

# Expense, Reconciliation, and Compliance Management System

**Domain** :- Fintech

**Problem Statement** :- Expense, Reconciliation and Compliance Management System

**Team Name** :- FinStack

## Team Members

| Names         | Roll no      |
|---------------|--------------|
| Polasa Nikhil | S20240010183 |
| Jaiveer Naik  | S20240010007 |
| Hari Vamshi   | S20240010008 |
| Harshith      | S20240010203 |
| Aditya        | S20240010158 |

# TABLE OF CONTENTS

|          |  |           |
|----------|--|-----------|
| <b>1</b> | <b>PREFACE .....</b>   | <b>4</b>  |
| <b>2</b> | <b>INTRODUCTION .....</b>                                    | <b>4</b>  |
| 2.1      | PURPOSE OF THE SYSTEM .....                                  | 4         |
| 2.2      | NEED FOR THE SYSTEM .....                                    | 4         |
| 2.3      | OVERVIEW OF SYSTEM FUNCTIONS .....                           | 4         |
| 2.4      | INTERACTION WITH OTHER SYSTEMS .....                         | 4         |
| 2.5      | OBJECTIVES OF THE SYSTEM .....                               | 5         |
| <b>3</b> | <b>GLOSSARY .....</b>  | <b>5</b>  |
| <b>4</b> | <b>USER REQUIREMENTS .....</b>                               | <b>5</b>  |
| <b>5</b> | <b>SYSTEM REQUIREMENTS .....</b>                             | <b>6</b>  |
| 5.1      | FUNCTIONAL REQUIREMENTS .....                                | 6         |
| 5.1.1    | <i>Authentication.....</i>                                   | <i>6</i>  |
| 5.1.2    | <i>Expense management.. ..</i>                               | <i>6</i>  |
| 5.1.3    | <i>Approval workflow..... ..</i>                             | <i>6</i>  |
| 5.1.4    | <i>Payment and reconciliation.....</i>                       | <i>7</i>  |
| 5.1.4    | <i>Compliance and audit.....</i>                             | <i>7</i>  |
| 5.2      | NON-FUNCTIONAL REQUIREMENTS .....                            | 7         |
| 5.2.1    | <i>Performance Requirements .....</i>                        | <i>7</i>  |
| 5.2.2    | <i>Security Requirements .....</i>                           | <i>7</i>  |
| 5.2.3    | <i>Usability Requirements .....</i>                          | <i>8</i>  |
| 5.2.4    | <i>Reliability &amp; Availability Requirements .....</i>     | <i>8</i>  |
| <b>6</b> | <b>SYSTEM MODELS .....</b>                                   | <b>8</b>  |
| 6.1      | USE CASE DIAGRAM .....                                       | 10        |
| 6.2      | ACTIVITY DIAGRAMS .....                                      | 11        |
| 6.2.1    | <i>Expense Submission .....</i>                              | <i>12</i> |
| 6.2.2    | <i>Track Expense Status.....</i>                             | <i>13</i> |
| 6.2.3    | <i>Expense Review and Approval.....</i>                      | <i>14</i> |
| 6.2.4    | <i>Payment Processing Flow.....</i>                          | <i>15</i> |
| 6.2.5    | <i>Reconciliation Flow .....</i>                             | <i>16</i> |
| 6.2.6    | <i>Execute Payment and Provide Transaction Details .....</i> | <i>17</i> |
| 6.2.7    | <i>Define and Update Expense Policies.....</i>               | <i>18</i> |
| 6.2.8    | <i>Review Audit logs and Initiate Action .....</i>           | <i>19</i> |
| 6.2.9    | <i>Maintain System Settings .....</i>                        | <i>20</i> |

|          |                                    |           |
|----------|------------------------------------|-----------|
| 6.2.10   | <i>Configure Rules.....</i>        | <i>21</i> |
| 6.2.11   | <i>Manage Users and Roles.....</i> | <i>22</i> |
| 6.3      | SEQUENCE DIAGRAM .....             | 24        |
| <b>7</b> | <b>CONCLUSION .....</b>            | <b>25</b> |

# 1. Preface

Many organizations still rely on manual or semi-manual processes for handling employee expenses, approvals, and reimbursements. These approaches often lead to errors, delays, lack of transparency, and difficulty in auditing.

The **Expense, Reconciliation and Compliance Management System** provides a centralized platform to manage expense submission, approvals, policy enforcement, payment processing, reconciliation, and audit logging.

This document is intended for faculty, evaluators, and student developers. It defines what the system must do and serves as a reference for analysis and design..

---

## 2. Introduction

### 2.1 Purpose of the System

- To automate employee expense submission and approval
- To ensure expenses follow organizational policies
- To support accurate reimbursement processing
- To maintain auditable financial records

### 2.2 Need for the System

- Manual expense handling is error-prone and slow
- Tracking approval and payment status is difficult
- Organizations require compliance and auditability
- Expense submitters submit expenses with receipts
- Managers approve or reject expenses
- The System enforces compliance rules
- Finance officers process payments and reconciliation
- Audit logs track all important actions

### 2.4 Interaction With Other Systems

- The system interacts with an external bank for payment execution
- The system stores and manages data in an internal database
- Payment status is received from the bank

## 2.5 Objectives of the System

- Provide structured expense lifecycle management
- Reduce manual intervention
- Improve transparency and traceability
- Support financial audits

## 3. Glossary

| Term                  | Meaning  |
|-----------------------|--|
| Expense               | A business-related cost paid by an employee that needs to be paid back by the company.   |
| Reconciliation        | Matching the company's internal expense records with the bank statements to make sure the payment was actually made            |
| Compliance            | Ensuring that all expenses follow the company's rules and spending   |
| Audit Log             | A history record of every action taken in the system, like who clicked what and when   |
| Expense Submitter     | A person in organization who submits expenses  |
| Manager               | The supervisor who reviews and approves employee's expense requests.   |
| Finance Officer       | The finance staff member who makes the final payment after approval.   |
| Compliance Officer    | The person who sets the rules and limits for spending to prevent fraud.  |
| Configuration Manager | The admin who manages user accounts and general system settings and also updates the policies given by the Compliance Officer. |

## 4. User Requirements

- The system shall allow expense submitters to submit expenses with receipts
- The system shall allow managers to review and approve or reject expenses
- The system shall allow finance officers to initiate payments
- The system shall allow compliance officers to define policies
- The system shall allow users to track expense status

## 5. System Requirements

### Functional Requirements

#### Authentication

- **FR-1:** The system shall authenticate users using organization ID, employee ID, and password.
- **FR-2:** The system shall restrict access based on assigned roles.

#### Expense Management

- **FR-3:** The system shall allow expense submitters to submit expenses with mandatory fields and receipts.
- **FR-4:** The system shall validate expense submissions for completeness and policy applicability before acceptance.

#### Approval Workflow

- **FR-5:** The system shall route submitted expenses to the appropriate manager.
- **FR-6:** The system shall record approval or rejection decisions with timestamps.

