

Software Requirements Specification

Enterprise Resource Planning System(ERP)

For

Stadia Engineering Works Consultant

Version 1.0

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Acronyms and Abbreviations

SRS	Software Requirement Specification
ERP	Enterprise Resource Planning
LB	Load balancing
HQ	Headquarters
HR	Human Resources
UML	Unified Modeling Language

Chapter 1

Introduction

ERP is one of the most widely implemented business software systems in a wide variety of industries and organizations. ERP is the acronym of Enterprise Resource Planning. ERP is just not only a software. ERP definition refers to both; ERP software and business strategies that implement ERP systems.

Our implementation utilizes Human Resource Management System, Recruitment System, Attendance System, Leave (time off) System, Payroll System, Performance Management (Appraisal) System and Asset Management to improve the performance of any organizations for

- Resource Planning
- Management Control
- Operational Control

1.1 Purpose

The purpose of the Requirements Development Plan is to describe the roles and responsibilities for the ERP system requirements development effort and define the planning, activities, and tasks that will be performed as part of this effort. The

planning, activities, and tasks include: planning how the activities will be performed (the processes), defining what approach will be taken with various stakeholders and stakeholder groups or classes to elicit their requirements, identifying how the elicited requirements will be analyzed, and defining how the requirements will be documented, reviewed, validated/approved, and controlled to form the initial baseline set of system requirements. The requirements referenced in this Plan are the requirements that will be included within the system.

1.2 Open ERP(Odoo)

Odoo is a comprehensive business applications including Sales, CRM, Project management, Warehouse management, Manufacturing, Financial management, and Human Resources etc. It is an all-in-one management software that offers a range of business applications that can form a complete suite of enterprise management applications targeting companies of all sizes. Odoo offers a community version and a commercial version. The community version is the open source free version while the enterprise version are charged at a certain cost and provides more features and services.

Odoo was published first under the name of OpenERP and TinyERP, where ERP stands for Enterprise Resource Planning. An ERP is a generic software that is flexible to any modification and customize and fulfills generic needs. Odoo is a modular system where its services are represented as modules, and the ones that are necessary come installed with the ERP and can be adapted to the workforce and growth of the company that uses the system. Odoo has a powerful process engine which allows the allocation of validation modes, tasks and deadlines. According to the ERP's official website, Odoo has 5525 module; production management, logistic, human resources, accounting, management control, payroll, customer relationship management or CRM, marketing, inventory management, documents management,

etc. Odoo is used by many organizations such as Hyundai, Auchan, Sodexo, Danone, Veolia, and many others. Odoo is represented in 120 countries by more than 550 partners, and it is used by almost 7,000,000 users.

Odoo is known for a number of features such as:

- Social networking
- Website creation using CMS
- Employee assessment and evaluation
- Recruitment process

These and other features are exploited by the users to make the management of their business as organized and smooth as possible.

1.2.1 Why choose Odoo

Why do so many users choose Odoo management software? According to the users' feedback, these have been the predominant reasons:

- **Low cost of ownership and no lock-in:** cost of installing, configuring and running an ERP system is expensive. There is no license fee to run Odoo Community version, so users can save the cost for implementation and customization.
- **Customizable:** Odoo is flexible to customize to users' needs. With so many modules, the user can choose the ones that fits with their business requirements.
- **Comprehensive and modular:** Odoo is an all-in-one business software including CRM, Website/e-Commerce, billing, accounting, manufacturing, warehouse and project management, and inventory. The main Odoo components

are the OpenObject framework, about 30 core modules and more than 3000 community modules.

- **Updated technology:** Odoo is based on a technology stack which is modern and up-to-date. And with its open source community, it is actively maintained by a large base of developers to meet customer's needs and provide new applications.

1.3 Scope

Human Resources: Human Resources Module

- Create and manage employee profile
- Create and manage Departmental hierarchy
- Create and manage contracts
- Employee dashboard
- Import and export to Excel

Recruitment: Recruitment Module

- Create job position
- Publish vacancies
- Review applications
- Manage departments

Attendance: Attendance Module

- Tap in and tap out
- Reporting Dashboard
- Import and export to Excel

- Integrate with Payroll

Leave (time off): Leave (time off) Module

- Annual and other leave type
- Maintain Leave quota
- Employee self service
- Manager approval
- Integrate with Payroll

Payroll: Payroll Module

- Salary structure
- Setup payroll component
- Contract Management
- Reporting Dashboard
- Print pay slip and email pay slip
- Protect pay slip file with password
- Integrate with another modules

Performance Management (Appraisal): Performance Management (Appraisal) Module

- Create and manage Employee appraisal
- Set evaluation scale
- Create goal
- Sort appraisal
- Generate report

Asset Management: Asset Management Module

- Maintain asset record
- Assign asset to employee
- Depreciation
- Generate report

1.4 System Requirements

1.4.1 Hardware Requirements

Odoo is an undemanding system. For 5-employee companies, a 2 CPU 2 RAM server would be enough (recommended 8 RAM), raising to 4 CPU 8 RAM for 20 employees. We would recommend splitting application and database servers for 90 employees. Load balancing (LB) of application server would be needed for a company of 250+ employees.

