Lab 2 - ER Diagram

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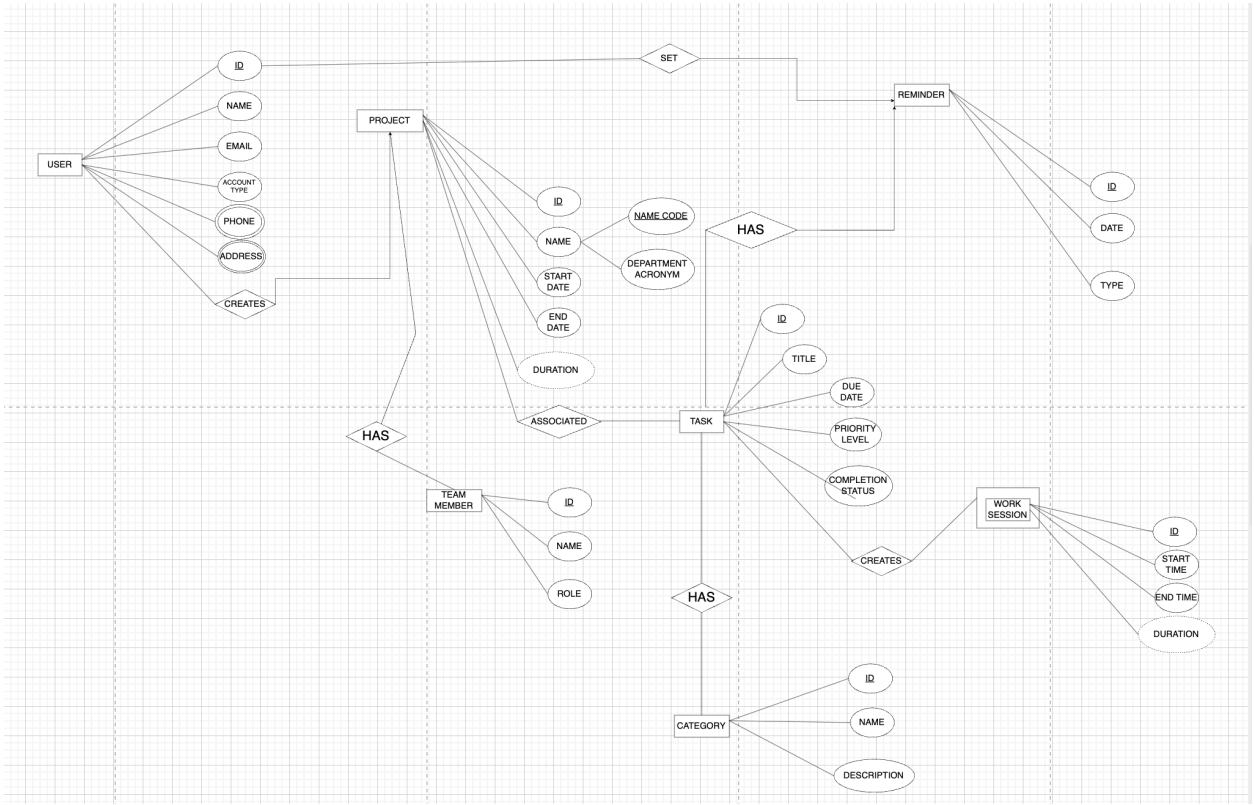
Task 1:



Task 2: Reverse Engineering an E-commerce ER Diagram

1. What each entity represents

Staff: The employees who run the system.
Reports: Records reports that staff manage.
Readers: The end users who reserve books.
Books: Items in inventory or catalog.
Publisher: The company that publishes the book.
Authentication System: Subsystem that handles staff login.

2. What each attribute represents

Staff
- Name: name of the staff entity.
- Staff id: PRIMARY KEY, unique id that represents each staff entity.

Readers
- User ID: PRIMARY KEY, unique id that represents reader entity.
- Email: email address of reader entity.
- Name: Composite attribute that combines Firstname and lastName.
- Firstname: The first name of the reader. Combines with lastName to create Name attribute.
- lastName: The last name of the reader. Combines with firstName to create Name attribute.
- Address: The primary residence of a reader entity.
- Phone no: Multivalued attribute that represents the contact numbers of the reader entity.

Reports
- Reg_no: report number for an issue record.
- User_id: Foreign key, the reader involved in the report.
- Book_no: Foreign key, the book involved in the report.
- Issue/Return:

Publisher
- Publisher_id: PRIMARY KEY, unique id for publisher.
- Name: name of the publisher entity.
- YearOfPublication: the year the book was published.

Authentication System
- LoginId: PRIMARY KEY, the credential and unique identifier for staff login.
- Password: credential secret for staff login.

Books
- ISBN: PRIMARY KEY, unique identifier for book entity.
- Title: The book title.
- AuthNo: The author identifier.
- Edition: Edition of the book.
- Category: The genre that the book belongs to.
- Price: The book’s listed price.

Reserve / return date (Relational attribute)
- ReserveDate: PRIMARY KEY, unique identifier for reserve / reserve date transaction.
- Return Date: The date book is returned.

- Due Date: Date by which book must be returned.

3. What the relationships are

Manages
- Between Staff and Reports.
- Staff manage and create reports.

Keeps track of
- Between Staff and Readers.
- Staff maintains reader records.

Publishes
- Between Books and Publishers.
- Books are published by publishers.

Login
- Between Staff and Authentication system.
- The credentials the staff uses to authenticate to the system.

Maintain
- Between Staff and Books.
- Staff maintains book inventory.

Reserve / return date
- Between Readers, Books and ReserveDate
- The reservation between a book and reader have a return

Detailed explanation of the entire system.

The ER Diagram describes a library, e-commerce style catalog system that is run by Staff for the Readers.

User Management:
The reader entity has the contact details, and the Staff keep track of the reader entities.

Staff Login
Staff is able to access the system by Login to the Authentication System
They use the correct LoginId, and Password to access the system.

Inventory
Books are stored in the Books Entity.

Each book is associated with a Publisher, by the relationship Publishes.

Maintenance of Books and Reports
Staff maintain the books catalog as well as managing reports.

Reports
A report entry is created for every issue and return of a book (Transaction)
The time a book is reserved is recorded in the ReserveDate.

Conclusion:
Staff have access to the system by authenticating their credentials. Staff maintain the catalog of books, readers as well as the issuing and returning of books. Readers reserve and return books. Each of these transactions generates a report record by the Staff. A reservation is also stored in the ReserveDate relational attributes.