#### Payment and Reconciliation

- **FR-7:** The system shall allow finance officers to initiate payments for approved expenses.
- **FR-8:** The system shall receive payment status information from the bank or authorized payment channel.
- **FR-9:** The system shall perform reconciliation between approved expenses and received payment records.
- **FR-10:** The system shall flag reconciliation issues for finance review.

## **Compliance and Audit**

- **FR-11:** The system shall enforce expense policies automatically.
- **FR-12:** The system shall maintain immutable audit logs of all expense-related actions.
- **FR-13:** The system shall generate audit reports for compliance review.

## **Non-Functional Requirements**

### **Performance**

- The system shall support concurrent access by multiple users.
- The system shall provide expense submission responses within defined acceptable time limits.

### **Security**

- The system shall require authentication for all users before granting access.
- The system shall enforce role-based access control.
- The system shall prevent modification of audit logs.

## Reliability and Availability

- The system shall prevent duplicate payments.
- The system shall handle payment failures without causing data inconsistency.

## Usability

- The system shall provide clear feedback for user actions.
- The system shall present error messages that are understandable to non-technical users.

# 6. System Models

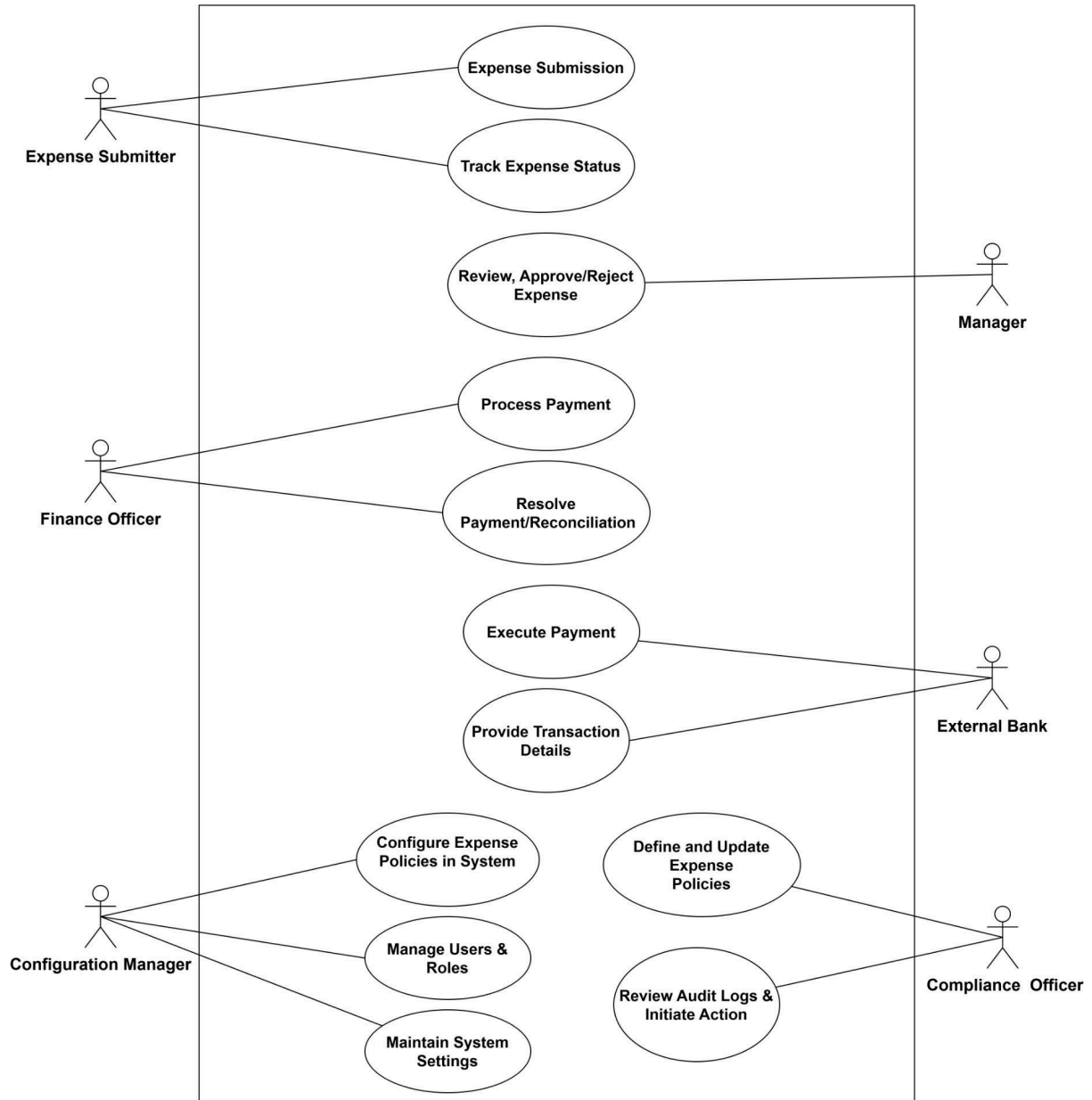
The system behavior is described using the following UML models:

- **Use Case Diagram:-** which defines the functional requirements and user interactions.
- **Activity Diagram:-** which represents the workflow and control flow of processes.
- **Sequence Diagram:-** which models the chronological interaction between system components.