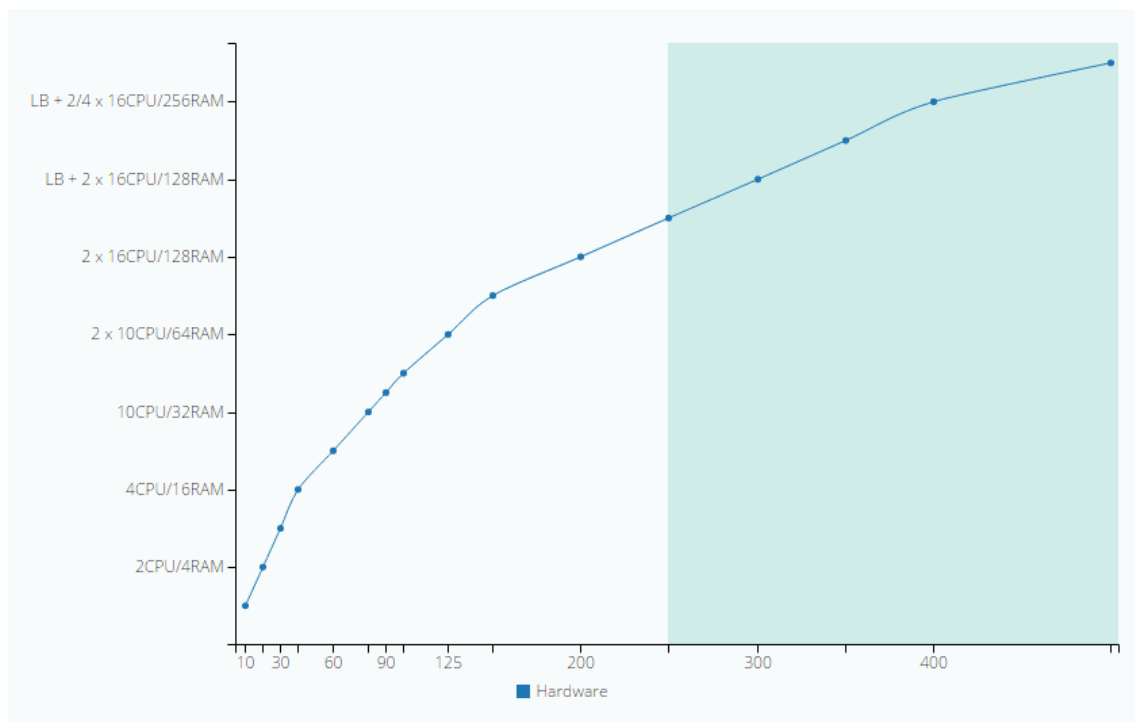


Figure 1.1: Odoo server requirements

1.4.2 Software Requirements

Postgresql v14.0: Is a powerful, open source object-relational database

Odoo community v14: Is a suite of business management software tools

Docker: Is a set of platform as a service products that use OS-level virtualization to deliver software in packages called containers

Docker compose: Is a tool for defining and running multi-container Docker applications

Python v3.7 Is a high-level, interpreted, general-purpose programming language.

Chapter 2

System Analysis

2.0.1 System Requirement Specification

General structure of a user story described in this document:

{User story name}: As a {role}, I want {goal}, so that {benefit} ({priority}).

2.0.2 Functional Requirements

The following sections describe the data required and the functional requirements that shall be performed in the new ERP System for both the HQ and field-based staffs. These functional requirements include the on-going System maintenance and the creation and management reports for all areas.

- The System shall have a common database core which allows integration of data and transactions between all financial, operational, production, and customer service functions within the ERP System.
- The System shall have a graphic user interface (GUI) implemented as a Web-based interface

- The System shall be able to export selected records into either pdf or table file format
- The System shall have administrator ERP System and user security functionality to include:
 - Setting Up a New User
 - Updating an Existing User
 - Restricting User Access to Certain Roles
- The System shall have the ability for generated reports to be savable and exportable to numerous devices and mediums including printers
- The System shall produce Fixed Asset Depreciation Schedules

2.0.3 Non-functional Requirements

Reliability Reliability is the probability that the System will be able to process work correctly and completely without being aborted.

The proposed ERP System has varying degrees of impact on areas of Stadia should parts of the System fail. If the Core Systems functional areas of the System fail (becomes unusable) for a period of time the impact on Stadia would be as follows:

Length of Time of Outage	Impact to Stadia
One Hour	Some Impact to TODO
One Day	Medium to Large Impact TODO
One Week	Very Large to Catastrophic Impact.

Table 2.1: Impact of reliability on Stadia

The minimum acceptable level of reliability for the core system Reporting aspect of the System would be no more than five (5) days (one work week).

Recoverability Recoverability is the ability to restore function and data in the event of a failure.

- In the event the ERP application is completely unavailable to users (down) because of a System failure, it should be restored within 2 hours after the failure is detected. This timeframe assumes that a locally controllable event (such as a hardware issue) has caused the outage. If the application software is at issue and requires Contractor intervention, then the expected restoration time shall follow expected levels that shall be stated in the Service Level Agreement.
- In the event that the operational database is corrupted, the database must be capable of being restored to its condition no more than 2 hours before the corruption occurred and must be restored to its most recent point in time prior to the corruption (1 day before). (Once a Contractor is selected a final data recovery strategy shall be determined).

The core system will perform periodic backups of all databases and will store these backups off-site. At a minimum daily incremental changes to the database shall be captured and stored and on a weekly basis and a full database backup should be performed. Daily backups shall be retained for at least six weeks (approximately one monthly close cycle) and weekly backups should be retained for at least fourteen weeks (one quarterly close cycle).

In the event that the entire data center is destroyed, the following steps shall be required:

- New Application and Database Servers would need to be located and installed
- Operating Systems shall need to be set up on the Servers(i.e Linux Server)
- Applications the ERP core System (Odoo) shall need to be installed on the Servers

- The last off-site back up of the ERP application database shall be restored to the Servers

System Availability System availability is the time when the application must be available for use. Required System availability is used in determining when maintenance may be performed.

The System must be available from 2:00 AM – 11:00 PM GMT+3 Monday – Saturday (National Holiday and Service Reduction Days not included). Any scheduled down time for maintenance shall be not be scheduled around these core hours.

Fault Tolerance Not Applicable refer to Odoo Guideline

Performance The current preference is that accessing any transactional screen and updating data fields should take no more than 3 seconds.

System performance should be measured using up to 10 to 300 concurrent users(based on Stadia's number of employee)

Capacity The ERP System shall have the capacity to handle the types of volumes described below:

- TODO number of employee creation per month
- TODO reports per month

Data Mapping and Conversion The following tables describe the data in the current system. he file structures and data in the current system are housed in Postgressql tables but are not truly relational in design.

- A = Alphanumeric
- D = Date (MM/DD/YYYY)

- N = Numeric

Ref	Description	Field Type	Note	Field Length (Bytes)
1	Badge ID	A	Generated Badge Number ID	6

Table 2.2: Datat mapping and conversion

Design, Testing, Implementation, and Acceptance The Contractor/Provider shall be responsible for:

- The design and configuration of the new ERP System based on Stadia business requirements.
- Installation of the ERP System in a test environment
- Loading the test database with sufficient data to perform the required User Acceptance Testing. This task shall be on-going until successful completion of the User Acceptance Testing. Both Stadia and Adarash will provide the User Acceptance Testing Matrix.
- Setup of the software and activation of the modules.
- Setup of the master files and tables and work with Stadia's staff to verify the data.
- Implementation of the ERP System into the final production environment.
-

Training and Documentation The Contractor/Provider shall be responsible for:

- Training of end users and technical staff to support to the ERP System to include:

- General Manger
 - System Admin(IT staff)
 - Clerks
 - Department heads
- Retraining for personnel as needed or requested by management
 - Creating a learning team of "super users"(System Admins or IT staff) who can support others in all basic and some advanced functions
 - Providing and/or creating training materials and technical documentation of the ERP System to include Quick Reference guides and an inmate self-learning module.

