviews incoming orders and overall sales in real-time dashboards.
2. Monitors staff efficiency and customer service metrics.

3. Tracks product demand and inventory levels for restocking and promotions.
4. Uses CRM data to plan marketing campaigns or customer engagement initiatives.
5. Analyzes reports generated automatically by the ERP for operational and strategic decision-making.

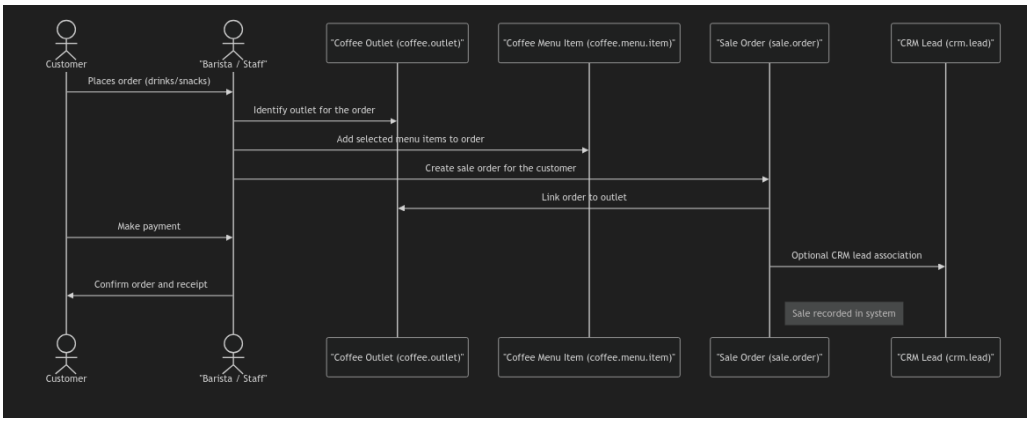

Figure 6.2: Customer Journey Sequence Diagram showing interactions from customer, staff, and manager perspectives.

Insights

- Administrators create the foundation; customers generate daily operational data.
- ERP workflows ensure traceability of every transaction and maintain data integrity.
- The system links customer experiences directly with business reporting, enabling informed decisions.

Chapter 7

Configuration & Business Logic

Module Configuration

Coffee Outlet

Each coffee outlet has a digital record in the ERP. Key configurations include:

- **Outlet Name:** The unique identifier of the branch.
- **Location:** Physical address used for reporting and mapping.
- **Manager:** Linked to an employee in the system.
- **Integration with Sales:** Outlets are associated with each sales order for proper reporting and revenue tracking.

Coffee Menu Items

The menu module defines all items sold in outlets. Configuration fields include:

- **Name:** The item name (required).
- **Price:** Set in the company currency; used in sales orders.
- **Category:** Drinks, Snacks, Desserts, or Vegan.
- **Status:** Draft, Active, Seasonal, or Retired.
- **Image:** Optional image for kanban or POS display.
- **Customization Options:** Milk type, size, syrup flavor, and extra shot.
- **Linked Product:** Each menu item automatically creates/updates a ‘product.product‘ record for integration with the sales and accounting modules.

Access Control

- Users with the `access_coffee_menu_item_user` or `access_coffee_menu_tag_user` groups can create, read, write, and delete menu items or tags.
- Manager-level permissions can be configured in Odoo's security groups for outlets and sales.

Business Logic

Menu Item Lifecycle

- When a menu item is created, the system automatically generates a linked product in the Odoo product catalog.
- Updates to price, name, or category propagate to the linked product.
- Deleting or retiring a menu item ensures it is no longer selectable in sales transactions.

Sales Order Integration

- Each sales order references the outlet (‘coffee.outlet‘) and customer (‘res.partner‘) directly.
- Items added to the order are linked to the ‘product.product‘ created by the menu module.
- This ensures correct pricing and consistency between menu configuration and sales transactions.

Customization Handling

- Customer preferences (milk type, size, syrup flavor, extra shot) are stored per order line.
- These preferences do not create new products but are saved in order notes for outlet preparation.

Tagging Logic

- Menu items can be assigned tags (‘coffee.menu.tag‘) for categorization or filtering in POS and reports.
- Tags are independent and reusable across multiple items.

Recommended Diagrams

- **Flow Diagram:** Shows the creation of a menu item and automatic product linkage.
- **Sequence Diagram:** Illustrates a sales order being placed, linking outlet, customer, and menu item.

