

# Project Documentation



## Overview

<i>Project Name</i>	Library System and Inventory System Entity Relationship Diagram
<i>Project Manager</i>	Professor Jensen A. Santillan
<i>Project Dates</i>	Start Date: Jan 21, 2025 End Date: Jan 22, 2025
<i>Background</i>	Developing an Entity-Relationship Diagram (ERD) involves a systematic process of identifying entities, relationships, and attributes within a system for both Library and Inventory system.
<i>Objectives</i>	<ul style="list-style-type: none"><li>• Entity-Relationship Diagram (ERD)</li><li>• Component Design</li><li>• System Overview ( partial)</li></ul>
<i>Target Audience</i>	Users and Admin

## Project Specification

<i>Project Scope</i>	Outline the scope of the system including what it will and will not cover. See Entity-Relationship Diagram down below for both Library and Inventory System
<i>Project Constraints</i>	Limits of the projects or activity are not affected its processes or outcomes since it's only an activity for us to showcase our concrete understanding for Entity Relationship
<i>Deliverables</i>	<ul style="list-style-type: none"><li>• Enumerate the specific outputs of the project.</li><li>• Add specific and important Entities and Relationship for both system</li></ul>
<i>Explorations &amp; Decisions</i>	TBA

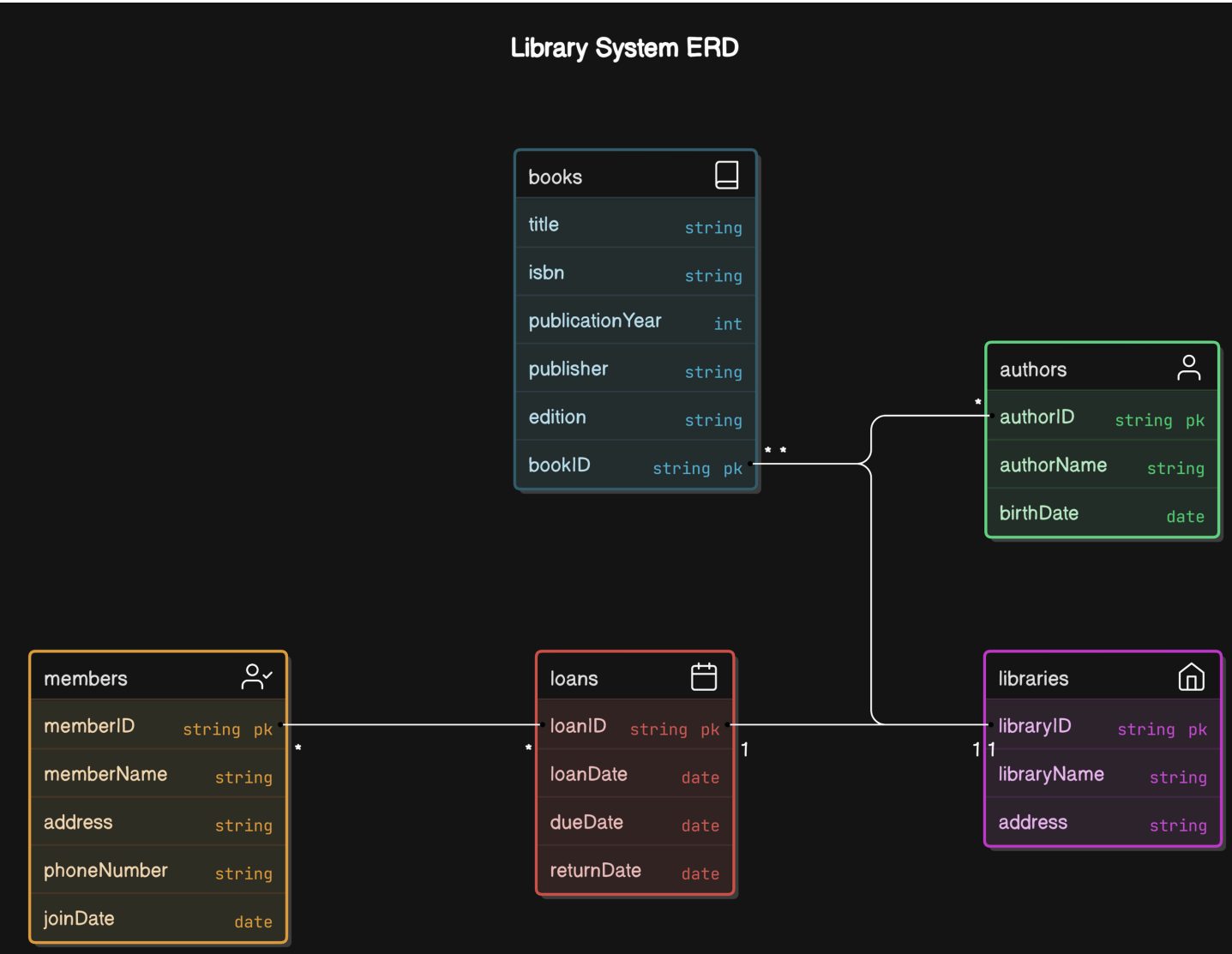
# Project Timeline

<i>Task or Deliverable</i>	<i>Owner</i>	<i>Date Completed</i>	<i>Notes</i>
Created diagram and project documentation using Canva and FlowChart Maker	Jay Arre Talosig	Jan 22, 2025	Successfully accomplished the ERD for both Library and Inventory System

# Conclusion

<i>Project Outcomes</i>	<p>The primary purpose of the Inventory System ERD is to track inventory levels and manage supplier relationships effectively, while the primary goal of the Library system is to manage book inventory.</p> <p>The quantitative results for both system are shown on the illustrated diagram.</p>
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## Library System Entity Relationship Diagram