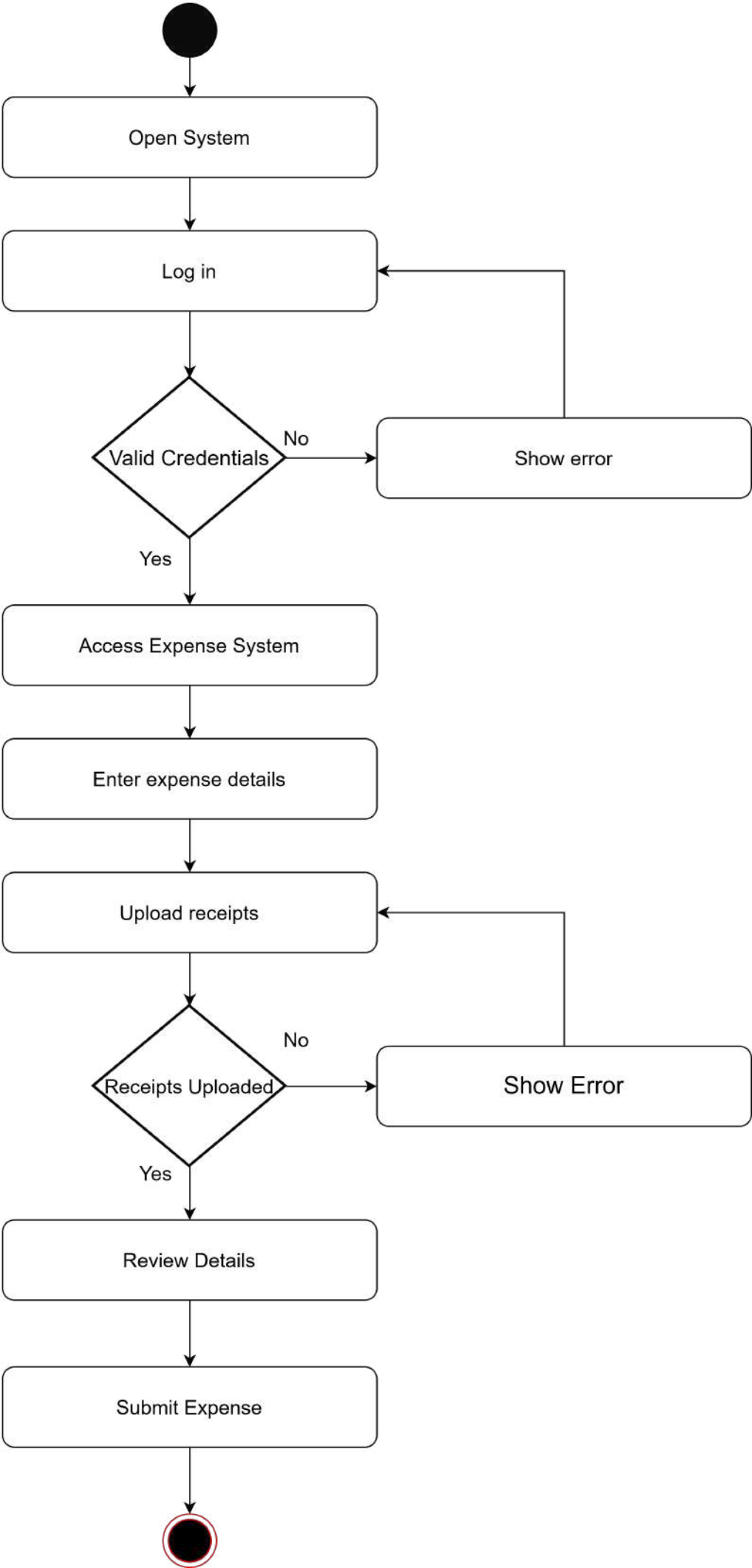
# USE CASE

## USE CASE

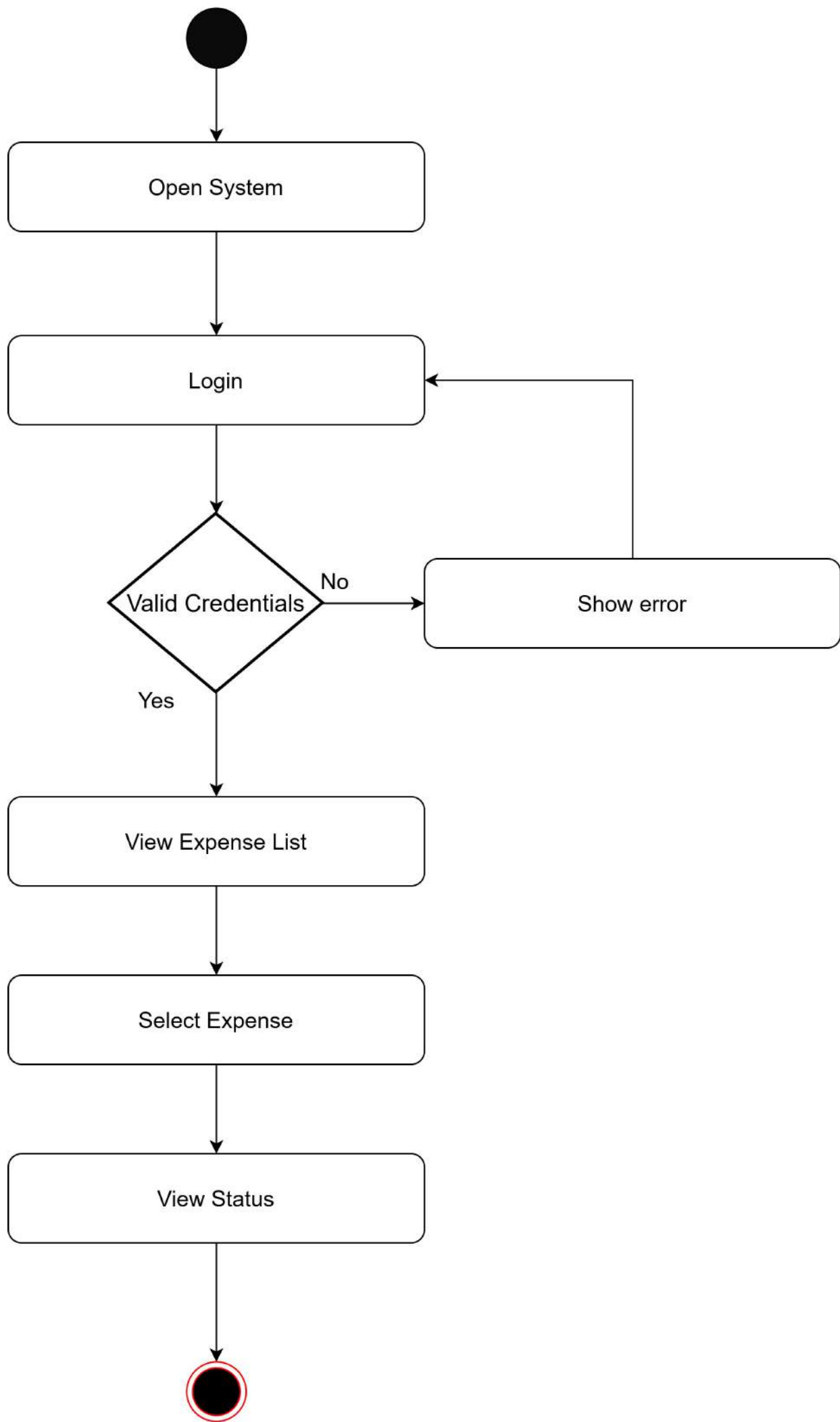


# **ACTIVITY DIAGRAMS**

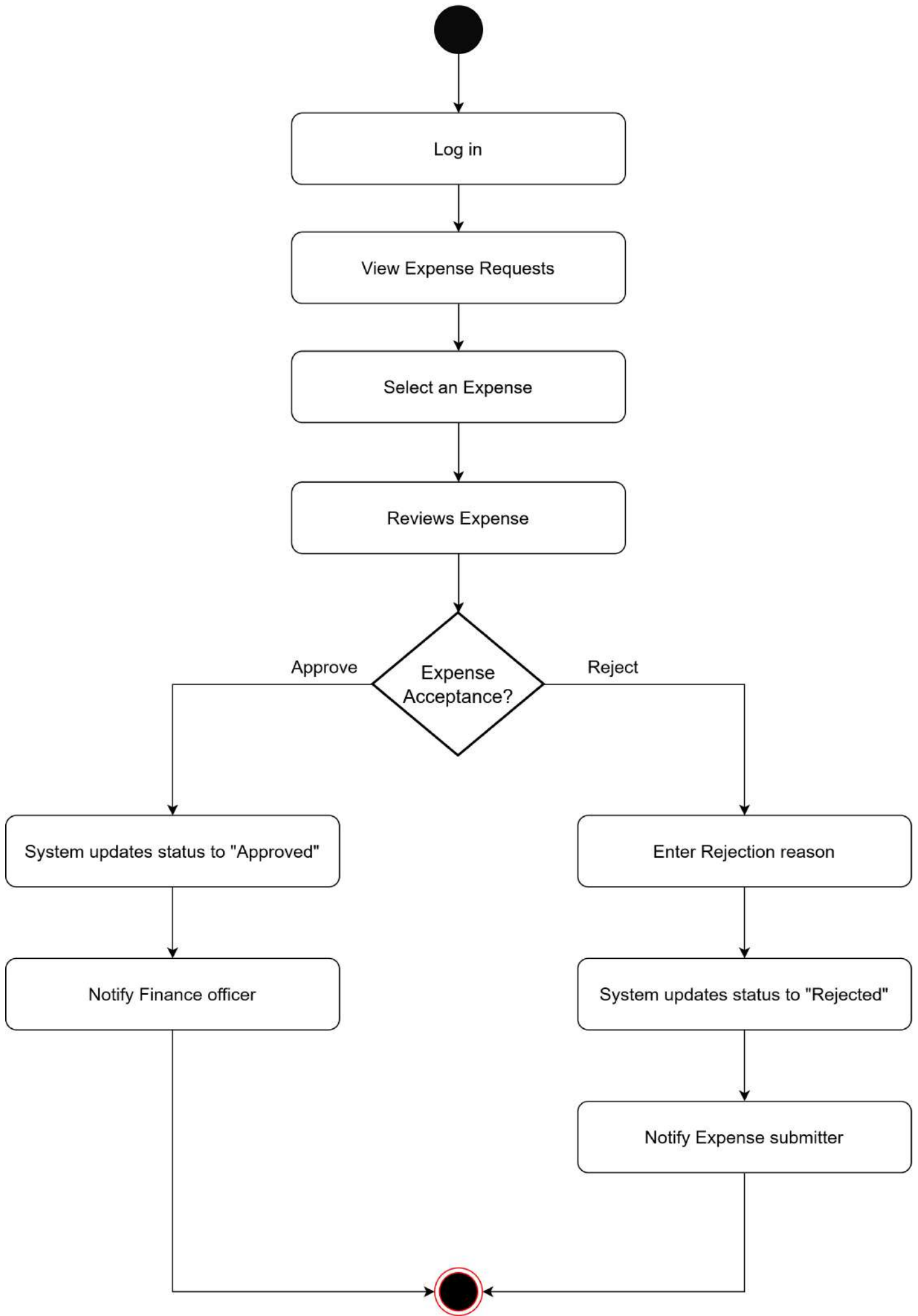
