ENSF 608 – Databases LAB Session (SEP. 26th)
Dr. Ronnie de Souza Santos, PhD.

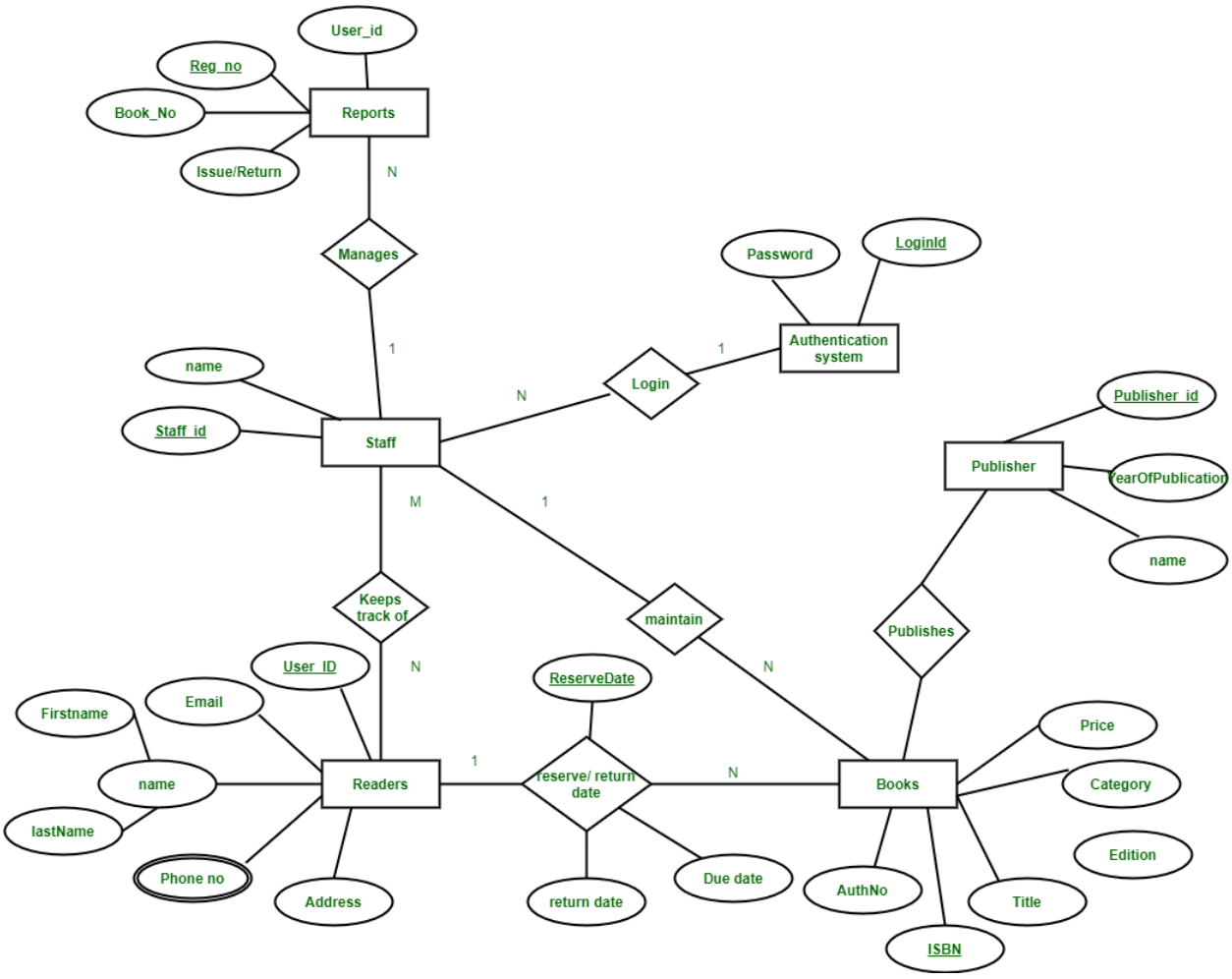
MANDATORY PRACTICE

Practice 1: Creating an ER-Diagram for TaskMaster - A Daily Task Management App

System Description: You are tasked with creating an ER diagram for **TaskMaster**, a daily task management app that helps users manage their activities, track progress, and set reminders. Use the following description to model the ER diagram, incorporating entities, attributes, relationships, and specialization concepts. You can use https://app.diagrams.net/ or any other software for ER-diagram creation.

