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

1. Philosophy and Guiding Principles of the Coffee Chain ERP

The Coffee Chain ERP is designed with the central philosophy of streamlining operations across multiple outlets while ensuring consistency in sales, customer relationship management, and menu integration. Built on top of the Odoo framework, the system adheres to the following guiding principles:

Unified Operations

Outlets, menu items, sales, and customer data are managed under a single integrated system, reducing fragmentation and duplicate efforts.

Transparency and Accountability

Each outlet record clearly captures its name, location, assigned manager, and regional manager. This ensures clear responsibility for performance while providing visibility across the chain.

Data-Driven Decisions

Performance insights are derived directly from the Sales module, where reporting tools generate metrics on sales volume, revenue, and growth trends. Managers use this data to compare outlet performance objectively.

Scalability

The ERP is built with modularity in mind. As the coffee chain expands, additional outlets, products, or CRM extensions can be integrated seamlessly.

User-Centric Design

The system is designed to be accessible for managers, sales representatives, and regional leads. Clear roles and permissions support operational efficiency and reduce errors.

Alignment with Business Growth

The ERP serves as the digital backbone of the coffee chain, ensuring operational discipline, strengthening customer engagement, and enabling sustained business expansion.

2. Foundational Framework and Reference Model

The foundation of the Coffee Chain ERP lies in its structured design, which defines how outlets, sales, CRM, and menu items interact. This base serves as the frame of reference for users, developers, and managers.

Core Components

- **Outlets:** Defined by outlet name, location, manager, and regional manager. Outlets serve as the primary business units for tracking performance.
- **Menu:** Menu items are created in the Coffee Menu module and automatically integrated into the Sales product list. This ensures a centralized definition of products.
- **Sales:** Handles quotations, orders, and invoicing. Reporting provides key performance metrics for outlet evaluation.
- **CRM:** Extended to track customer leads associated with specific outlets, improving targeted sales efforts.

Reference Framework

The ERP aligns with established business management practices, including:

- **PDCA Cycle (Plan–Do–Check–Act):** Outlets plan and execute sales, monitor outcomes through reporting, and implement improvements.
- **QMS Principles:** Clear responsibilities (manager and regional manager) and standardized workflows ensure consistent quality across outlets.
- **SIPOC Model:**
  - **Suppliers:** Coffee menu, suppliers, and managers
  - **Inputs:** Menu items, outlet data, customer leads
  - **Process:** Sales and CRM operations
  - **Outputs:** Confirmed orders, invoices, and performance reports
  - **Customers:** Walk-in customers, online buyers, and regional managers

Frame of Reference

This framework acts as the foundation for extending ERP features, such as future POS integration, advanced analytics, or supplier management. It ensures that the current structure supports both day-to-day operations and long-term scalability.

3. Departmental Context

The Coffee Chain ERP system centralizes the management of coffee outlets, sales operations, menu items, and CRM. This integration enhances operational efficiency, reduces manual errors, and provides real-time insights for management, supporting both day-to-day operations and strategic decision-making.

Departments Covered

- **Outlet Management:** Maintains critical outlet information such as name, location, manager, and regional manager. Ensures uniform operations and adherence to standards across all outlets. The module allows management to monitor performance and operational compliance regionally and locally.
- **Sales Department:** Records all transactions, monitors daily revenue, and produces performance reports. Provides visibility into outlet-specific sales trends, product popularity, and revenue contribution.
- **Customer Relationship Management (CRM):** Captures leads, tracks customer interactions, and supports targeted marketing campaigns. Enables management to analyze customer behavior, improve engagement, and optimize sales strategies.
- **Menu Management:** Manages coffee and snack items, categories, prices, and optional customization options. Integrated directly with sales for real-time ordering, ensuring consistency and accuracy in product offerings across all outlets.

Operational Workflow

1. Outlets serve as the operational base, with managers overseeing local sales, staff, and inventory.
2. Menu items are created and updated in the ERP, and automatically synced with the sales module to ensure accurate pricing and availability.
3. Sales transactions are captured per outlet and feed into automated performance dashboards, providing insight into revenue, popular products, and sales trends.
4. CRM collects customer data and tracks engagement, supporting lead conversion, loyalty efforts, and targeted marketing campaigns.

QMS and PDCA Integration

The ERP system incorporates Quality Management System (QMS) principles using the PDCA (Plan-Do-Check-Act) methodology:

- **Plan:** Design workflows for outlets, sales, menu, and CRM to ensure smooth and standardized operations.
- **Do:** Implement the ERP system with integrated modules and train staff for consistent usage.
- **Check:** Monitor key performance indicators (KPIs) such as revenue per outlet, product sales, lead conversion rates, and customer engagement.
- **Act:** Refine operational procedures, update ERP configurations, and implement corrective measures based on performance analysis.

Department Interaction Diagram:

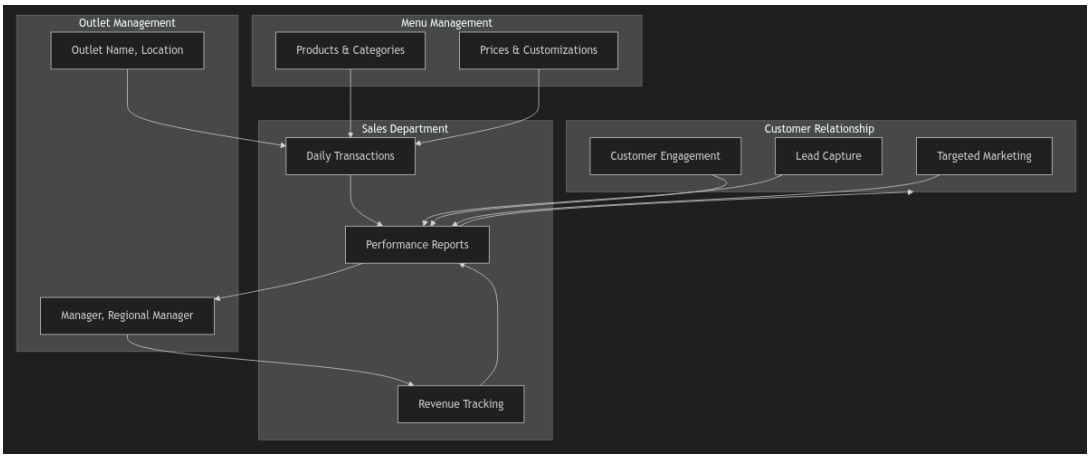

Figure 3.1: Department Interaction Diagram of Coffee Chain ERP

Insights

- Centralizing departmental operations ensures consistency and reduces redundancies.
- Automated data flow from menu to sales and CRM improves accuracy and responsiveness.
- PDCA integration allows continuous improvement, ensuring the ERP evolves to meet operational needs.
- Management gains comprehensive oversight across outlets, enabling data-driven strategic decisions.

4. SIPOC Analysis

The SIPOC diagram provides a high-level overview of the Coffee Chain ERP process, highlighting how Suppliers, Inputs, Processes, Outputs, and Customers interact. It is a useful tool for understanding the flow of operations, identifying bottlenecks, and ensuring that all stakeholders' needs are addressed.

Purpose of SIPOC

The SIPOC framework helps us visualize the end-to-end process of the Coffee Chain ERP system. It allows management to:

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

Suppliers, Inputs, Processes, Outputs, Customers

Suppliers

- **Coffee Outlets:** Provide sales data, menu updates, and operational feedback. They are the primary source of information for the ERP system.
- **Suppliers:** Supply raw ingredients, coffee beans, and other consumables. Timely delivery ensures smooth operations across outlets.
- **CRM:** Provides customer leads and engagement data, which is essential 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

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 4.1: SIPOC for Coffee Chain ERP

Visual SIPOC Diagram

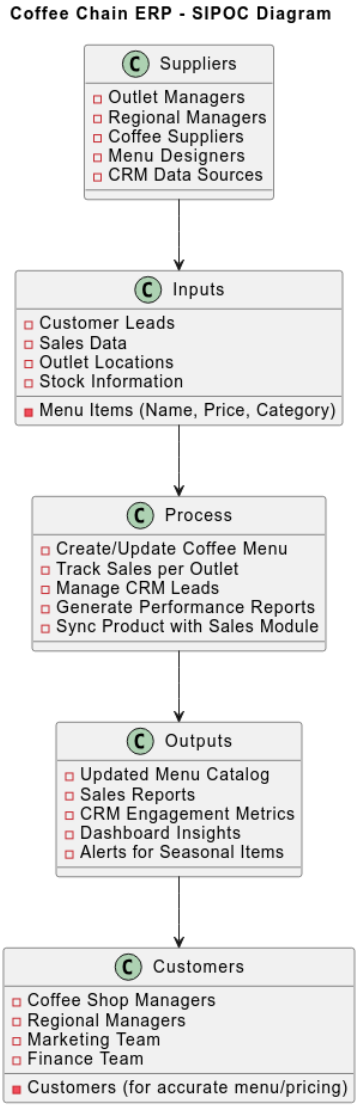

Figure 4.1: Visual SIPOC Diagram of Coffee Chain ERP

Insights

The SIPOC analysis highlights:

- Critical dependency on real-time data from outlets and suppliers.
- Integration points between menu, sales, and CRM that require automated updates.
- The need for dashboards to provide management with actionable insights.
- Potential bottlenecks such as delayed supplier updates or manual sales entry.

5. Module Role and Scope

Role of the Coffee Chain ERP Module

The Coffee Chain ERP module is designed to consolidate multiple business functions into a single, integrated platform. Its role is to streamline operations, improve data visibility, and provide actionable insights for decision-makers across the coffee outlet network. Specifically, the module serves the following purposes:

- **Outlet Management:** Maintain records of outlet details such as name, location, assigned manager, and regional manager. This ensures consistent operational oversight across all outlets.
- **Sales Management:** Capture daily sales transactions, link sales with menu products, track revenue per outlet, and generate performance reports.
- **CRM Integration:** Manage customer leads, track interactions, and associate them with sales outcomes to enhance customer relationship management.
- **Menu Integration:** Administer coffee menu items, categories, and pricing, with automatic synchronization to the Sales module for real-time ordering.
- **Data Consolidation and Analytics:** Centralize information from multiple outlets for analysis, reporting, and decision-making.

Scope

The scope of the Coffee Chain ERP module defines its boundaries and functionalities:

- Covers all active coffee outlets within the chain.
- Includes management of all menu items, product categories, and pricing.
- Captures daily sales transactions and integrates them with menu and CRM data.
- Provides real-time dashboards and reports for outlet managers and regional managers.
- Supports operational decision-making based on consolidated performance metrics.
- Excludes loyalty and reward management in the current version.

- Does not include outlet capacity tracking; operational staffing and space management are outside the current module scope.

Stakeholders and KPIs

The primary stakeholders and associated KPIs are outlined below:

- **Outlet Managers:** Monitor outlet efficiency, daily revenue, and sales performance. *KPIs: revenue per outlet, sales per product, top-selling items.*
- **Regional Managers:** Compare performance across outlets within their region. *KPIs: total revenue, average sales per outlet, regional growth trends.*
- **Employees:** Ensure accurate data entry for sales, products, and customer interactions. *KPIs: transaction accuracy, product update consistency.*
- **Management and Decision-makers:** Access consolidated insights for strategic planning and operational improvements. *KPIs: lead conversion rate, overall revenue, sales growth trends.*

Module Context Diagram (C1)

The C1-Level Context Diagram illustrates the Coffee Chain ERP module, showing its interactions with key stakeholders, submodules (Outlet, Sales, Menu, CRM), and the flow of information between them.