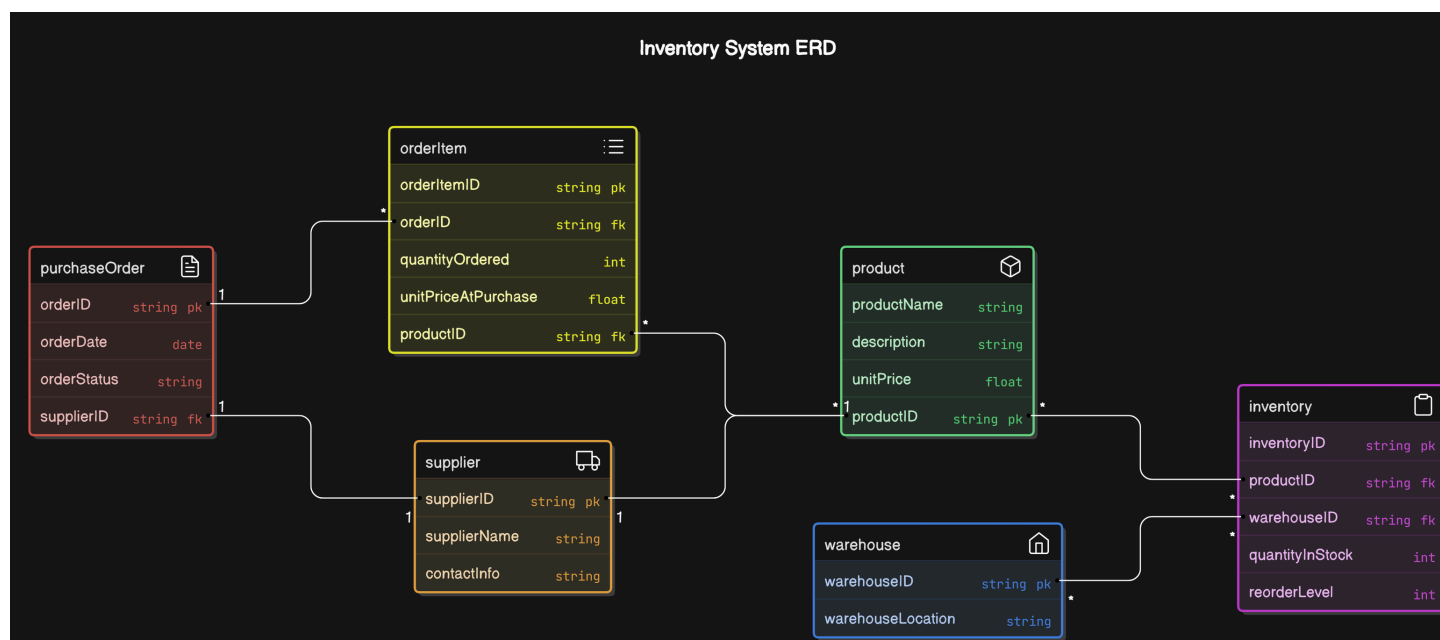


## Entity-Relationship Diagram (ERD)

- **Entities:**
  - **Book:** BookID (PK), Title, ISBN, PublicationYear, Publisher, Edition
  - **Author:** AuthorID (PK), AuthorName, BirthDate
  - **Member:** MemberID (PK), MemberName, Address, PhoneNumber, JoinDate
  - **Loan:** LoanID (PK), LoanDate, DueDate, ReturnDate
  - **Library:** LibraryID (PK), LibraryName, Address
- **Relationships:**
  - A Book is written by one or more Authors (1:N).
  - A Member can borrow many Books (N:M), implemented with a linking table.
  - A Book belongs to one Library (1:1 or 1:N if multiple copies).
  - A Loan is associated with one Library (1:1).

## Inventory System Entity Relationship Diagram

The primary purpose of the Inventory System ERD is to track inventory levels and manage supplier relationships effectively.



## Entities and Attributes

### Product

- **Attributes:**
  - ProductID (PK)
  - ProductName
  - Description
  - UnitPrice

### Supplier

- **Attributes:**
  - SupplierID (PK)
  - SupplierName
  - ContactInfo

## Warehouse

- **Attributes:**
  - WarehouseID (PK)
  - WarehouseLocation

## Inventory

- **Attributes:**
  - InventoryID (PK)
  - QuantityInStock
  - ReorderLevel

## PurchaseOrder

- **Attributes:**
  - OrderID (PK)