# 1. Expense Submitter - Expense Submission



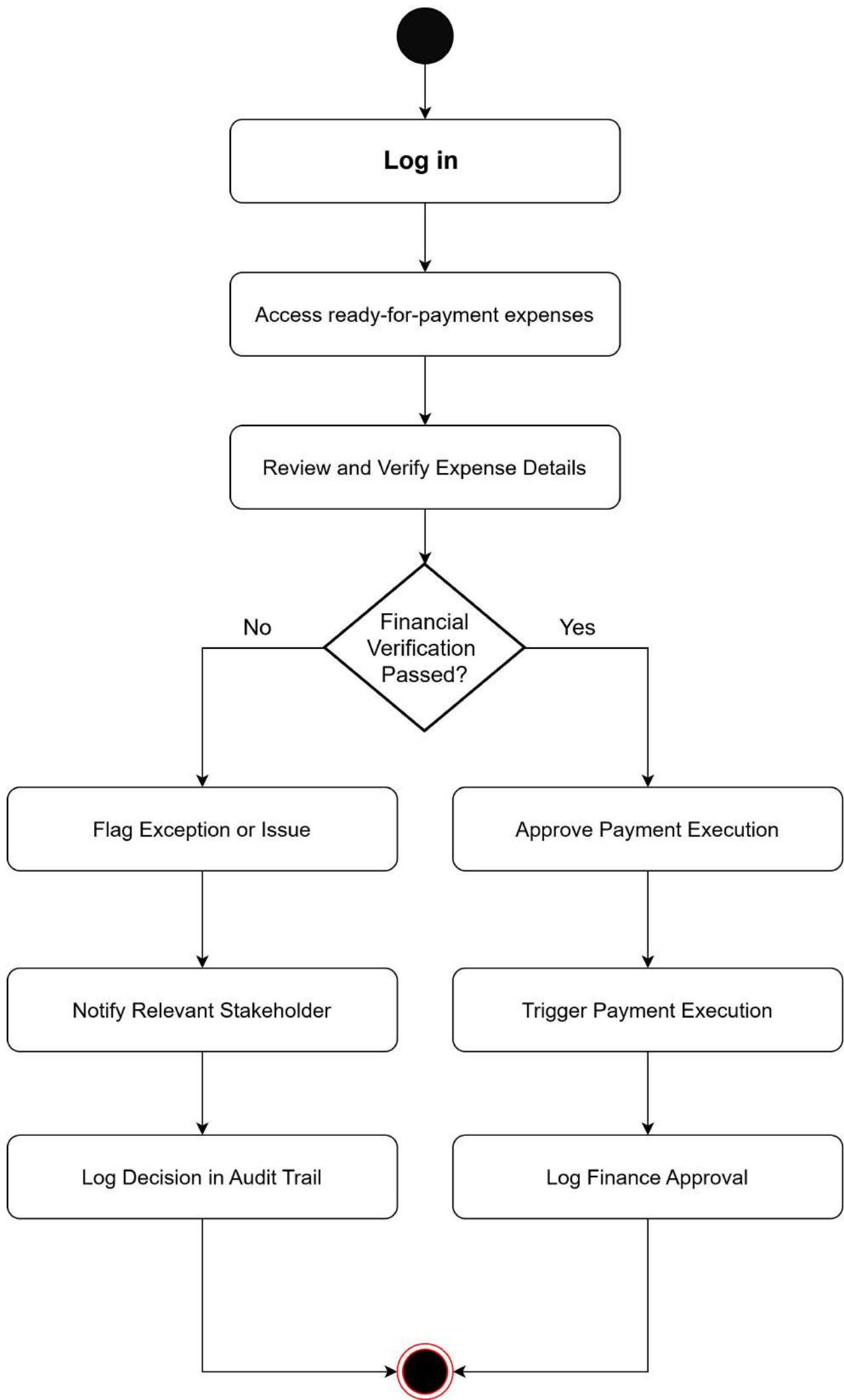
## 2. Expense Submitter - Track Expense Status



