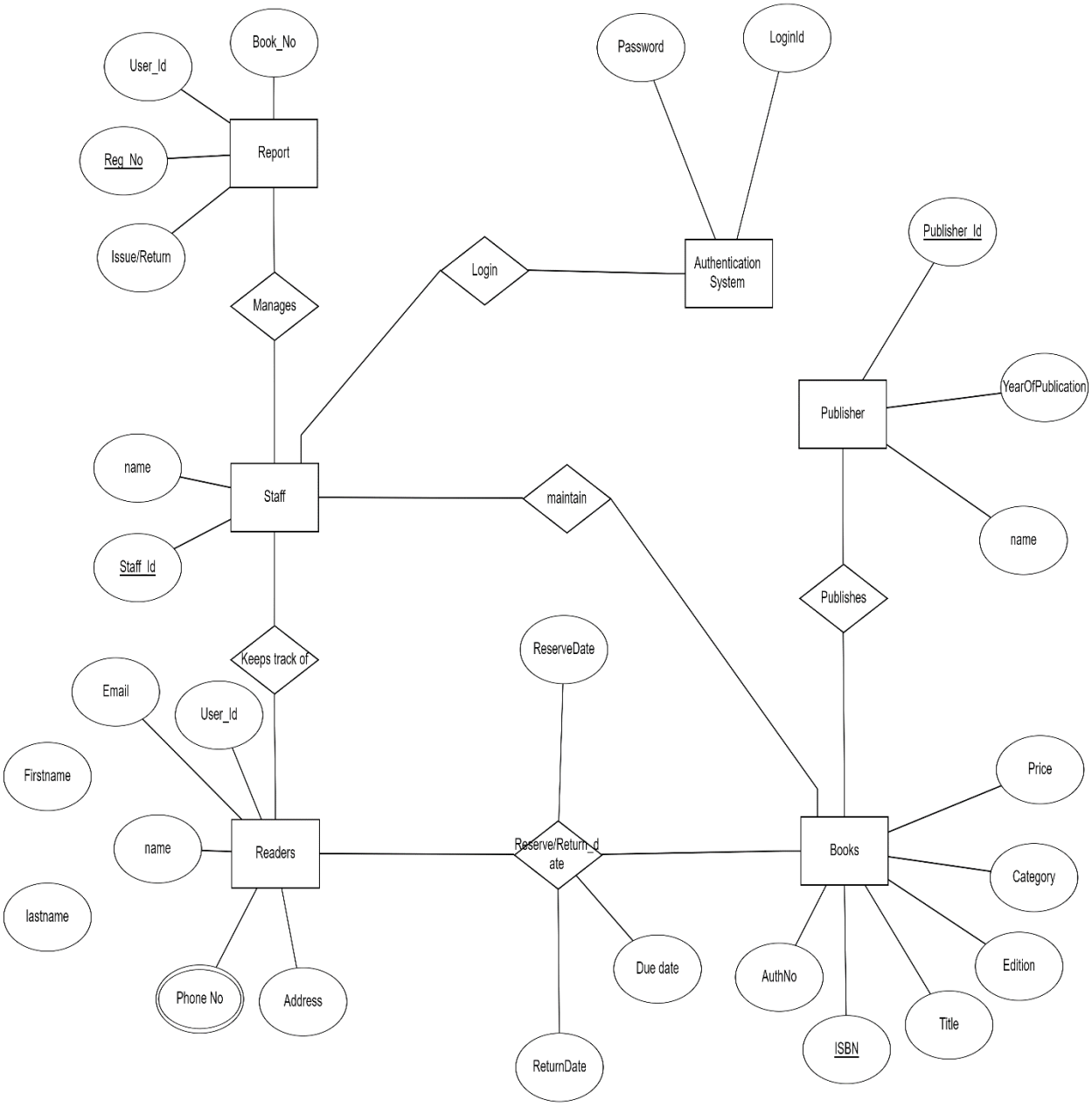
Propose a Conceptual Design using ER features using tools like ERD plus, ER Win etc. Convert the ER diagram into tables on paper and propose a normalize Relational data model.

LIBRARY MANAGEMENT SYSTEM



This Library ER diagram illustrates key information about the Library,including entities such as staff, readers, books, publishers, reports, and authentication system. It allows for understanding the relationships between entities.

Entities and their Attributes –

- **Book Entity:**

It has authno, isbn number, title, edition, category, price.

ISBN is the **Primary Key** for Book Entity.

- **Reader Entity:**

  It has UserId, Email, address, phone no, name.

  Name is **composite** attribute of firstname and lastname.

  Phone no is **multi valued** attribute.

  UserId is the **Primary Key** for Readers entity.

- **Publisher Entity :**

  It has PublisherId, Year of publication, name.

  PublisherID is the **Primary Key**.

- **Authentication System Entity :**

  It has **LoginId** and password with **LoginID** as **Primary Key**.

- **Reports Entity :**

  It has UserId, Reg_no, Book_no, Issue/Return date.

  Reg_no is the **Primary Key** of reports entity.

- **Staff Entity :**

  It has name and staff_id with **staff_id** as **Primary Key.**

- **Reserve/Return Relationship Set :**

  It has three attributes: Reserve date, Due date, Return date.

Relationships between Entities :

- A reader can reserve N books but one book can be reserved by only one reader. The relationship 1:N.

- A publisher can publish many books but a book is published by only one publisher. The relationship 1:N.
- Staff keeps track of readers. The relationship is M:N.
- Staff maintains multiple reports. The relationship 1:N.
- Staff maintains multiple Books. The relationship 1:N.
- Authentication system provides login to multiple staffs. The relation is 1:N.

Notes

- **Primary Keys (PK) uniquely identify each record in a table.**
- **Foreign Keys (FK) are used to establish relationships between tables.**
- **Many-to-Many relationships are handled using junction tables (e.g., Enrollment).**