  - OrderDate
  - OrderStatus

## Relationships

- **Supplier and Product:**
  - A Supplier supplies many Products (1:N).
- **Product and Warehouse:**
  - A Product can be stored in multiple Warehouses (N:M), implemented with a linking table:
    - **Inventory:** Connects Product and Warehouse with QuantityInStock, ReorderLevel.
- **PurchaseOrder and Supplier:**
  - A PurchaseOrder is placed with one Supplier (1:1).
- **PurchaseOrder and Product:**
  - A PurchaseOrder contains many Products (1:N), implemented with a linking table:
    - **OrderItem:** Connects PurchaseOrder and Product with QuantityOrdered, UnitPriceAtPurchase.

## Key Notations

- **Entity:** Represented by a rectangle.
- **Attribute:** Listed inside the entity rectangle. (PK) denotes Primary Key.
- **Relationship:** Represented by a diamond or a line connecting entities.
- **Cardinality (Multiplicity):**
  - One-to-One (1:1)
  - One-to-Many (1:N)

- Many-to-Many (N:M)

<i>Recommendations</i>	PDF Lecture 04 of CTINFMGL, Youtube University, Freecodecamp, geeksforgeeks.org, vertabelo.com, databasestar.com
<i>Resources</i>	<ul style="list-style-type: none"><li>● Canva.com <a href="#">Link</a></li><li>● Draw.io / App.Diagram.net</li><li>● <a href="#">Github.com/flexycode</a>/CTINFMGL</li></ul>