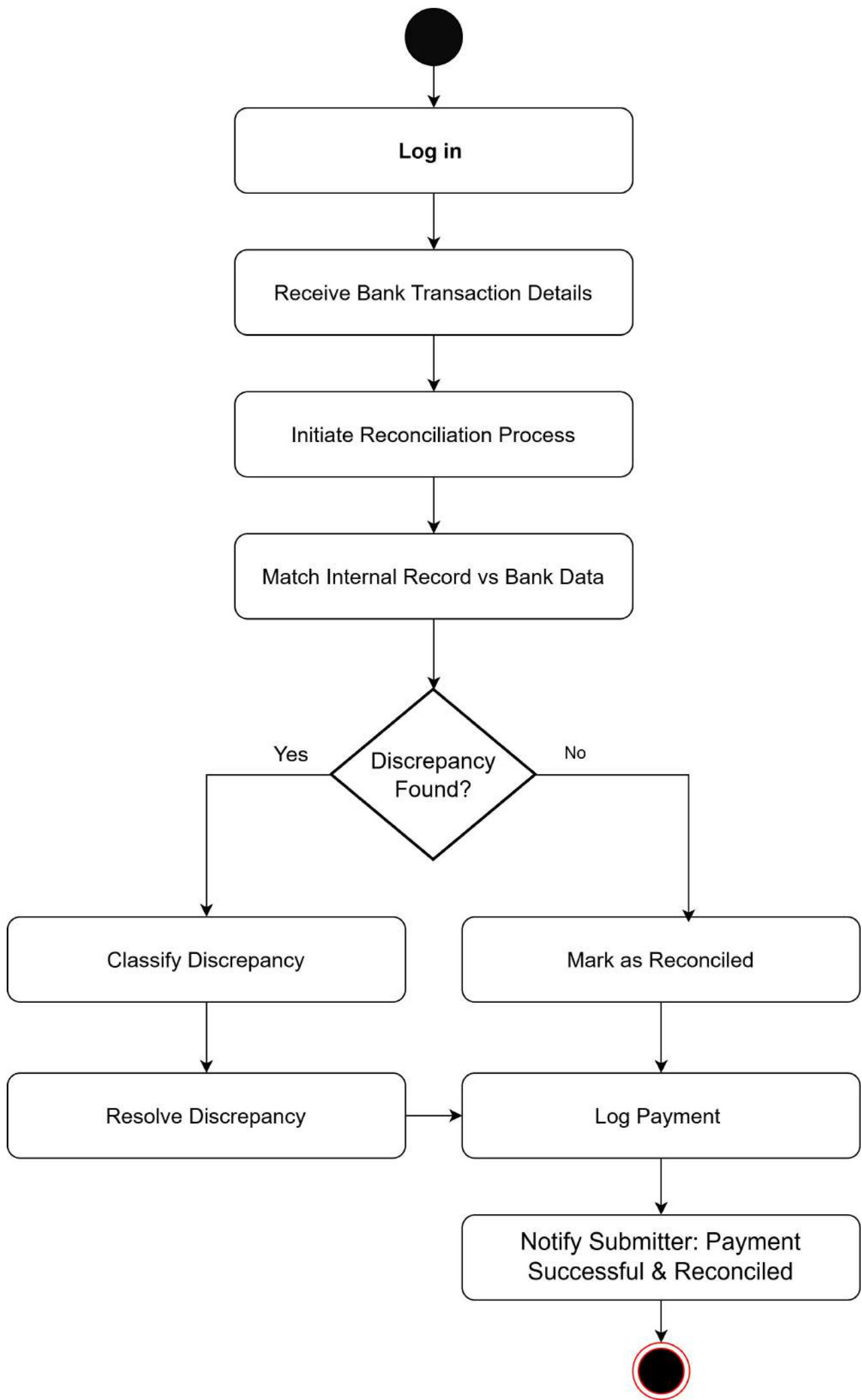
### 3. Manager Review and Approval Activity