2.1 System Requirement Analysis

2.1.1 Actor and Use Case Identification

A use case diagram is a graphic depiction of the interactions among the elements of a system. A use case is a methodology used in the system analysis to identify, clarify, and organize system requirements in this context, the term "system" refers to something being developed modules. Use case diagram are employed in UML (Unified Modeling Language). A standard notation for the modeling of real-world object and systems. System objectives can include planning overall requirements validating a hardware design, testing and debugging a software product under development, creating an online help reference, or performing a consumer-service oriented task. For example, use case in a product sales environment would include item ordering, catalog updating payment processing, and customer relations. A use case diagram contains four components.

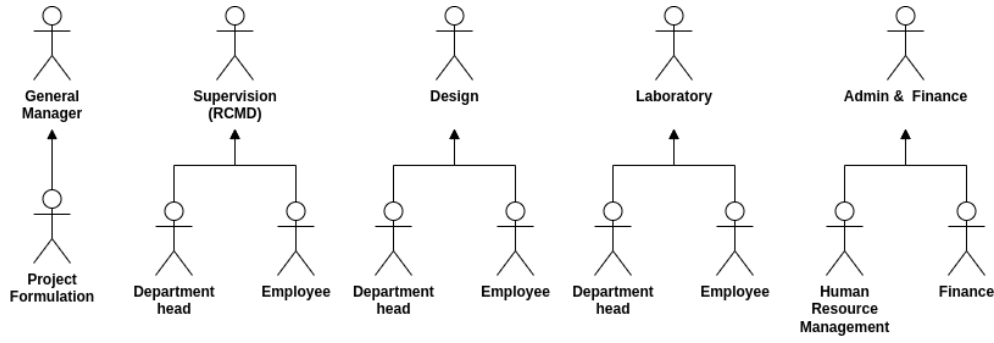


Figure 2.1: Actors involved

2.1.2 Use Case Diagram

Use case diagrams are used during the analysis process to find system requirements and to design system functionality. In this study use case diagrams are used to describe the access rights of each actor. Administrator Actors generally have a function to manage users such as creating accounts and setting access rights.

Use Case Diagram And Description

System security requirements mandate separation of administrative interface from common functions provided to users. This segregation, for example, is strongly recommended by ISO 17799.

System should have separate application for administrators and for common users. It is recommended by OWASP Guide 2.0¹ that system should not be accessible from the internet without going through some management networks eg. via a strongly authenticated VPN or from a trusted network operation center.

Top level use case diagram below shows functions that system could provide.

¹<https://www.owasp.org>.