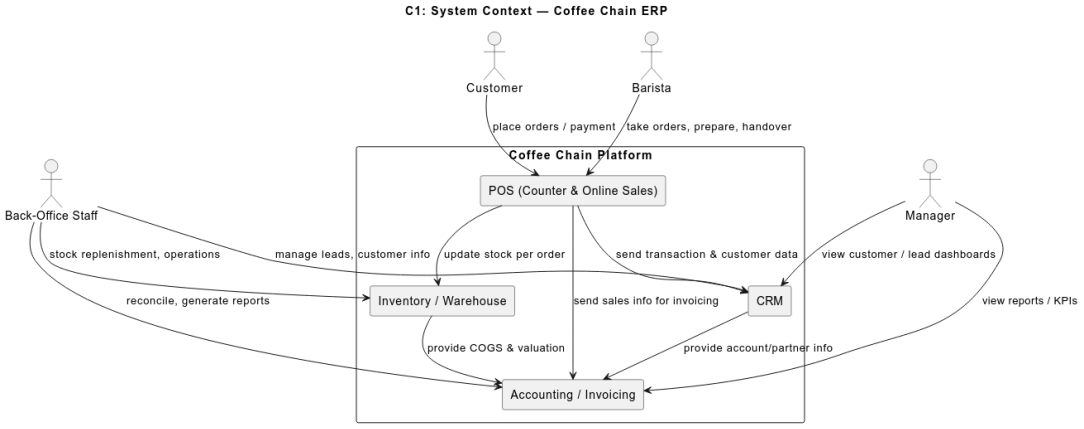

Figure 5.1: C1-Level Context Diagram of Coffee Chain ERP

The diagram highlights how outlet data, sales transactions, menu updates, and CRM leads flow into the ERP system. Management and regional managers receive consolidated reports and insights. Each module interacts seamlessly to reduce manual work, ensure real-time synchronization, and improve decision-making.

Insights

- The Coffee Chain ERP module centralizes multiple business functions, reducing operational fragmentation across outlets.
- Integration between Outlet, Sales, Menu, and CRM ensures real-time data synchronization, minimizing errors and manual updates.
- Consolidated dashboards and reporting empower managers and regional managers to make informed operational and strategic decisions.
- Linking menu items directly to sales products automates pricing updates and sales tracking, improving accuracy and efficiency.
- CRM integration enhances customer relationship management, allowing the business to track leads, improve engagement, and monitor conversion rates.
- The module provides a foundation for future expansions such as loyalty programs, outlet capacity tracking, or advanced analytics.
- By visualizing the system through the C1-Level Context Diagram, stakeholders can clearly understand interactions, responsibilities, and information flows.
- Overall, the ERP module streamlines multi-outlet operations, increases transparency, and strengthens decision-making capabilities across the coffee chain.

6. Pain-Gain Canvas

The Pain-Gain Canvas provides a structured overview of the challenges (Pains) faced by stakeholders in the Coffee Chain ERP system and the value additions (Gains) that the system delivers. It helps visualize how the ERP addresses critical operational pain points while creating tangible benefits for management, outlet staff, and customers.

Purpose of Pain-Gain Analysis

The Pain-Gain Canvas helps stakeholders:

- Identify key operational problems in the current workflow.
- Highlight the added value that the ERP system provides.
- Guide future enhancements and improvements for the ERP module.
- Align ERP functionality with organizational goals and user expectations.

Pains: Operational Challenges

- **Manual sales tracking across outlets:** Tracking sales individually in multiple locations is error-prone and time-consuming.
- **Menu updates not automatically reflected in sales:** Any changes in the coffee menu need to be manually synchronized with the sales module, leading to discrepancies.
- **Limited visibility into customer leads and engagement:** Without centralized CRM integration, marketing and sales teams lack actionable insights.
- **Difficulty generating consolidated reports:** Management cannot easily access regional or outlet-level performance data.
- **Data entry and pricing errors:** Manual processes increase the likelihood of mistakes affecting revenue.
- **Fragmented CRM data across outlets:** Leads and customer interactions are scattered, reducing the effectiveness of customer engagement strategies.

Gains: Value Additions

- **Centralized ERP platform:** Integrates outlets, sales, menu, and CRM into a single system for efficiency.
- **Real-time menu updates:** Ensures all sales channels reflect the latest product offerings immediately.
- **Automated reporting dashboards:** Provides management with comprehensive, actionable performance metrics for each outlet and region.
- **Enhanced decision-making:** Managers can make data-driven decisions with accurate and consolidated information.
- **Improved customer engagement:** Centralized CRM allows better tracking of leads and interactions across outlets.
- **Reduced errors via automation:** Minimizes mistakes in pricing, stock management, and sales tracking.

