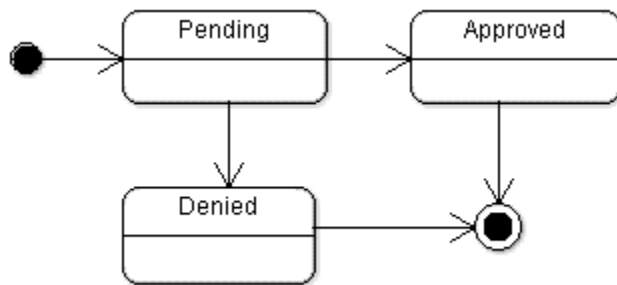# Expense Reimbursement System

Executive Summary

The Expense Reimbursement System (ERS) will manage the process of reimbursing employees for expenses incurred while on company time. All employees in the company can login and submit requests for reimbursement and view their past tickets and pending requests. Finance managers can log in and view all reimbursement requests and past history for all employees in the company. Finance managers are authorized to approve and deny requests for expense reimbursement.
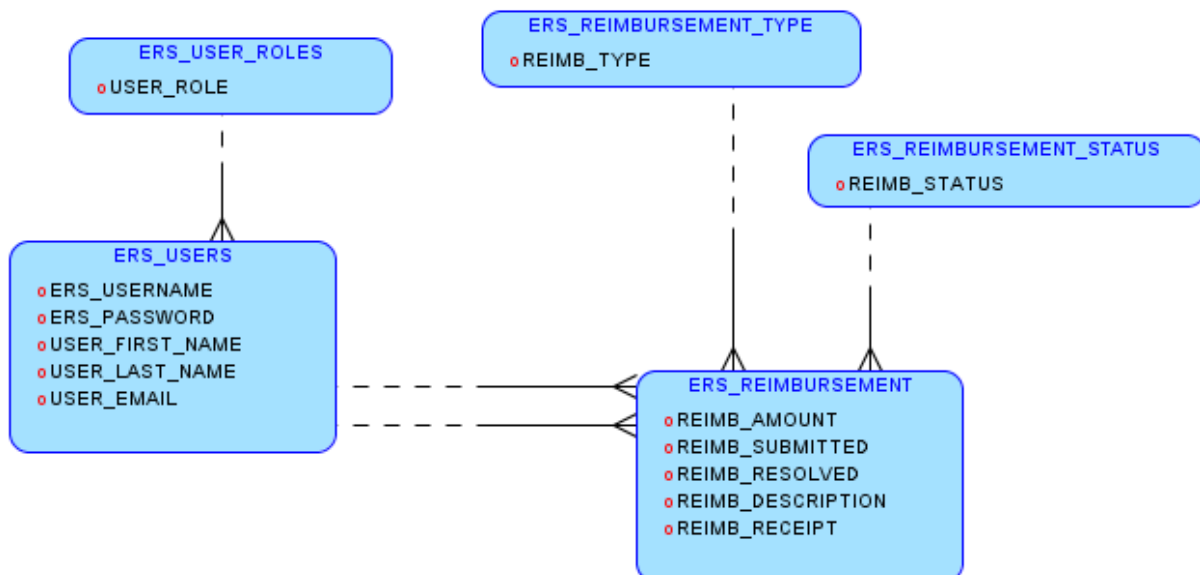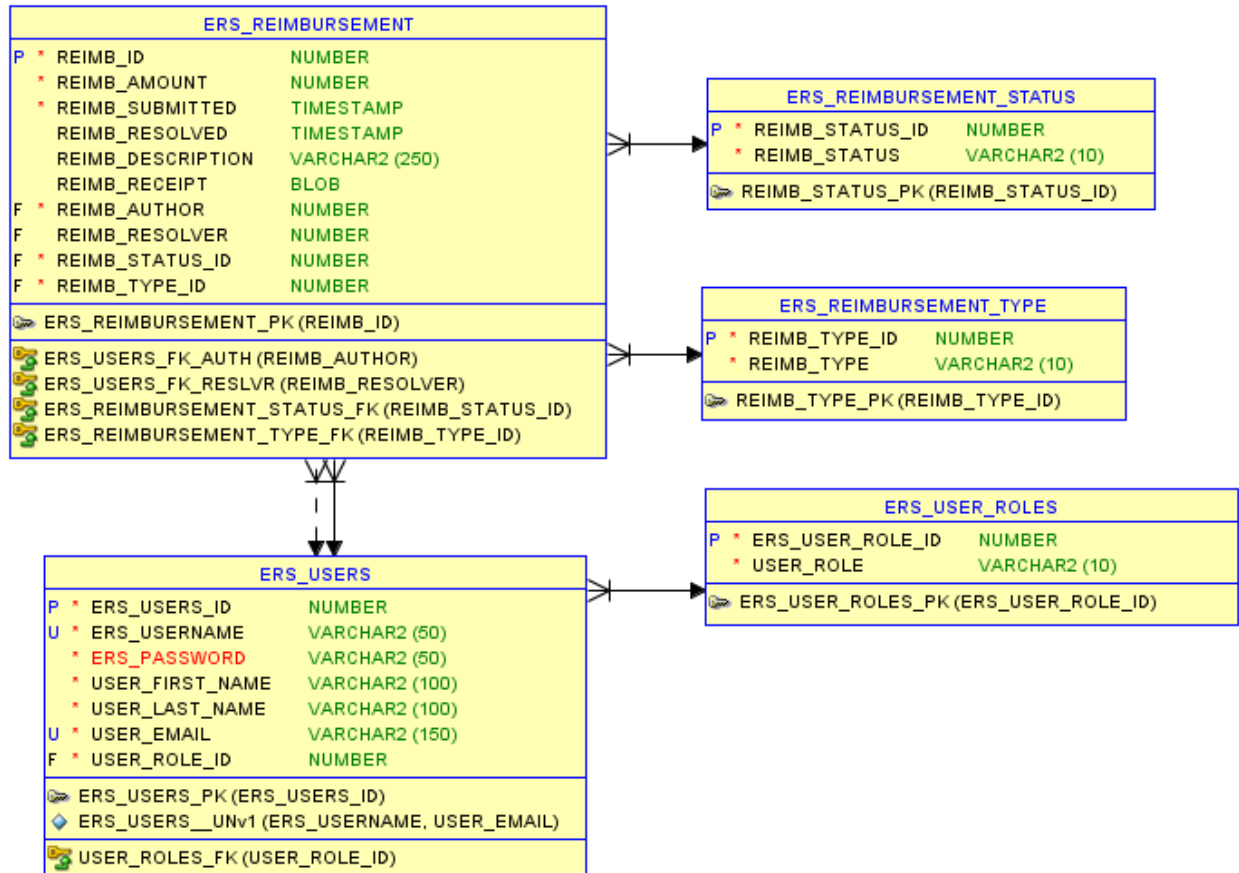
State-chart Diagram (Reimbursement Statuses)