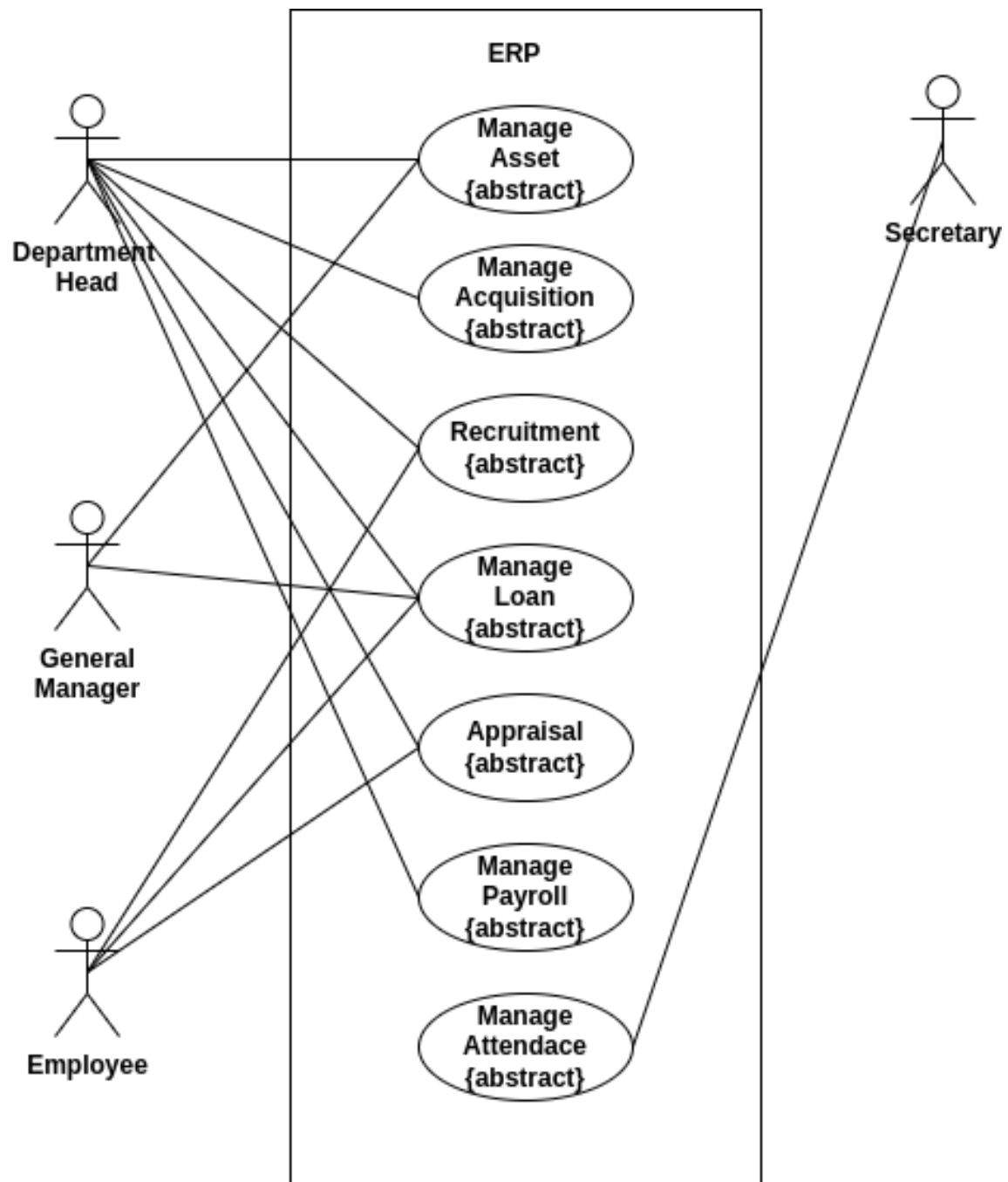


Figure 2.2: Top level use case diagram

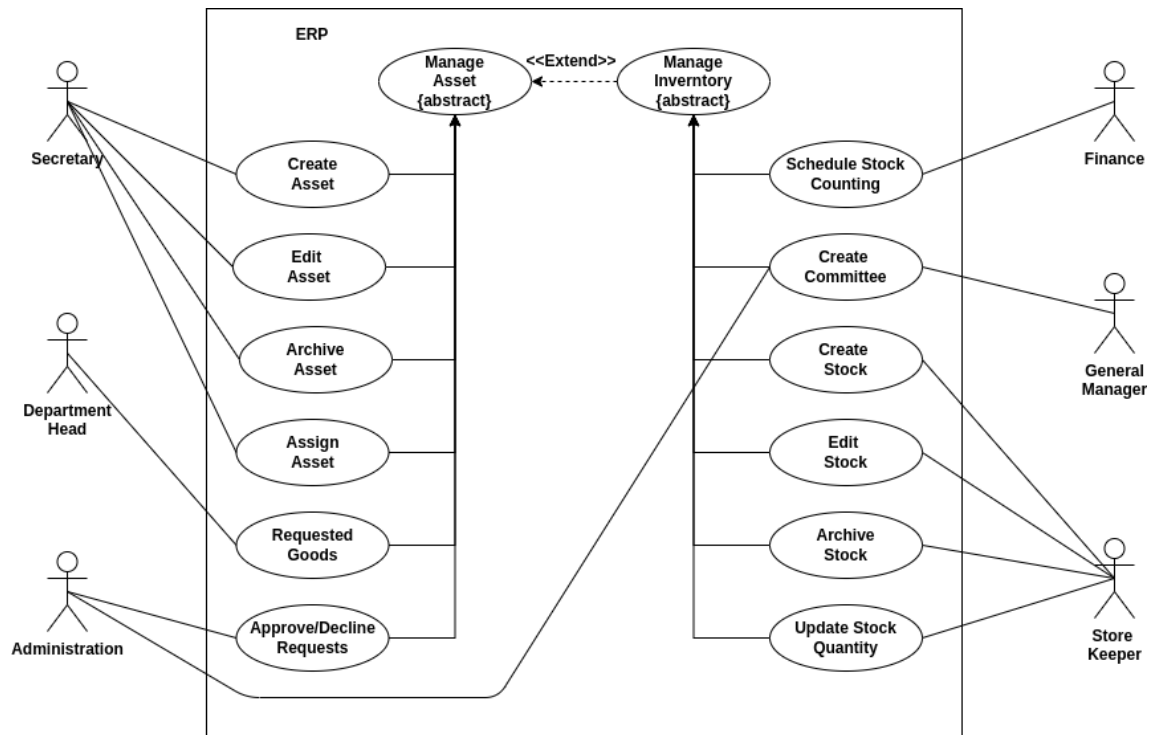


Figure 2.3: Manage Asset use case diagram

Use Case Name	Manage Asset	
Description	Good issuance and Return procedure	
Primary Actor	Store Keeper	
Pre-Condition	User has been logged on to system	
Post-Condition		
Basic Flow	Actor Action	System Response
	<ol style="list-style-type: none"> 1. The Use Case starts when the user is logged on to the system and manage inventory stock. 3. The user will select request good. 	<ol style="list-style-type: none"> 2. The system will display lists of assets. 4. The system will notify store keeper. 5. The Use Case ends.

Table 2.3: Manage Asset

Use Case Name	Manage Inventory	
Description	Management of annual asset inventory in STADIA Engineering Works Consultant plc	
Primary Actor	Finance, General Manager, Administration	
Pre-Condition	User has been logged on to system	
Post-Condition		
Basic Flow	Actor Action	System Response
	1. The Use Case starts when the user is logged on to the system and select the manage inventory menu. 3. The user will Schedule stock counting in calendar.	2. The system will display lists of assets. 4. The system will set and notify other departments. 5. The Use Case ends.
Alternate Flow	A1 : If the user requests to create committee:	
	Actor Action	System Response
	2.1 The user click create committee button/icon the scheduled stock counting date. 2.3 The user fills out the and submit the form.	2.2 The system display a form for selecting stock counting committee. 2.4 The Use Case ends.

Table 2.4: Manage inventory

Use Case Name	Manage Stock	
Description	The idea is that user could create different stocks, modify and remove	
Primary Actor	Store Keeper	
Pre-Condition	User has been logged on to system	
Post-Condition		
Basic Flow	Actor Action	System Response
	1. The Use Case starts when the user is logged on to the system and manage inventory stock. 3. The user will select create new asset. 5. The user will fill the displayed form and submit the form.	2. The system will display lists of assets. 4. The system will display form for creating new asset. 6. The system will verify the information like if the data is redundant or not and store the asset information. 7. The Use Case ends.
Alternate Flow	A1 : If the user requests to edit an existing asset:	
	Actor Action	System Response
	2.1 The user click edit button/icon for the selected asset. 2.3 The user edits the options and submit the form.	2.2 The system display the same form as creating new asset, but filled with the selected asset information. 2.4 The flow continues to Basic flow 6