Visual Pain-Gain Canvas

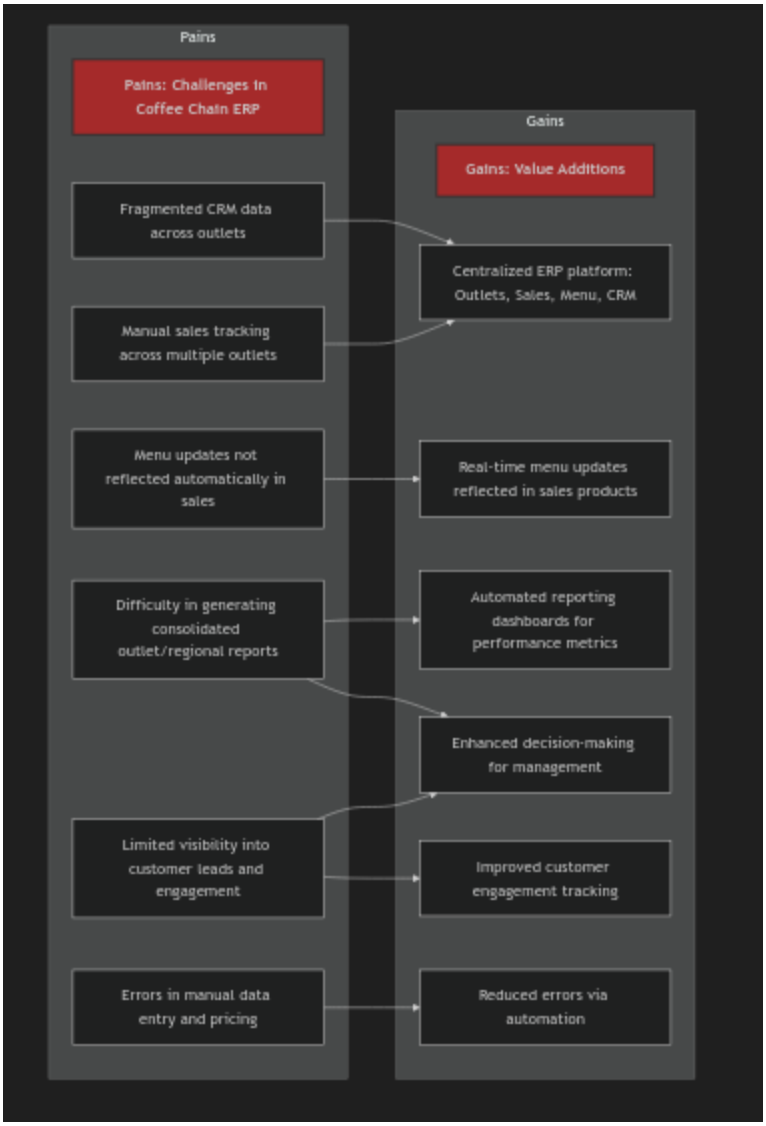

Figure 6.1: Pain-Gain Canvas of Coffee Chain ERP

Insights

- The ERP system directly addresses the most critical operational challenges by centralizing processes.
- Automated menu updates and reporting dashboards are key features that convert operational pains into tangible gains.
- Customer engagement and sales tracking improvements ensure long-term value creation.
- The Pain-Gain Canvas serves as a guide for future ERP enhancements, highlighting areas for potential automation and integration.

By addressing operational pains and leveraging system gains, the Coffee Chain ERP ensures:

- Smooth daily operations across all outlets.
- Real-time visibility into sales, menu, and CRM data.
- Improved decision-making at both outlet and regional levels.
- Enhanced customer satisfaction and business efficiency.

7. 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.