- **User**. Each user has a User ID, Name, Email, Account Type, Phone, and Address. A user can have multiple phones and addresses. A user is connected to projects.
- **Project**
  A project has a Project ID, Project Name, Start Date, and End Date. Project names are composed of the department acronym and the name code. A project is created by a user and is associated with tasks. The database should allow users to determine the project duration.
- **Task**
  A task has a Task ID, Task Title, Due Date, Priority Level, and Completion Status. A task is related to a project. Each task is independent and not a specialization of projects.
- **Work Session**
  Users can track their time by logging Work Sessions for tasks. A Work Session has a Session ID, Start Time, End Time, and Session Duration. A task creates a work session, and these sessions depend on that task for their existence.
- **Reminder**
  A reminder has a Reminder ID, Reminder Date, and Reminder Type. A reminder is linked to a task and set by a user.
- **Category**
  A category has a Category ID, Category Name, and Description. A category is related to tasks, serving as a way to organize them.
- **Team Member**
  A team member has a Member ID, Name, and Role. Team members are associated with team projects.

Practice 2: Reverse Engineering an E-commerce ER Diagram



Instructions:
Based on this diagram, perform reverse engineering by listing:

- What each entity represents
- What each attribute represents
- What the relationships are. Note: for now, ignore the Ns and 1s introduced in the relationships in the diagram.

Once you understand the diagram, provide a detailed explanation of the entire system.

OPTIONAL PRACTICE FOR SUPPORT

Practice 3: Explore Quora to Create an ER Diagram

System Description: Go to https://www.quora.com/ and explore the website. Your task is to extract key information from the website, such as users, posts, topics, comments, votes, etc., and convert it into an ER diagram. You'll need to model different aspects of the website, including relationships between users and content, and entities like answers, questions, and user activity.

Guidelines for Exploration:

- Identify core entities.
- Determine relationships between these entities, such as Users posting Questions or Users voting on Answers.
- Define appropriate attributes for each entity, such as User Profile Information, Question Content, Answer Text, and Comment Text.
- Include at least one example of generalization and specialization based on your observations.
- Use a variety of relationships with appropriate cardinalities (e.g., a user can ask many questions, but each question is linked to only one user).

Instructions:
After exploring Quora, create an ER diagram representing the system. Ensure that you capture all necessary entities, relationships, and attributes based on your observations.

Practice 4: Creating an ER-Diagram for StreamSphere – An Online Video Streaming Platform

System Description: Imagine you are designing **StreamSphere**, a platform similar to Netflix. Your task is to analyze the system and extract key entities, attributes, and relationships. You will then convert this information into an ER Diagram**.** The system supports multiple users, subscription plans, personalized profiles, devices, and a catalog of movies and series. It also allows playback tracking, playlists, genres, and ratings.

1. User
Each user has a User ID, Name, and Email. A user subscribes to a plan and can create multiple profiles. A user can also use different devices to access the system.

2. Plan
A plan has a Plan ID, Plan Name, and Price. Plans represent the subscription level a user chooses.

3. Profile
A profile has a Profile ID, Profile Name, and Maturity Level. Profiles are owned by a user and are used to personalize content recommendations and viewing.

4. Device
A device has a Device ID, Device Type, and Operating System. Profiles play content on devices.

5. Content
Content has a Content ID, Title, and Release Year. Content can be either a Movie or a Series.

6. Movie
Movies are a specialization of content.

7. Series
Series are a specialization of content and are divided into seasons.

8. Season
A season has a Season ID and Season Number. Seasons belong to a series and contain episodes.

9. Episode
An episode has an Episode ID, Episode Number, and Duration. Episodes belong to seasons.

10. Playback Session
A playback session has a Session ID, Start Time, End Time, and Position. A playback

session is linked to a profile and a piece of content, and it depends on content for its existence.

11. Playlist
A playlist has a Playlist ID and Playlist Name. A playlist is created by a profile and includes content.

12. Genre
A genre has a Genre ID and Genre Name. Genres categorize content.

13. Rating
A rating has a Rating ID, Score, and Review Text. A rating is created by a profile and associated with content.