Table 2.5: Manage Stock

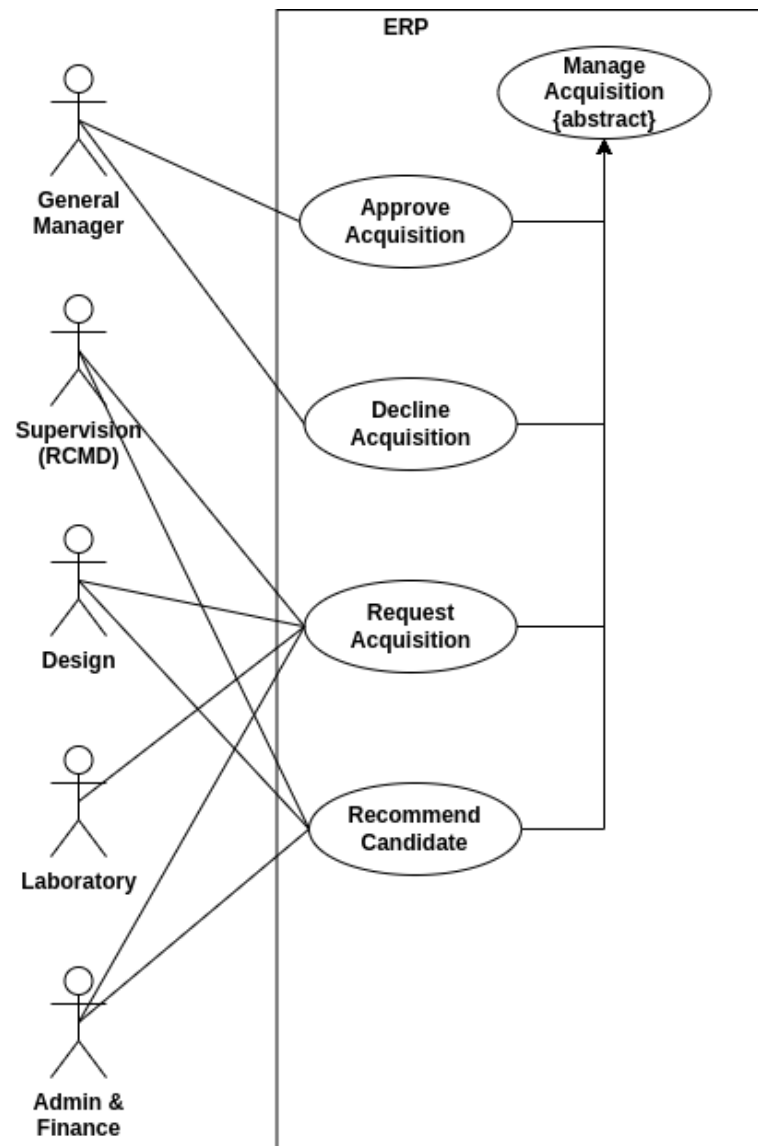


Figure 2.4: Manage Acquisition use case diagram

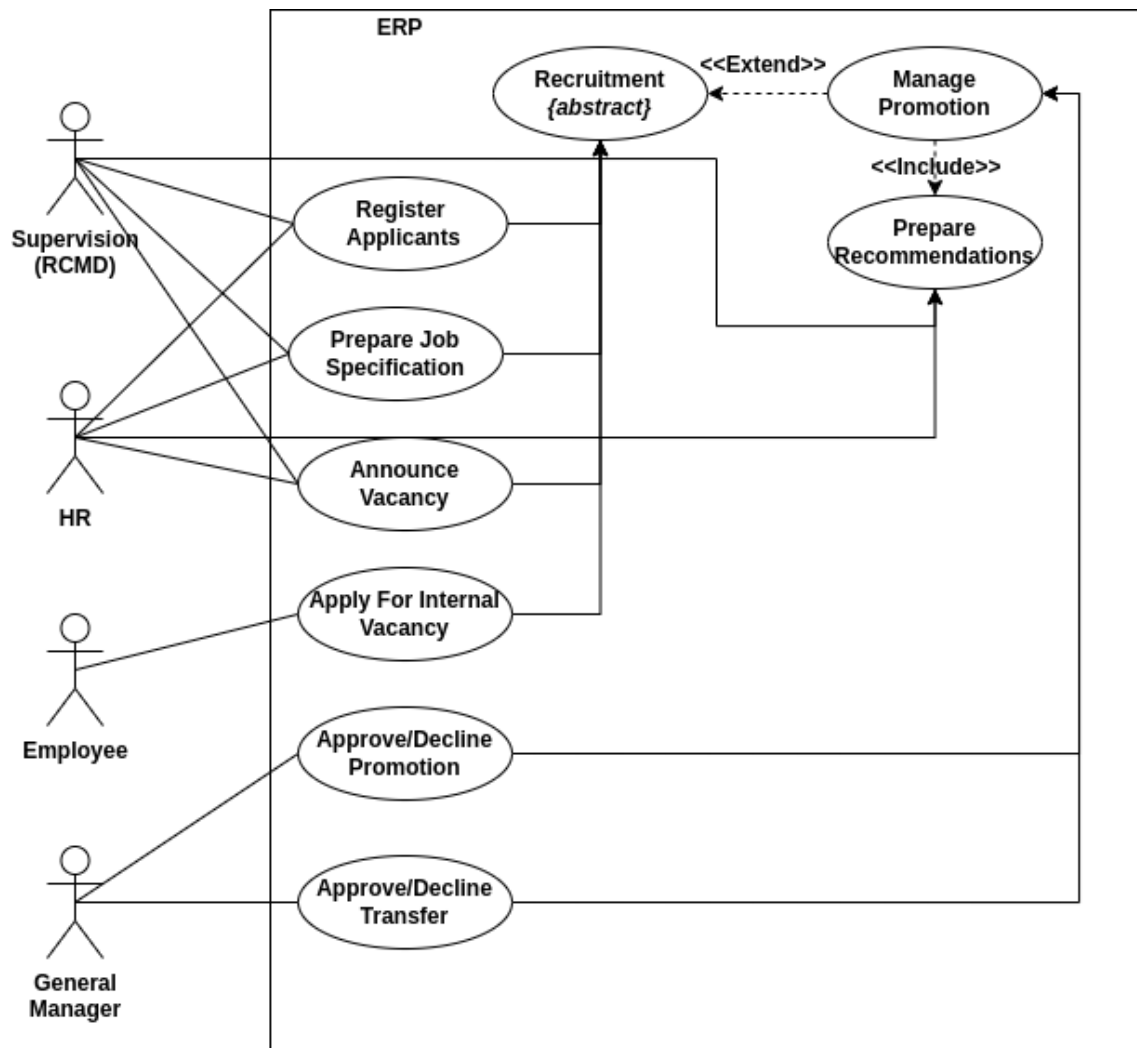


Figure 2.5: Manage Recruitment use case diagram

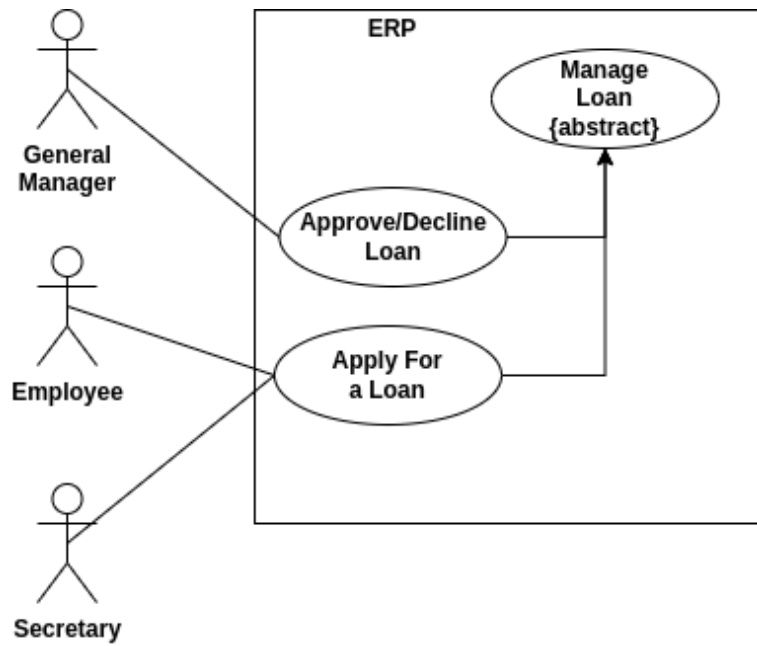


Figure 2.6: Manage Loan use case diagram

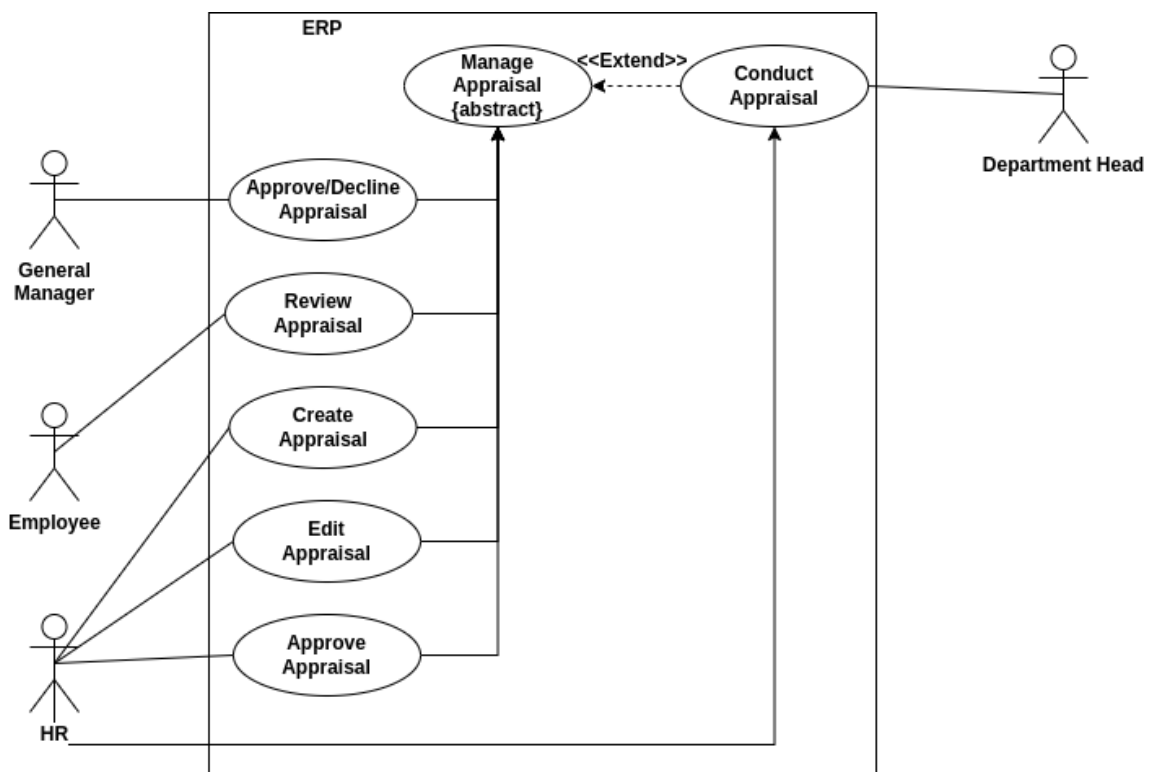


Figure 2.7: Appraisal use case diagram

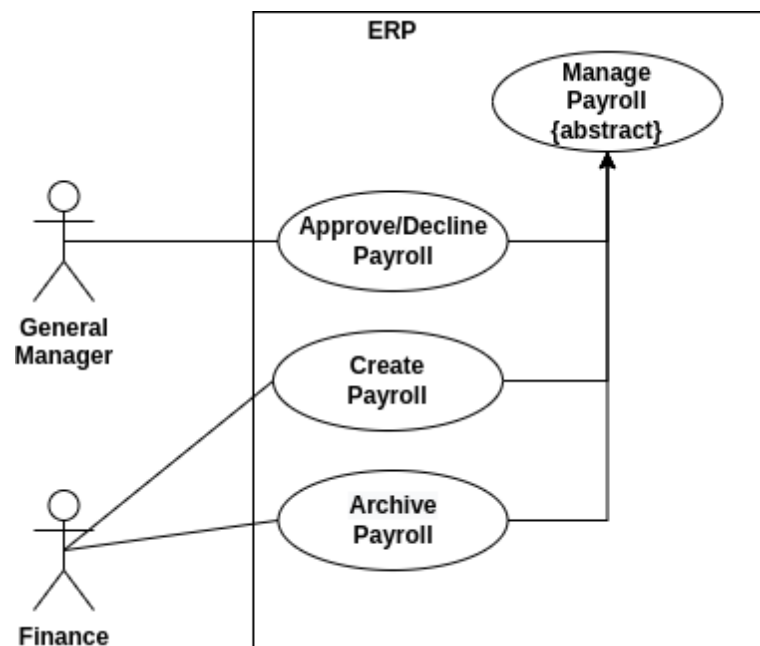


Figure 2.8: Manage Payroll use case diagram