## 4. Finance Officer : Payment processing Flow

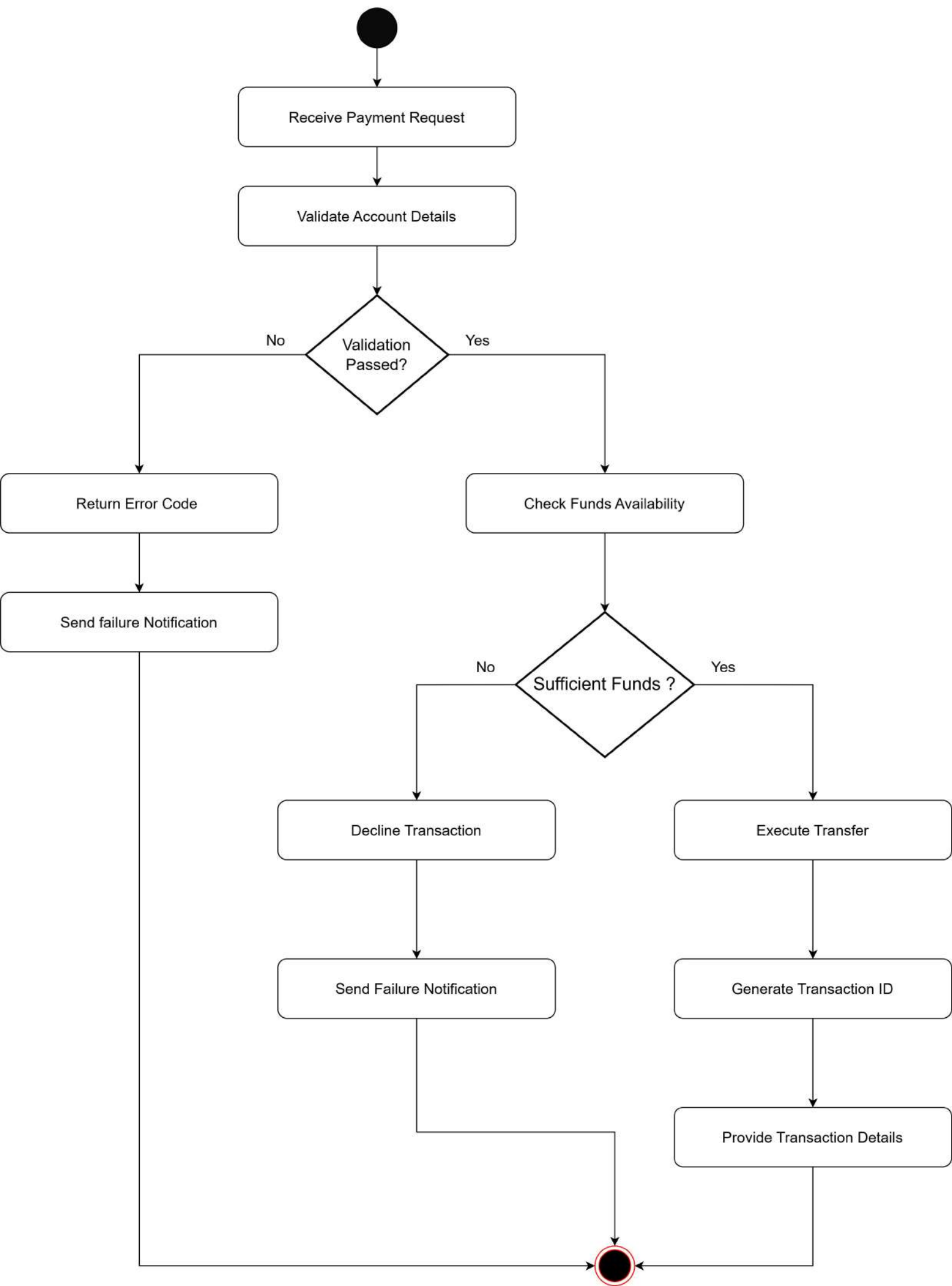


## 5. Finance Officer : Reconciliation Flow

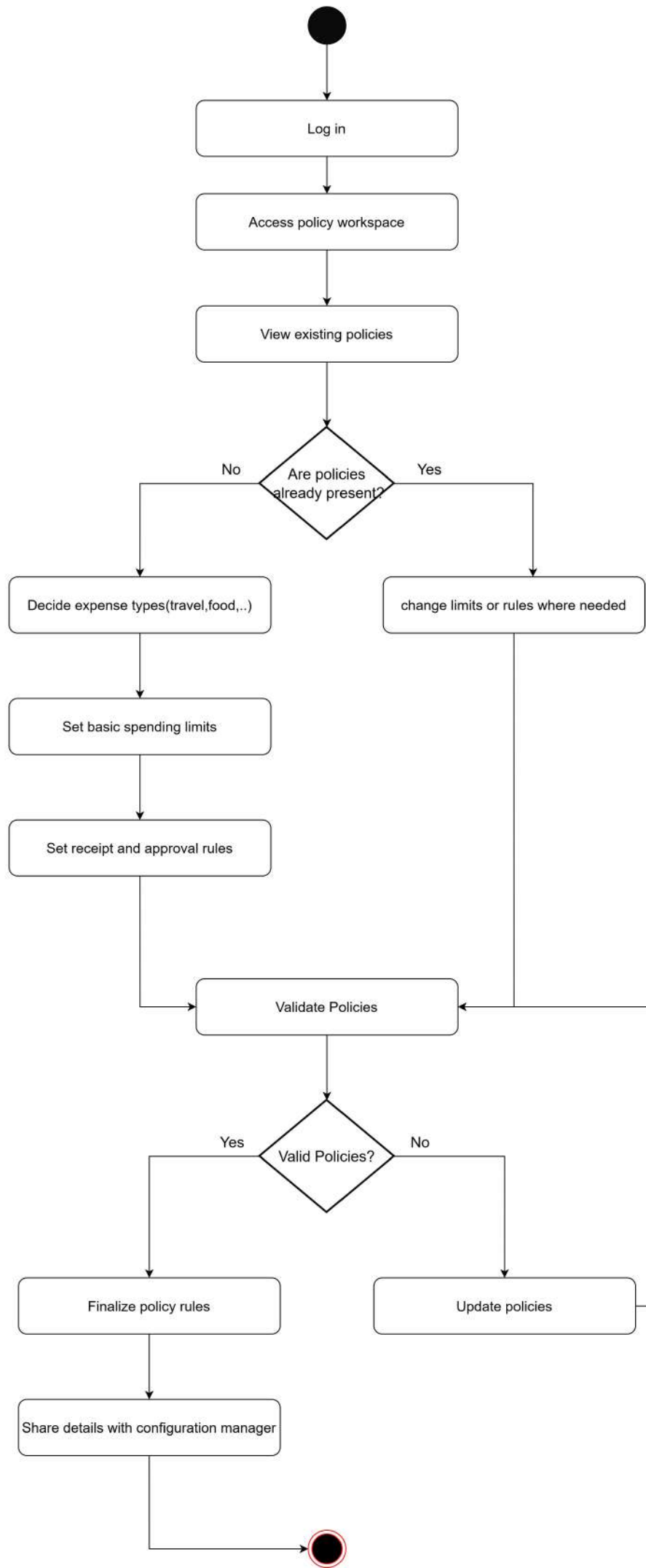




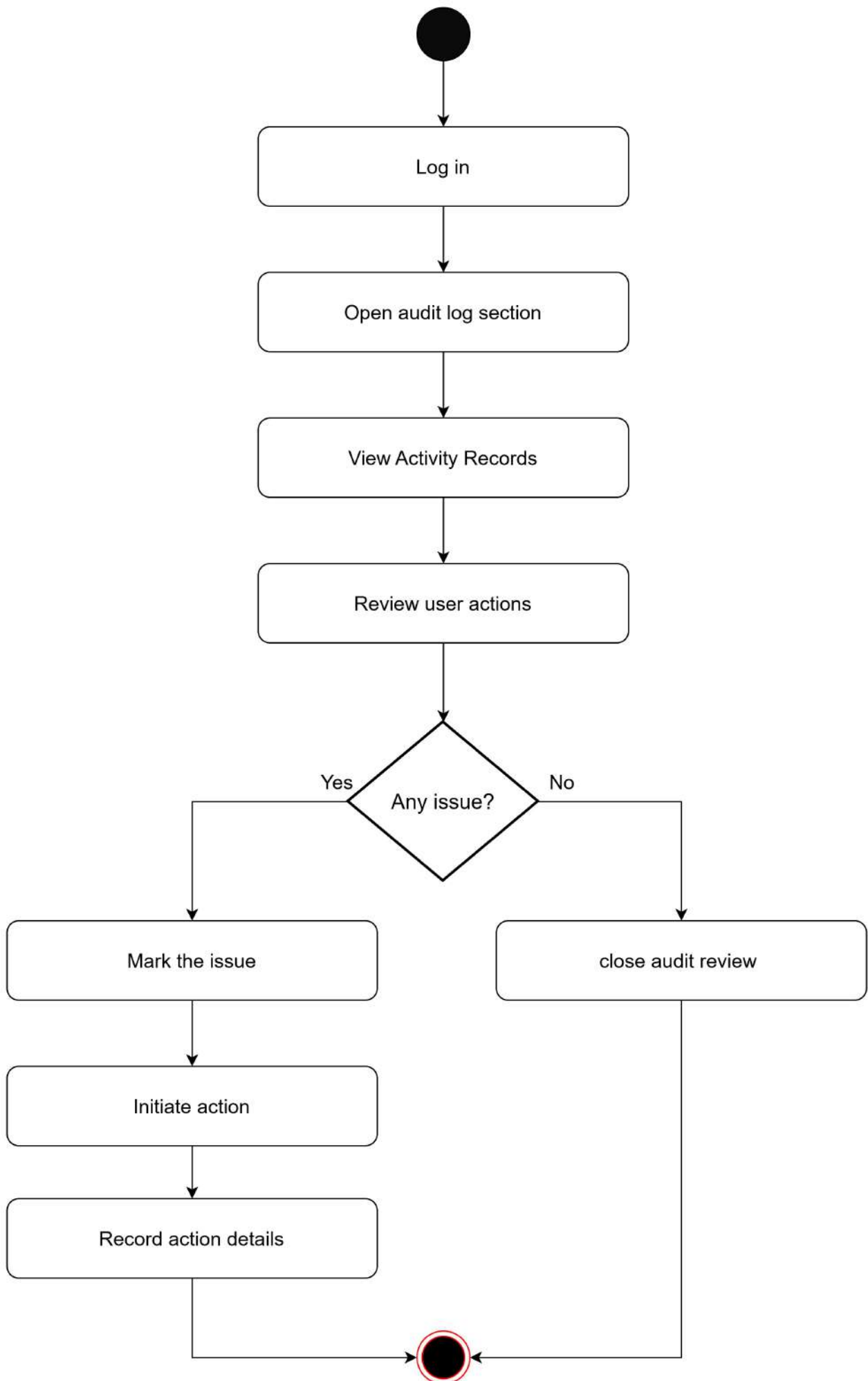
## 6.External Bank : Execute Payment and Provide Transaction Details