Reimbursement Types

Employees must select the type of reimbursement as: <u>LODGING</u>, <u>TRAVEL</u>, <u>FOOD</u>, or <u>OTHER</u>.
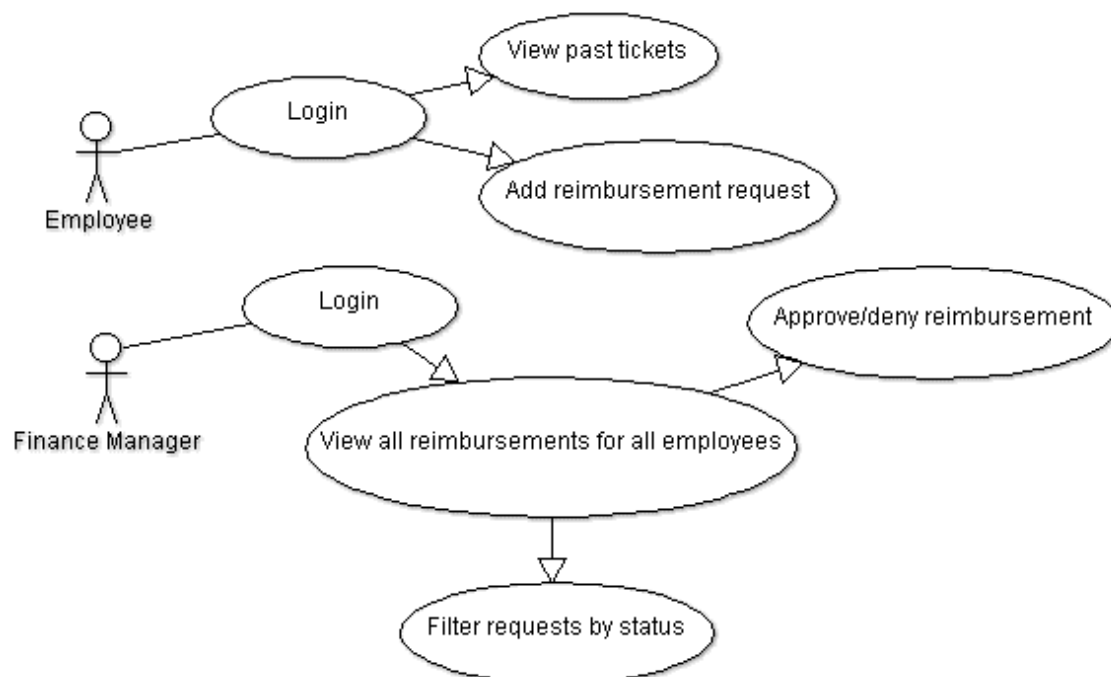
Logical Model

Physical Model

ERS_REIMBURSEMENT

P *	REIMB_ID	NUMBER
*	REIMB_AMOUNT	NUMBER
*	REIMB_SUBMITTED	TIMESTAMP
	REIMB_RESOLVED	TIMESTAMP
	REIMB_DESCRIPTION	VARCHAR2 (250)
	REIMB_RECEIPT	BLOB
F *	REIMB_AUTHOR	NUMBER
F	REIMB_RESOLVER	NUMBER
F *	REIMB_STATUS_ID	NUMBER
F *	REIMB_TYPE_ID	NUMBER

- ERS_REIMBURSEMENT_PK (REIMB_ID)
- ERS_USERS_FK_AUTH (REIMB_AUTHOR)
- ERS_USERS_FK_RESLVR (REIMB_RESOLVER)
- ERS_REIMBURSEMENT_STATUS_FK (REIMB_STATUS_ID)
- ERS_REIMBURSEMENT_TYPE_FK (REIMB_TYPE_ID)

ERS_REIMBURSEMENT_STATUS

P *	REIMB_STATUS_ID	NUMBER
*	REIMB_STATUS	VARCHAR2 (10)

- REIMB_STATUS_PK (REIMB_STATUS_ID)

ERS_REIMBURSEMENT_TYPE

P *	REIMB_TYPE_ID	NUMBER
*	REIMB_TYPE	VARCHAR2 (10)

- REIMB_TYPE_PK (REIMB_TYPE_ID)

ERS_USER_ROLES

P *	ERS_USER_ROLE_ID	NUMBER
*	USER_ROLE	VARCHAR2 (10)

- ERS_USER_ROLES_PK (ERS_USER_ROLE_ID)

ERS_USERS

P *	ERS_USERS_ID	NUMBER
U *	ERS_USERNAME	VARCHAR2 (50)
*	ERS_PASSWORD	VARCHAR2 (50)
*	USER_FIRST_NAME	VARCHAR2 (100)
*	USER_LAST_NAME	VARCHAR2 (100)
U *	USER_EMAIL	VARCHAR2 (150)
F *	USER_ROLE_ID	NUMBER