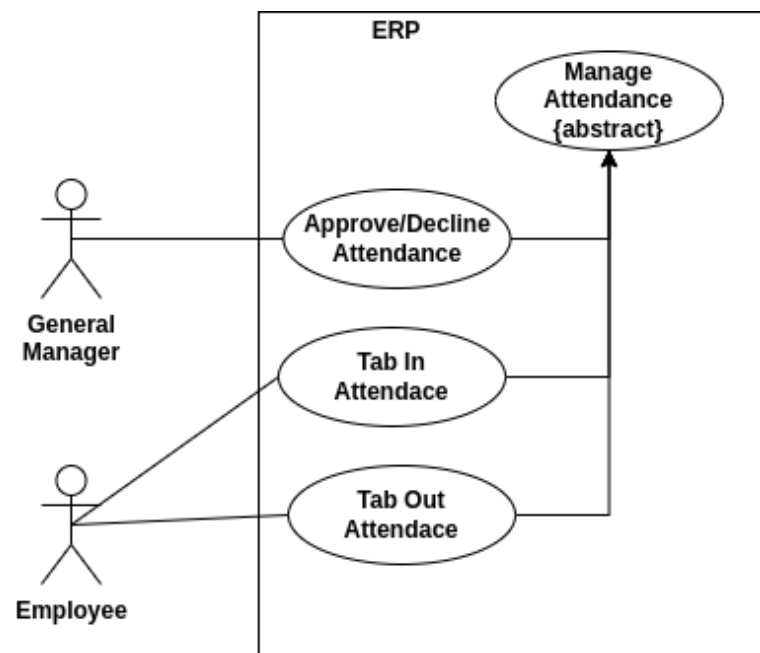


Figure 2.9: Manage Attendance for office employees use case diagram

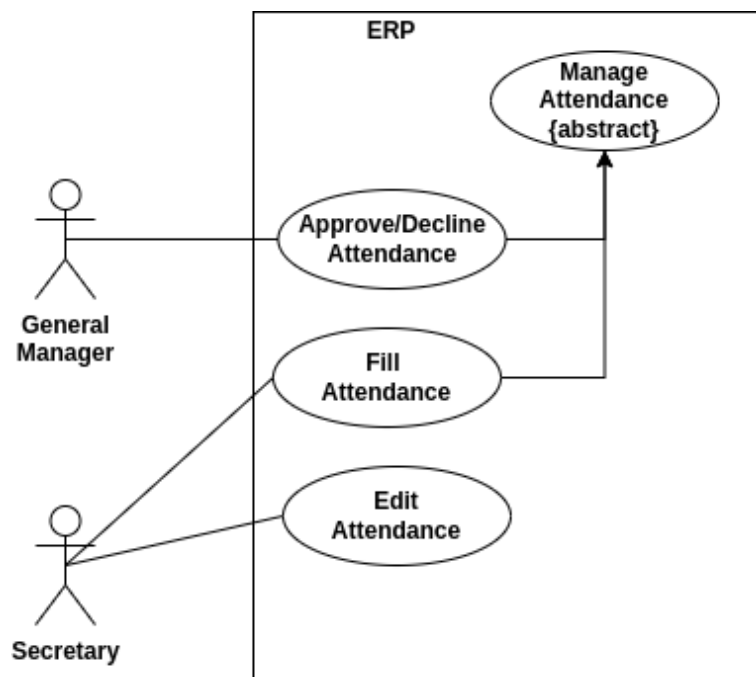


Figure 2.10: Manage Attendance for project employees use case diagram

2.1.3 Activity Diagram

Are graphical representations of workflows of stepwise activities and actions with support for choice, iteration and concurrency. In the Unified Modeling Language, activity diagrams are intended to model both computational and organizational