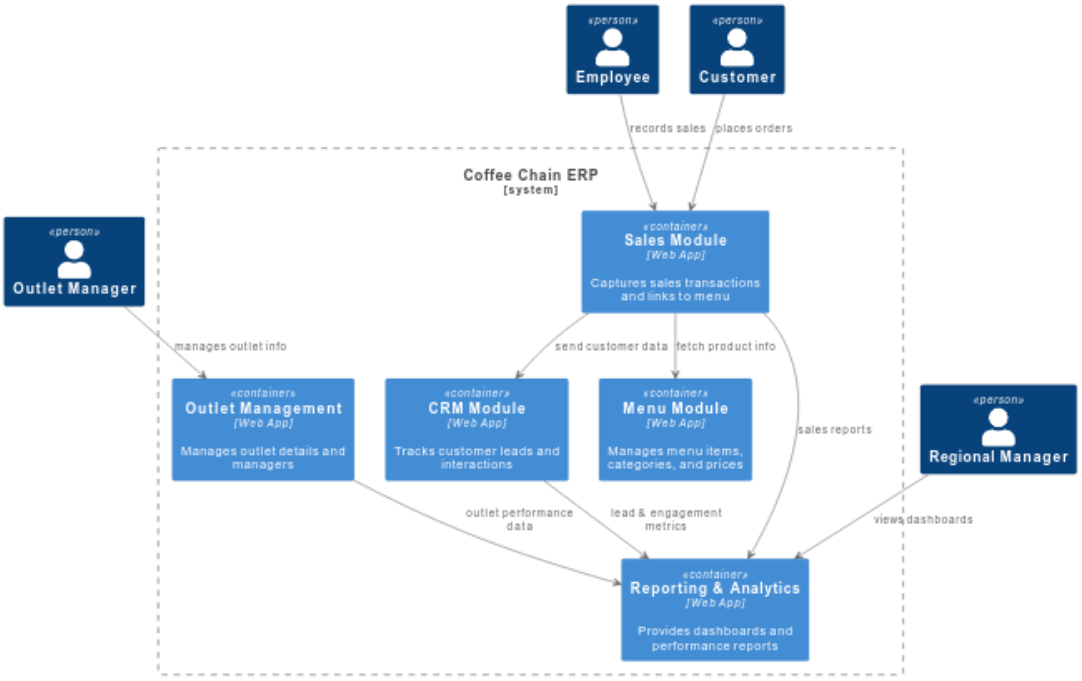

Figure 7.1: C2-Level Container Diagram of Coffee Chain ERP

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

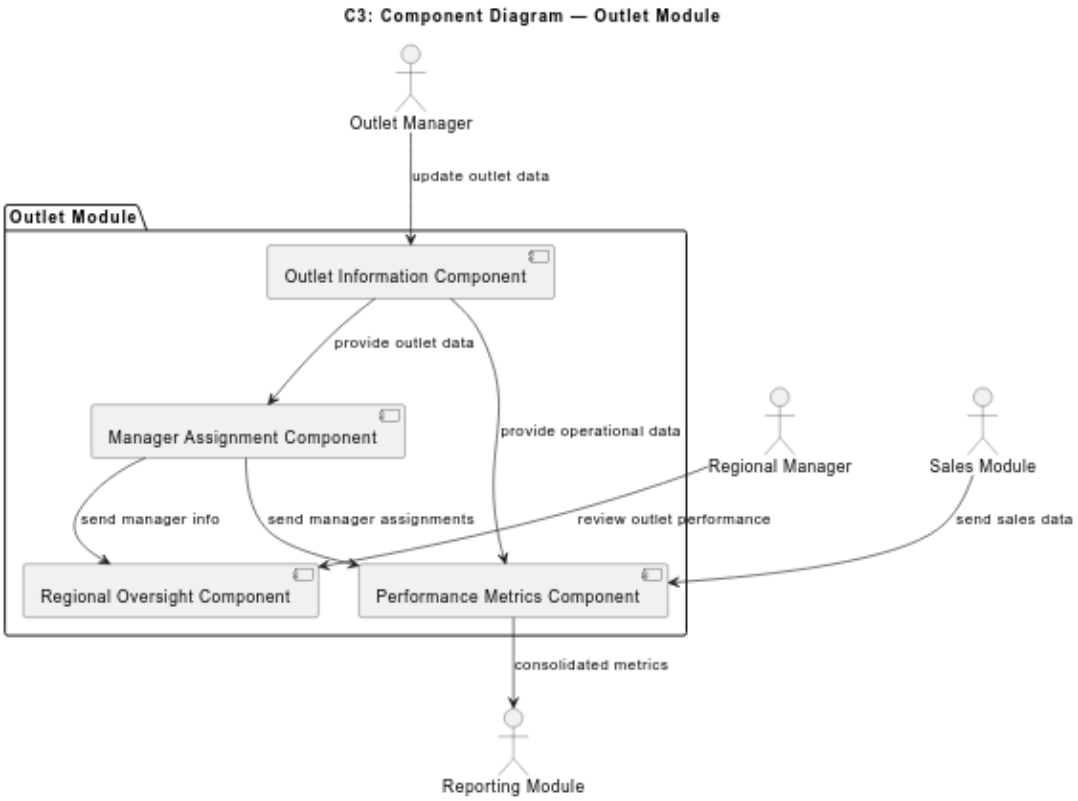

Figure 7.2: C3-Level Component Diagram — Outlet Management

Sales Module Components

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

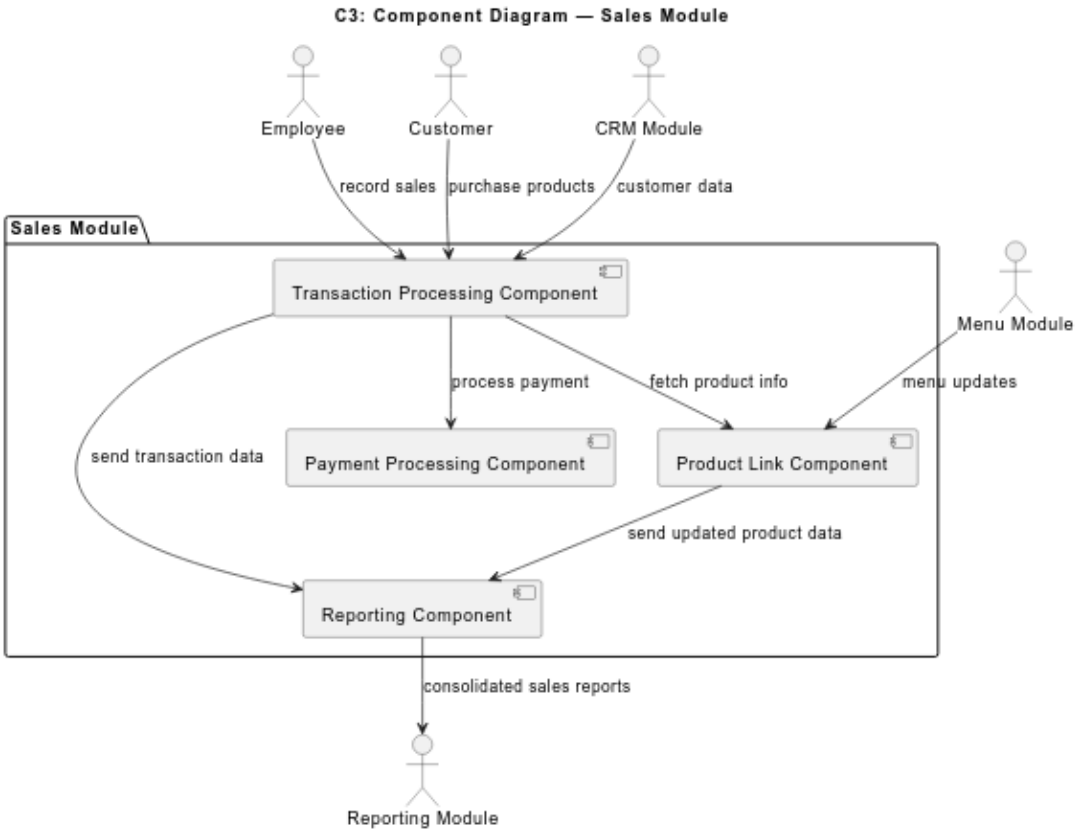

Figure 7.3: C3-Level Component Diagram — Sales Module

CRM Module Components

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

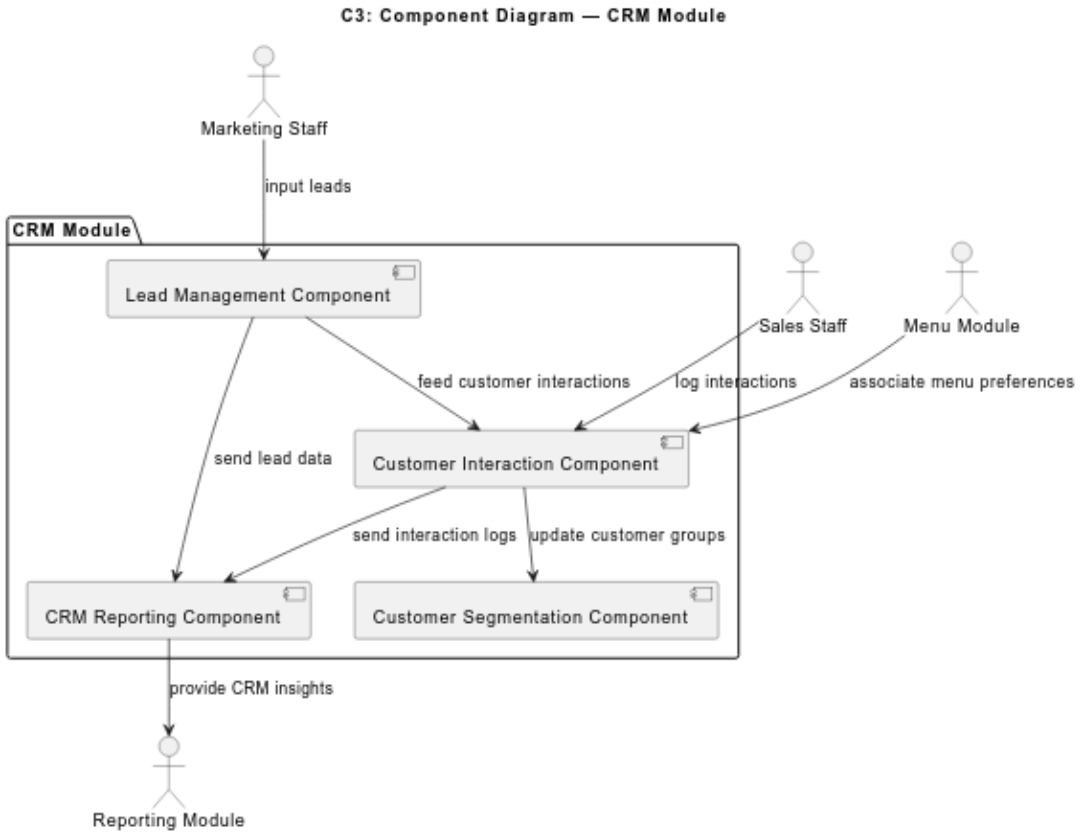

Figure 7.4: C3-Level Component Diagram — CRM Module

Menu Module Components

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

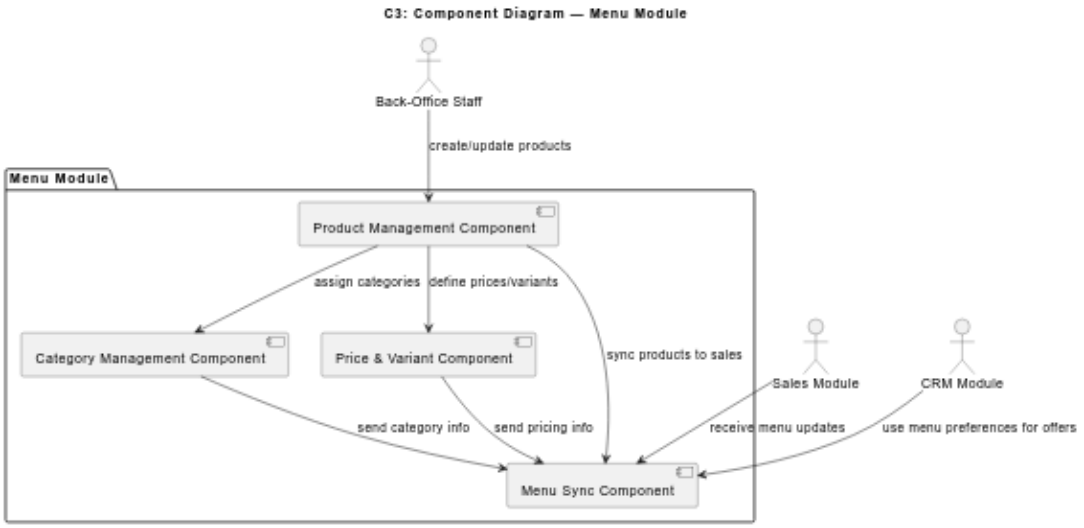

Figure 7.5: C3-Level Component Diagram — Menu Module

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.

8. Components & Integration

9. Concepts & Documentation

This chapter introduces the key concepts behind the Coffee Chain ERP system and details the important documents and records used in the workflow. Understanding these concepts is essential for grasping how the ERP operates and how data flows between modules.

Key Concepts

1. ERP System Integration

The Coffee Chain ERP is designed as an integrated platform combining multiple business functions—outlet management, sales, menu management, and CRM. Integration ensures that updates in one module automatically propagate to others, reducing manual work and errors.

Example: Updating a menu item in the Menu module automatically updates the Sales module, ensuring that employees sell the correct items with accurate pricing.

2. Module-Based Architecture

The ERP is organized into distinct modules (containers) and components:

- **Outlet Management:** Stores information about each coffee outlet, including name, location, manager, and regional manager.
- **Sales Module:** Handles transactions, product linking, and performance reporting.
- **Menu Module:** Manages products, categories, and pricing, linking to the Sales module.
- **CRM Module:** Tracks customer leads, interactions, and engagement metrics.
- **Reporting & Analytics:** Consolidates data from all modules for dashboards and decision support.

3. Workflow Concepts

- **Transaction Flow:** From order placement to sales recording, each step is logged in the ERP for accuracy.
- **Data Synchronization:** Changes in one module (e.g., menu updates) reflect immediately in dependent modules (e.g., sales).

- **Decision Support:** Consolidated reports allow managers and regional managers to track KPIs such as revenue, product sales, and lead conversion rates.