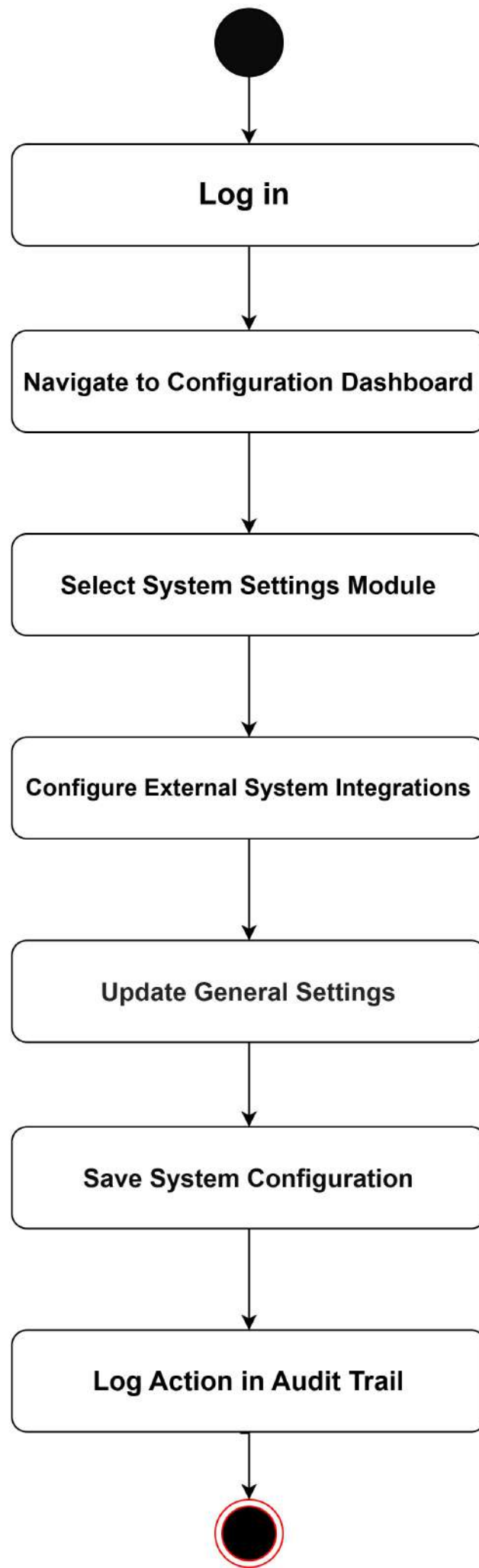
## 7. Define and Update Expense Policies - Compliance Officer



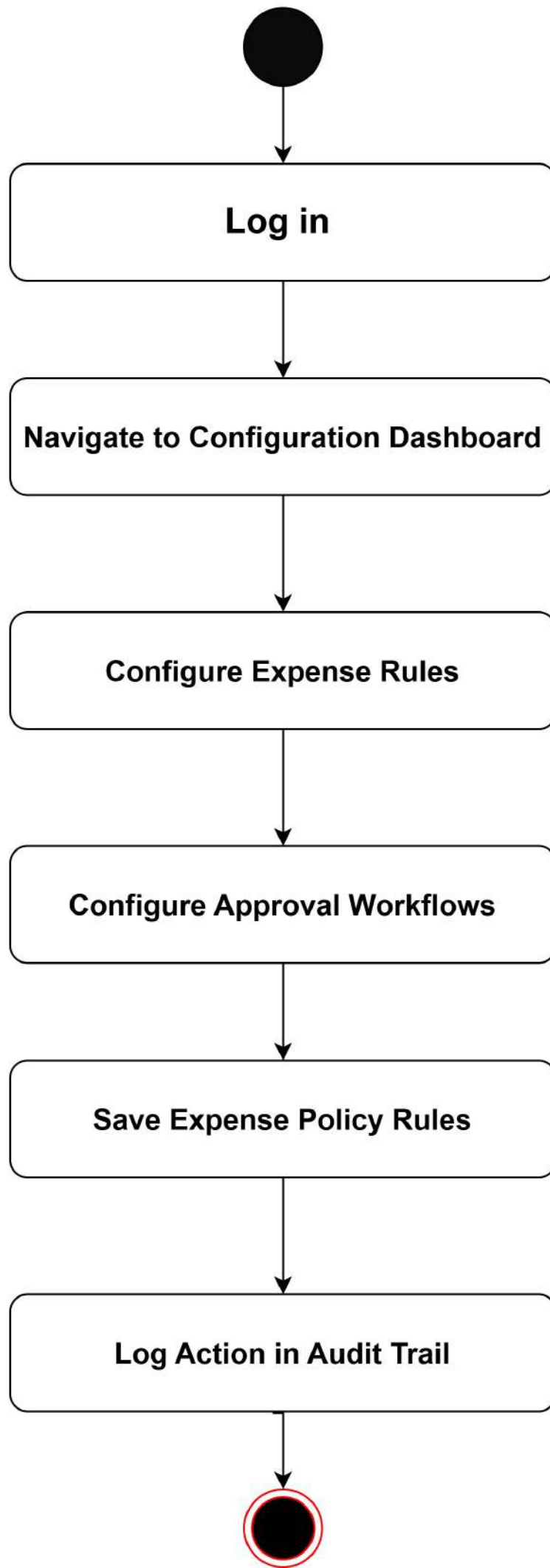
## 8.Review Audit Logs and Initiate Action - Compliance Officer