processes (i.e., workflows), as well as the data flows intersecting with the related activities. Although activity diagrams primarily show the overall flow of control, they can also include elements showing the flow of data between activities through one or more data stores.²

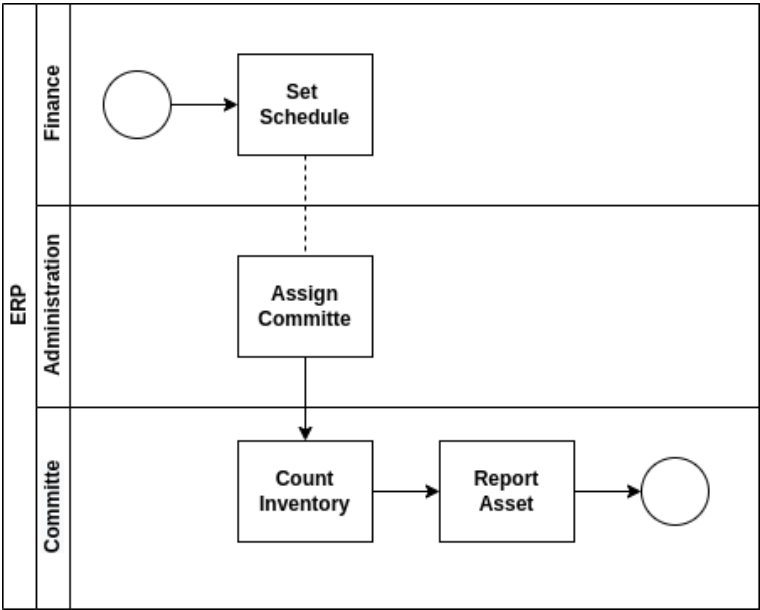


Figure 2.11: Invenory activity diagram

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²Wikipedia contributors, *Enterprise resource planning*.