- ERS_USERS_PK (ERS_USERS_ID)
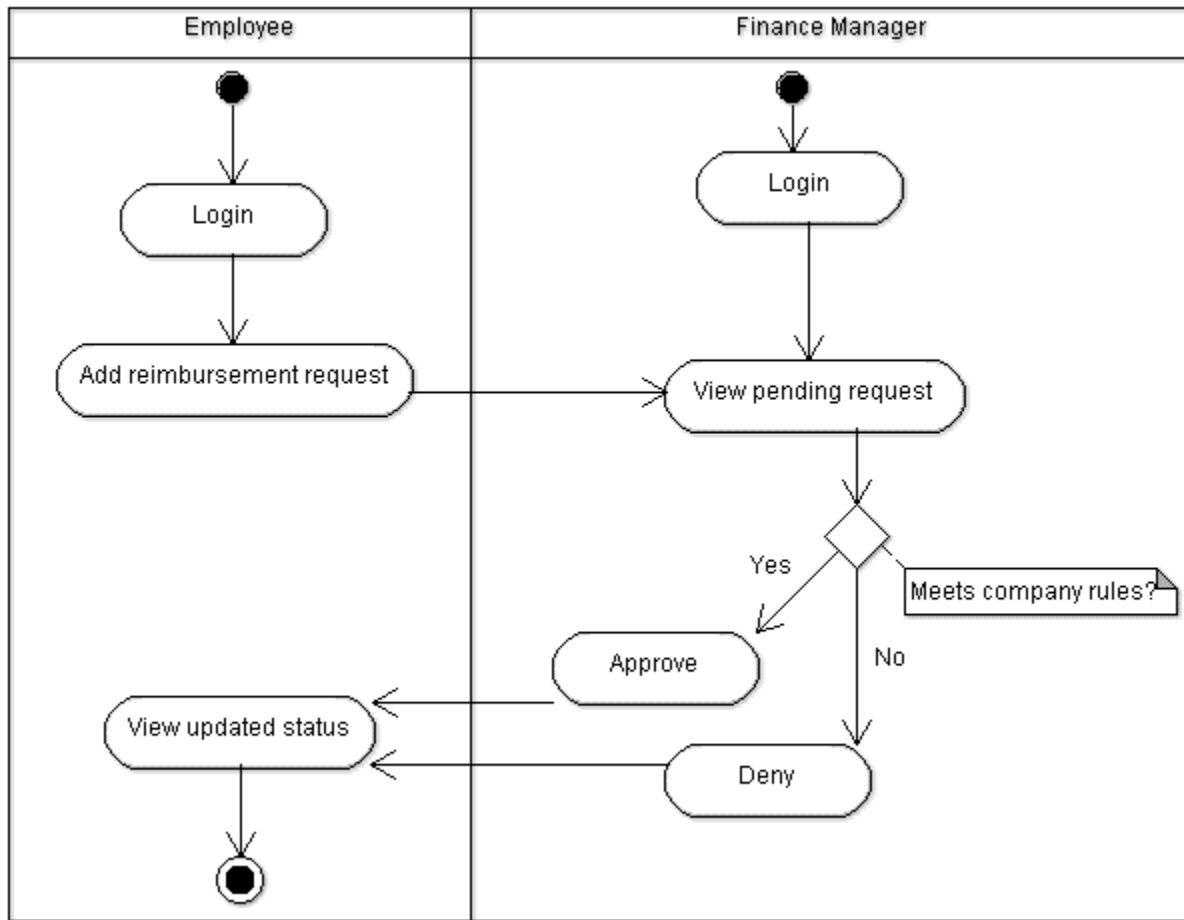- ERS_USERS__UNv1 (ERS_USERNAME, USER_EMAIL)
- USER_ROLES_FK (USER_ROLE_ID)

Use Case Diagram

Activity Diagram

Technical Requirements

The back-end system shall use JDBC to connect to a MariaDB database. The middle tier shall use Javalin technology for dynamic Web application development. The front-end view can use JavaScript or Angular to make a single page application that uses AJAX to call server-side components. Passwords shall be encrypted in Java and securely stored in the database. Users can upload a document or image of their receipt when submitting reimbursements.