Figure 7.1: Flow Diagram: Menu Item Creation and Product Linkage

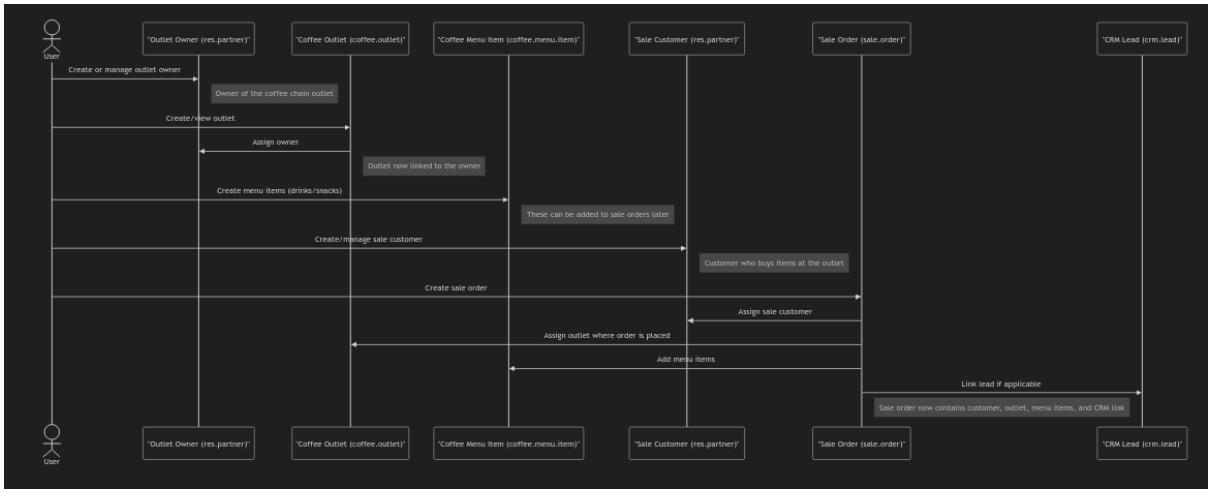

Figure 7.2: Sequence Diagram: Sales Order Processing in Coffee Chain ERP

Chapter 8

Code, Class, and Master Data Schema for Coffee Chain ERP System

Introduction

This chapter explains the master data structure and schema used in the Coffee Chain ERP system. It first introduces key terminologies for understanding ERP data models, then describes the master data entities, relationships, and schema as implemented in the system. This provides a foundation for understanding the system's code and database structure.

Basic Terminologies

Entity: A distinct object or concept in the system that stores data. Examples include Customer, Product, or Outlet.

Attribute: A property or field of an entity. For example, a Customer entity may have attributes such as Name, Email, and Phone Number.

Primary Key: A unique identifier for an entity instance. In Odoo, this is often the `id` field.

Relationship: The association between two entities, such as One-to-Many or Many-to-One. Example: Each Outlet is owned by one Outlet Owner, while an owner can have multiple outlets.

Master Data: Core data that is essential for the operation of a system, such as Customers, Products, and Outlets.

Business Logic Layer: Code that defines the rules and behavior of the system, often implemented via Python classes in Odoo modules.

Model/Class: In Odoo, a model is a Python class that defines the structure of an entity, including fields, relationships, and methods.

Master Data in Coffee Chain ERP System

The Coffee Chain ERP system's master data schema includes the following key entities:

Outlet Owner (`res.partner`)

Field	Type	Description
id	int	Primary Key
name	string	Owner Name
email	string	Contact Email
phone	string	Contact Number

Relationship: One owner can manage multiple Coffee Outlets (One-to-Many).

Coffee Outlet (`coffee.outlet`)

Field	Type	Description	Relationship
id	int	Primary Key	—
name	string	Outlet Name	—
location	string	Outlet Address	—
owner_id	int	Foreign Key	res.partner.id (Outlet Owner)

Relationships: Many-to-One with Outlet Owner, One-to-Many with Sale Orders.

Coffee Menu Item (`coffee.menu.item`)

Field	Type	Description
id	int	Primary Key
name	string	Item Name
price	float	Item Price
category	selection	Drinks / Snacks
image	binary	Item Image

Relationship: Many-to-Many with Sale Orders.

Sale Customer (`res.partner`)

Field	Type	Description
id	int	Primary Key
name	string	Customer Name
email	string	Contact Email
phone	string	Contact Number

Relationship: One-to-Many with Sale Orders; optional link to CRM Leads.