4. User Roles and Responsibilities

- **Outlet Managers:** Manage outlet operations and ensure accurate data entry.
- **Regional Managers:** Compare performance across outlets and make strategic decisions.
- **Employees:** Enter sales and product information accurately.
- **Customers:** Interact with the system via orders; indirectly feed CRM data.

5. Concept of Containers and Components

In this ERP context:

- A **Container** represents a high-level module such as Sales, CRM, or Menu.
- A **Component** is a sub-part of a container that executes a specific function, e.g., the *Transaction Processing Component* in Sales.

Documents in the Workflow

1. Sales Records

- Captured automatically by the Sales module.
- Includes transaction ID, product sold, quantity, price, payment method, and timestamp.
- Serves as the basis for financial reports and performance analytics.

2. Menu Master List

- Contains all products, categories, and pricing information.
- Maintained in the Menu module; synchronized with Sales.
- Provides consistency in product offerings across outlets.

3. Customer & Lead Records

- Captured by the CRM module.
- Includes lead source, customer information, interaction logs, and engagement metrics.
- Used for marketing, promotions, and improving customer relationships.

4. Outlet Data Sheets

- Contains outlet details: name, location, manager, regional manager.
- Maintained in the Outlet Management module.
- Supports reporting and operational oversight.

5. Reports and Dashboards

- Generated by the Reporting & Analytics module.
- Summarizes sales, outlet performance, and customer engagement.
- Provides actionable insights for decision-making.

Integration of Documents with Modules

- Sales records are linked to menu items and CRM leads.
- Customer engagement documents feed into reporting dashboards.
- Outlet data is referenced for KPI calculation and performance benchmarking.

Code and Diagram Integration

Listing 9.1: Example: Sales Transaction Recording in Python

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

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

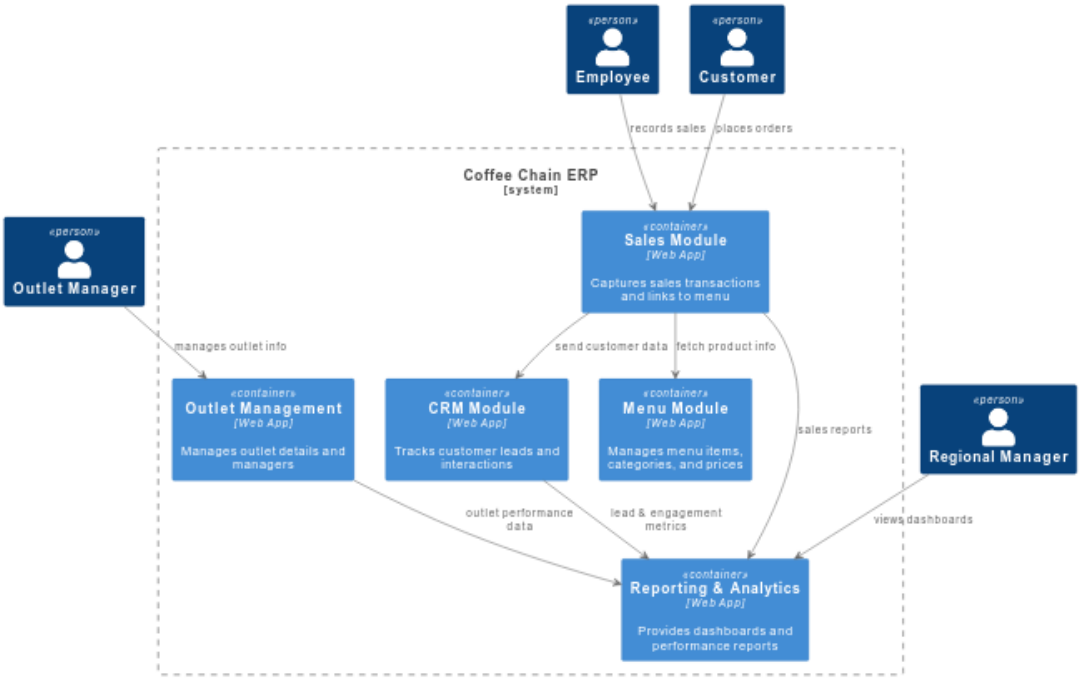

Figure 9.1: Reference Container Diagram for Document Flow

Insights

- Centralizing document management reduces errors and ensures data consistency.
- Clear linkage between documents and modules enhances traceability and decision-making.
- Automated capture of sales, menu, and customer data minimizes manual intervention.
- Reporting dashboards serve as the single source of truth for management insights.

10. Workflow and Customer Journey for Coffee Chain ERP System

Introduction

This chapter describes the workflow and customer journey in the Coffee Chain ERP system. The system is designed to manage coffee outlets, menu items, sales orders, and customer information. The goal is to provide a clear understanding of how users (staff and administrators) interact with the system and how sale customers experience the ordering process.

System Entities

The main entities in the Coffee Chain ERP system are:

- **Coffee Outlet** (`coffee.outlet`): Represents a coffee outlet in the chain.
- **Outlet Owner** (`res.partner`): Represents the owner of a coffee outlet.
- **Coffee Menu Item** (`coffee.menu.item`): Represents drinks and snacks available for order.
- **Sale Customer** (`res.partner`): Represents the end customer purchasing products at the outlet.
- **Sale Order** (`sale.order`): Represents a customer's order in the system.
- **CRM Lead** (`crm.lead`): Optional linkage for sales leads and customer management.

Workflow Sequence

The workflow represents the operations performed by administrators and staff for managing outlets, menu items, customers, and sales orders.

Administrator Workflow

Administrators are responsible for setting up outlets, outlet owners, and menu items. The workflow is as follows:

1. Create or manage **Outlet Owner** (`res.partner`).
2. Create or view a **Coffee Outlet** and assign it to an outlet owner.
3. Create **Menu Items** (drinks and snacks) that can later be added to customer orders.
4. Create or manage **Sale Customers** (`res.partner`) who purchase items at the outlet.
5. Optionally link **CRM Leads** to track customer interactions.