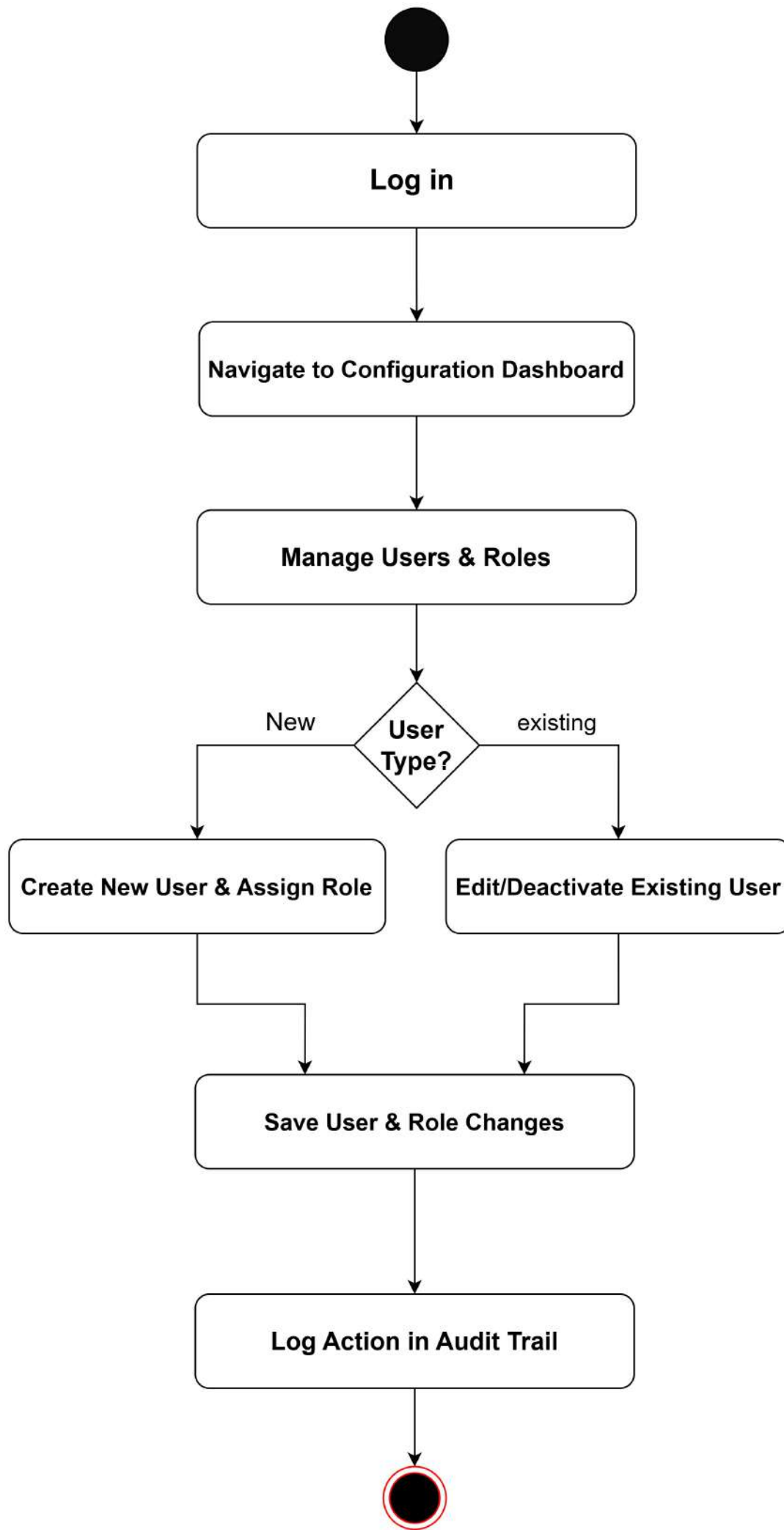
## 9. Configuration Manager: Maintain System Settings



## 10. Configuration Manager: Configure Rules

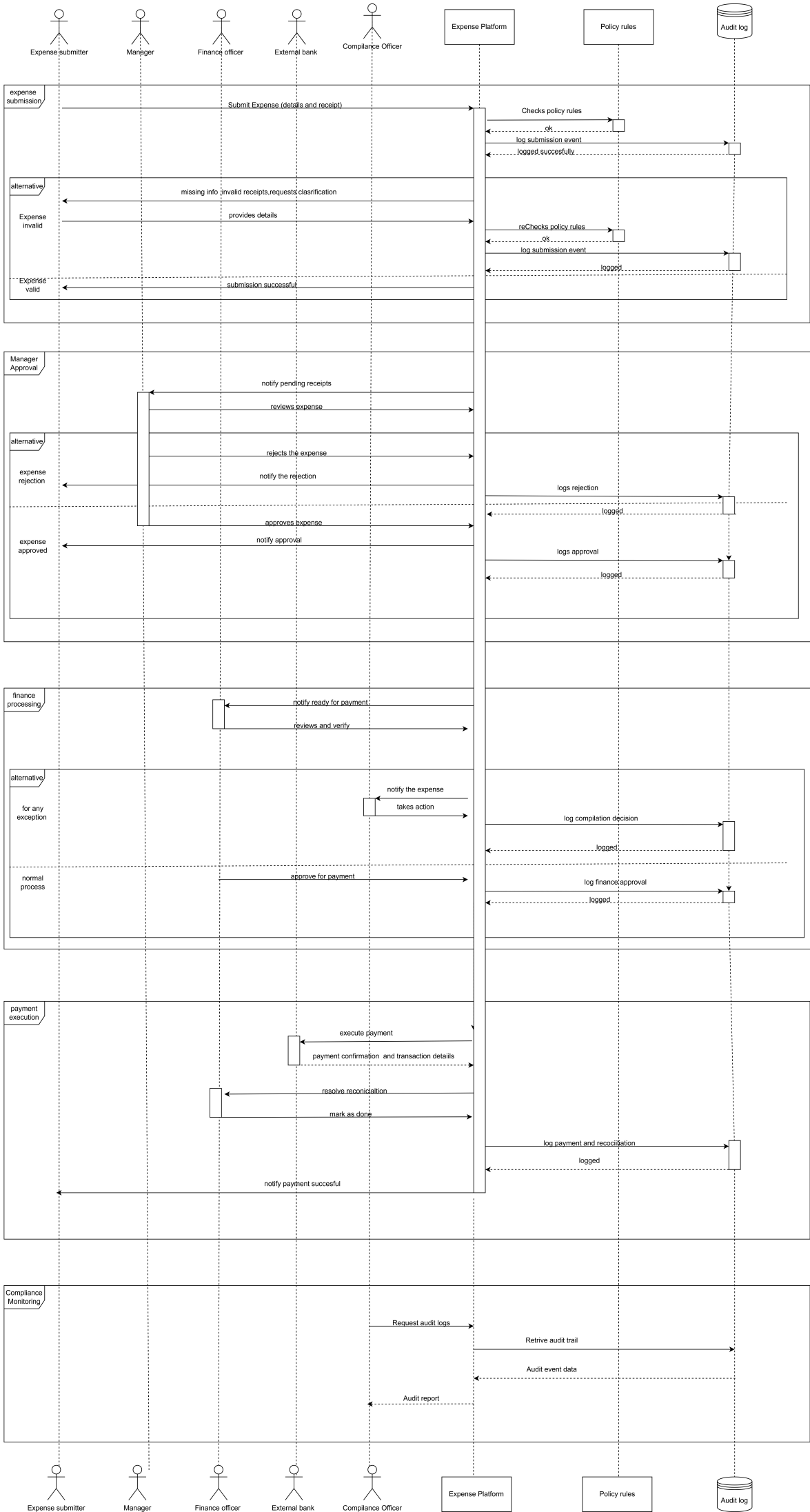


# 11.Configuration Manager: Manage Users & Roles



# **SEQUENCE DIAGRAM**

# Sequence diagram





# Conclusion

This system streamlines expense submission, approval, compliance enforcement, payment processing, and reconciliation workflows, improving efficiency, reducing errors, and increasing transparency. By providing role-based access for expense submitters, managers, finance officers, compliance officers, and configuration managers, it ensures accurate financial record keeping, policy adherence, and auditable organizational expense management