Sale Order (`sale.order`)

Field	Type	Description	Relationship
id	int	Primary Key	—
order_number	string	Unique Order Number	—
customer_id	int	Foreign Key	res.partner.id (Sale Customer)
outlet_id	int	Foreign Key	coffee.outlet.id
order_date	date	Order Timestamp	—

Relationship: Many-to-One with Sale Customer and Outlet; Many-to-Many with Menu Items; optional FK to CRM Lead.

CRM Lead (`crm.lead`)

Field	Type	Description	Relationship
id	int	Primary Key	—
lead_name	string	Lead Title	—
stage	string	Lead Status	—
related_order_id	int	Optional FK	sale.order.id

Relationship: Optional linkage to Sale Orders and Sale Customers.

Master Data Schema Diagram

The following diagram visually represents the **tables, fields, primary keys, and relationships** in the Coffee Chain ERP system:

Python Classes Mapping to Master Data

The ERP system implements the master data entities as Python classes in Odoo modules:

- `coffee.outlet` → Python class `CoffeeOutlet(models.Model)`
- `coffee.menu.item` → Python class `CoffeeMenuItem(models.Model)`

- `res.partner` → Used for both Outlet Owner and Sale Customer
- `sale.order` → Python class `SaleOrder(models.Model)`
- `crm.lead` → Python class `CrmLead(models.Model)`

Field Definitions Example

For example, the `CoffeeMenuItem` class defines the following fields:

Listing 8.1: Coffee Menu Item Python Class

```
from odoo import models, fields

class CoffeeMenuItem(models.Model):
    _name = 'coffee.menu.item'
    _description = 'Coffee Menu Item'

    name = fields.Char(required=True)
    price = fields.Monetary(currency_field='currency_id', required=True)
    category = fields.Selection([
        ('drinks', 'Drinks'),
        ('snacks', 'Snacks'),
    ], required=True)
    image = fields.Image(max_width=128, max_height=128)
```

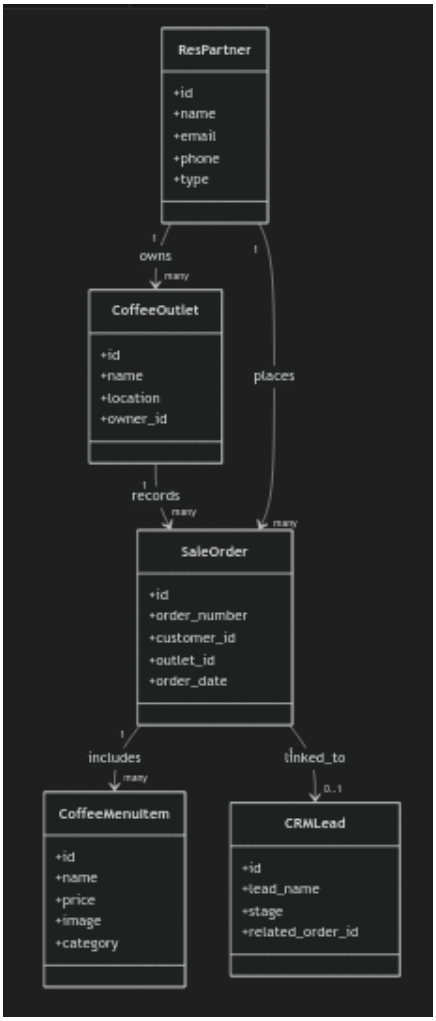

Figure 8.1: Class diagram showing Python classes and field names for quick reference.

Summary

The master data schema of the Coffee Chain ERP system ensures:

- Clear separation of entities: outlets, menu items, customers, orders, and leads.
- Proper relationships to maintain data integrity: e.g., orders linked to customers and outlets.
- Python classes in Odoo accurately define the structure, fields, and relationships.
- The schema supports the business logic and workflow described in previous chapters.

Chapter 9

Access Rights and User Roles in Coffee Chain ERP System

Introduction

Access control is a fundamental aspect of any ERP system. It ensures that users can only access data and perform actions according to their responsibilities. This chapter explains the concept of access rights, user roles, and how they are implemented in Odoo. Finally, it details the specific access rights configured for the Coffee Chain ERP system based on its code.

General Concepts: Access Rights and User Roles

Access Rights: Define what operations a user can perform on data. These typically include:

- **Read:** View records.
- **Write:** Edit existing records.
- **Create:** Add new records.
- **Delete / Unlink:** Remove records.

User Roles: Groupings of users with similar responsibilities. A role determines which models and actions a user can access.

Role-Based Access Control (RBAC): Common model where access is granted based on the user's role rather than individual permissions.