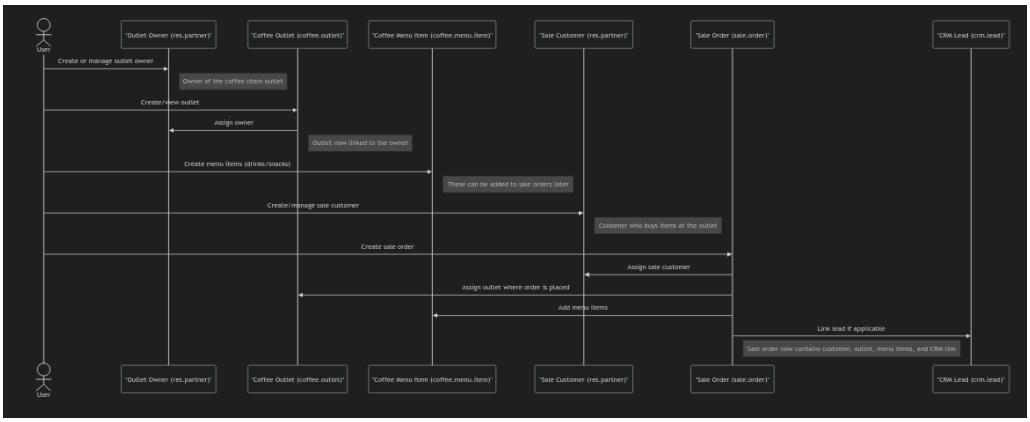

Figure 10.1: Administrator Workflow Sequence Diagram

Customer Journey

The customer journey demonstrates how a sale customer interacts with the coffee outlet via the staff (barista) using the POS system.

Steps in the Customer Journey

1. Customer approaches the outlet and places an order with the staff.
2. Staff identifies the outlet where the order is being placed.
3. Staff adds the selected menu items to a **Sale Order**.
4. Sale order is linked to the outlet and optionally to a CRM lead.
5. Customer makes payment to the staff.
6. Staff confirms the order and issues a receipt.
7. Sale is recorded in the system, including customer details, menu items, outlet, and CRM link if applicable.

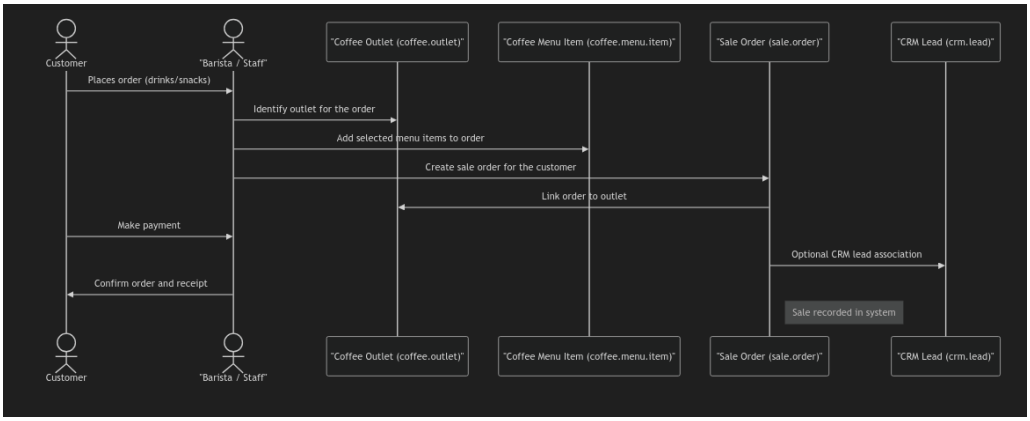

Figure 10.2: Customer Journey Sequence Diagram

This chapter provided a detailed workflow and customer journey for the Coffee Chain ERP system. By separating the **administrator workflow** from the **customer journey**, the system clearly defines responsibilities and interactions:

- Administrators manage outlets, owners, and menu items.
- Staff (baristas) enter orders and process payments on behalf of customers.
- Sale orders record all interactions with outlets, menu items, customers, and optionally CRM leads.

11. 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 11.1: 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)
```

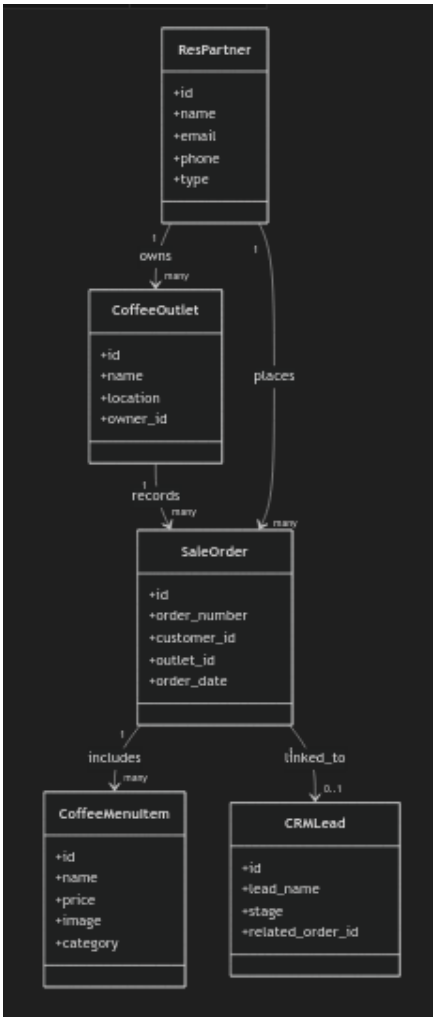

Figure 11.1: Class diagram showing Python classes and field names for quick reference.

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.

12. 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 12.1: 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.

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.