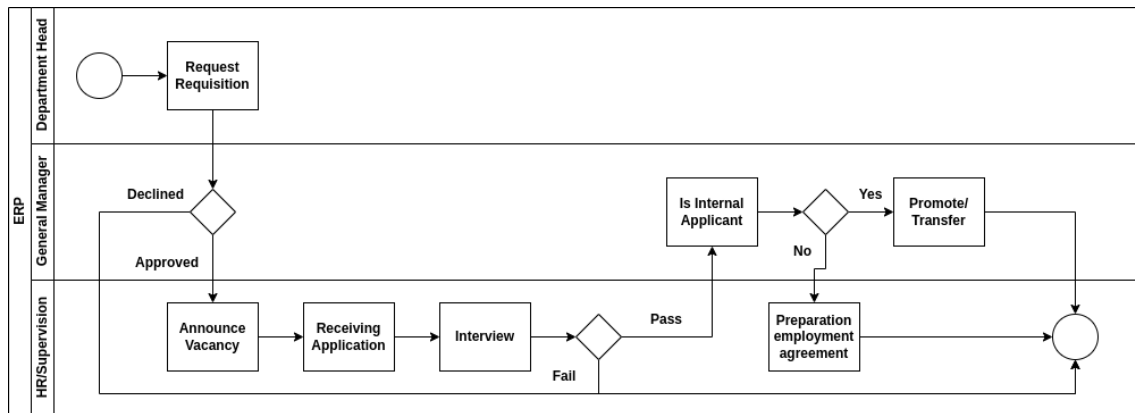


Figure 2.12: Hiring, Recruitment and Transferring activity diagram

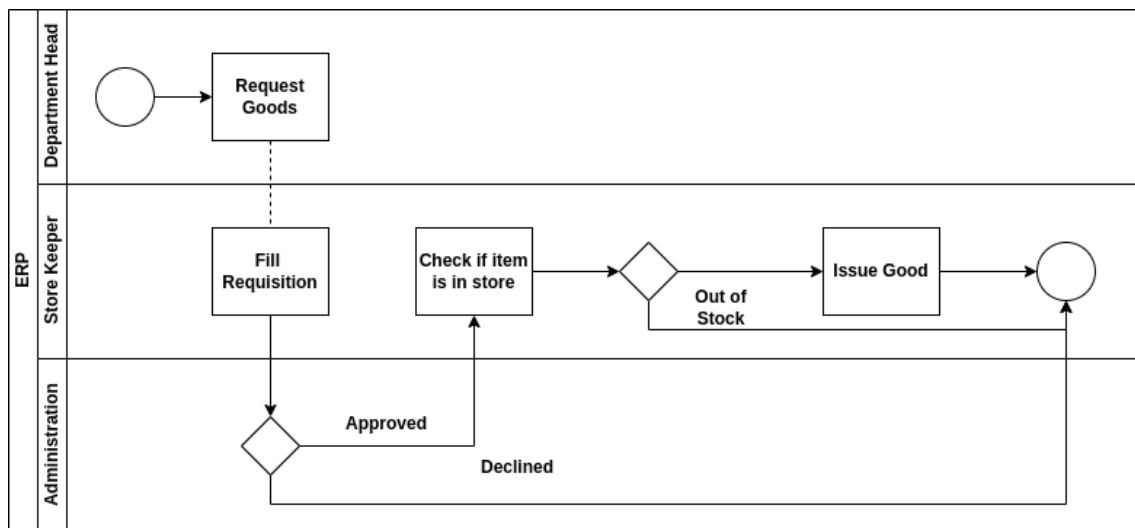


Figure 2.13: Issue asset activity diagram

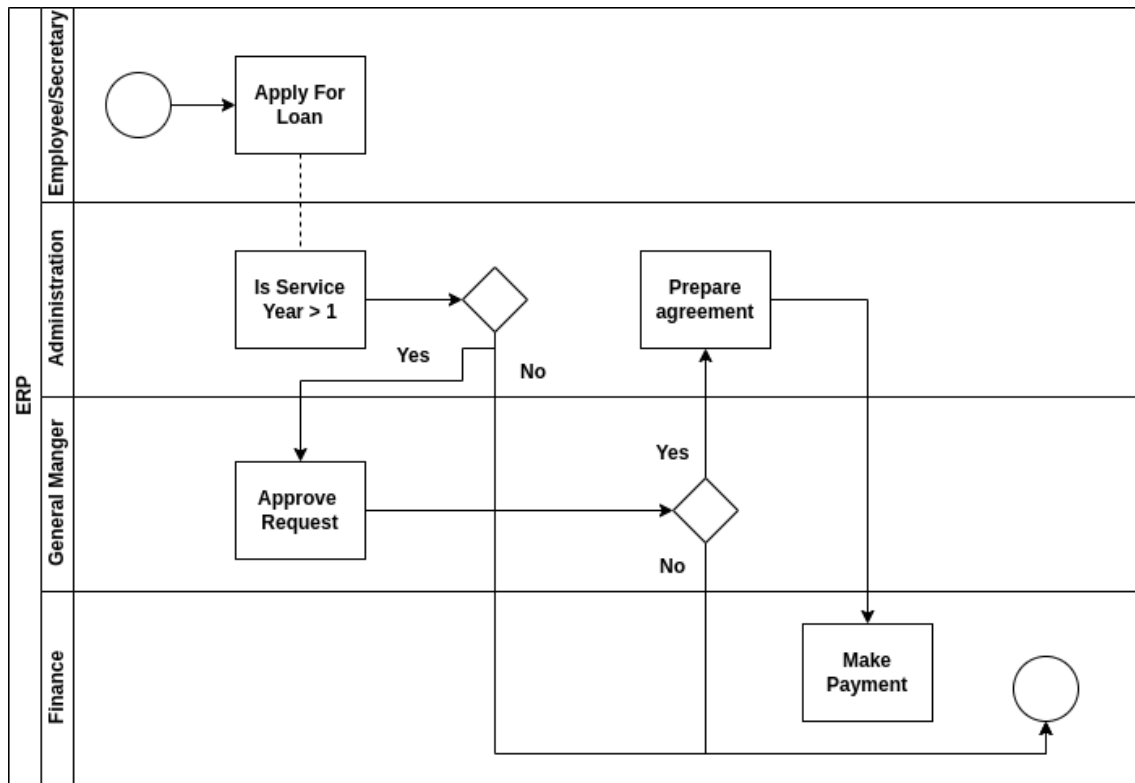


Figure 2.14: Loan activity diagram

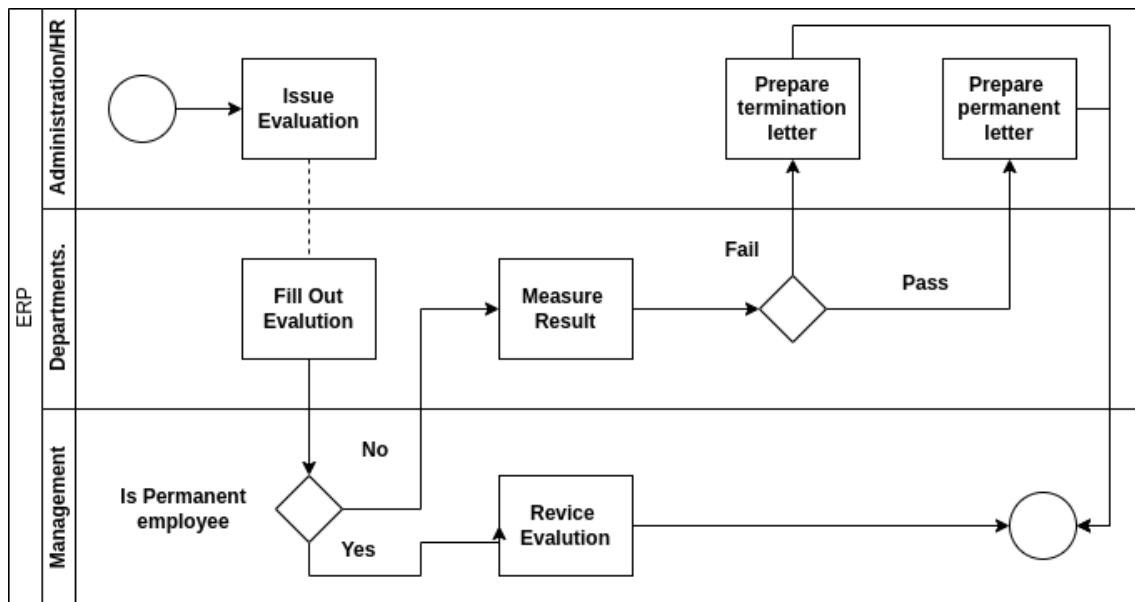


Figure 2.15: Performance Evaluation activity diagram

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