Access Control in Odoo

In Odoo, access rights are managed using:

- **Groups:** Collections of users sharing the same role.
- **Models:** Entities like `res.partner`, `sale.order`, or `coffee.menu.item`.
- **Permissions:** Defined in `ir.model.access.csv`, specifying read, write, create, and delete rights for a group on a model.

Each record operation in Odoo checks:

1. Whether the user belongs to a group with the necessary permission.
2. Whether the record is accessible under record rules (not covered in this chapter but relevant for finer control).

User Roles in Coffee Chain ERP System

The Coffee Chain ERP system defines the following primary user roles:

- **Outlet User:** Staff who manage outlet operations, including sales orders, POS transactions, accounting entries, and menu items.
- **CRM User:** Staff who manage CRM leads and related customer interactions.
- **Help User:** Users who only need read access to help documents and guides.

These roles are implemented in Odoo using groups such as `base.group.user` and custom groups defined in the modules.

Access Rights for Coffee Chain ERP System

The following table presents a matrix of access rights for the models in the system, derived from the `ir.model.access.csv` files in the modules:

ID	Name	Model
access_coffee_outlet_user	access.coffee.outlet.user	coffee.outlet
access_crm_lead_inherit_user	access.crm.lead.inherit.user	crm.lead
access_res_partner_inherit_user	access.res.partner.inherit.user	res.partner
access_coffee_help_user	access.coffee.help.user	coffee.help
access_coffee_crm_help_user	access.coffee.crm.help.user	coffee.crm.help
access_coffee_sales_help_user	access.coffee.sales.help.user	coffee.sales.help
access_sale_order_outlet_user	access.sale.order.outlet.user	sale.order
access_sale_order_line_coffee_user	access.sale.order.line.coffee.user	sale.order.line
access_account_move_outlet_user	access.account.move.outlet.user	account.move
access_account_payment_outlet_user	access.account.payment.outlet.user	account.payment
access_pos_config_outlet	access.pos.config.outlet	pos.config
access_pos_order_outlet_user	access.pos.order.outlet.user	pos.order
access_pos_order_line_outlet_user	access.pos.order.line.outlet.user	pos.order.line
access_coffee_menu_item_user	access.coffee.menu.item	coffee.menu.item
access_coffee_menu_tag_user	access.coffee.menu.tag	coffee.menu.tag

Model	Group	Read	Write	Create	Delete
coffee.outlet	base.group.user	1	1	1	1
crm.lead	base.group.user	1	1	1	1
res.partner	base.group.user	1	1	1	1
coffee.help	—	1	0	0	0
coffee.crm.help	—	1	0	0	0
coffee.sales.help	—	1	0	0	0
sale.order	—	1	1	1	1
sale.order.line	—	1	1	1	1
account.move	—	1	1	1	1
account.payment	—	1	1	1	1
pos.config	base.group.user	1	1	0	0
pos.order	base.group.user	1	1	1	1
pos.order.line	base.group.user	1	1	1	1
coffee.menu.item	—	1	1	1	1
coffee.menu.tag	—	1	1	1	1

Table 9.1: User Access Rights Matrix for Coffee Chain ERP System

Explanation of Key Permissions

- Outlet-related models (`coffee.outlet`, `sale.order`, `pos.order`, etc.) have full CRUD access for staff responsible for operations.
- CRM models (`crm.lead`) allow full management for CRM users.
- Help-related models (`coffee.help`, `coffee.crm.help`, `coffee.sales.help`) are read-only to prevent modification by general users.

- POS configuration (`pos.config`) is restricted from creation to avoid accidental setups.
- Coffee menu items and tags can be fully managed by outlet staff to ensure menu updates.

Practical Examples of Access Control

To better illustrate how access rights operate in practice:

- A **regional manager** can view performance reports for multiple outlets but cannot directly edit outlet menus or prices. This ensures visibility without risking accidental changes to operational data.
- An **employee** (e.g., barista) can create sales orders and process transactions in the POS system but cannot modify outlet profiles or assign outlet managers. This limits their permissions to day-to-day operational tasks only.
- A **CRM user** can manage leads and customer interactions but cannot delete accounting entries or modify sales orders, keeping financial data protected.

These examples show how the system enforces the principle of least privilege, ensuring that each role has exactly the access needed to perform its duties, no more and no less.

This chapter explains general concepts of access rights and user roles, how they are implemented in Odoo, and the specific permissions configured for the Coffee Chain ERP system. The matrix provides a clear reference for developers, system administrators, and auditors to understand role-based access control within the system.