Adding Attributes

by Sophia

WHAT'S COVERED

In this lesson, you will explore the creation of attributes to add to entities in an entity-relationship diagram (ERD). You will explore attribute creation, in two parts. Specifically, this lesson will cover:

1. Attributes
2. Defining Attributes

1. Attributes

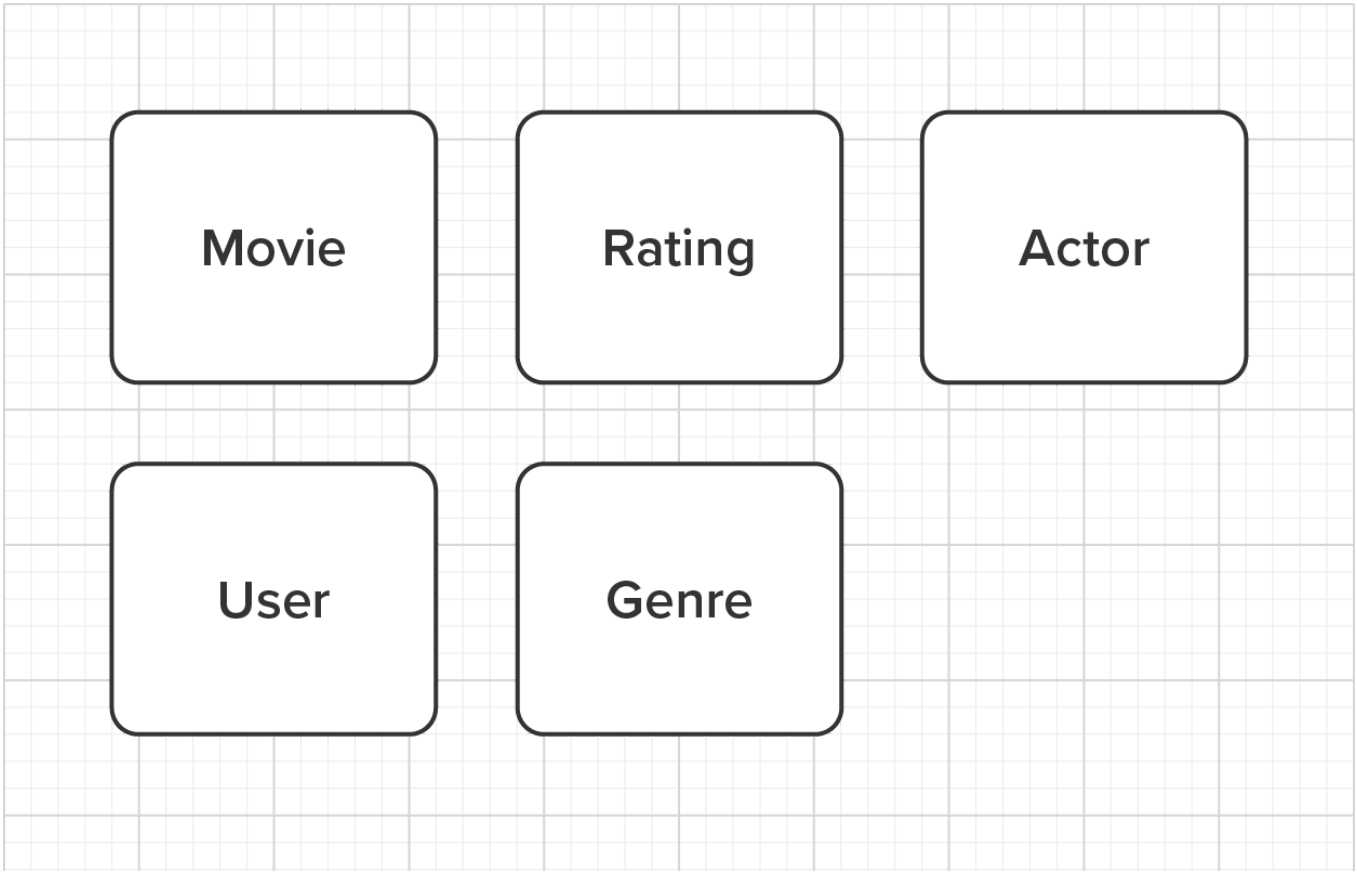
After you have defined the entities (tables) your ERD should have, the next step is to assign attributes to each table. As you learned earlier, attributes are the columns that will contain the individual pieces of information about each record. For example, an Employee entity might have attributes such as Employee ID, Name, Date of Birth, and Salary. Specifying attributes will enhance the ERD's detail and accuracy by making sure that you include all the data that each table should store.

In Chen notation, the primary key attribute's name is underlined within its oval. You can also further define an attribute's behavior and usage by giving it a default value or limiting entries to a certain data type or format. You will learn how to do that later in this course.

2. Defining Attributes

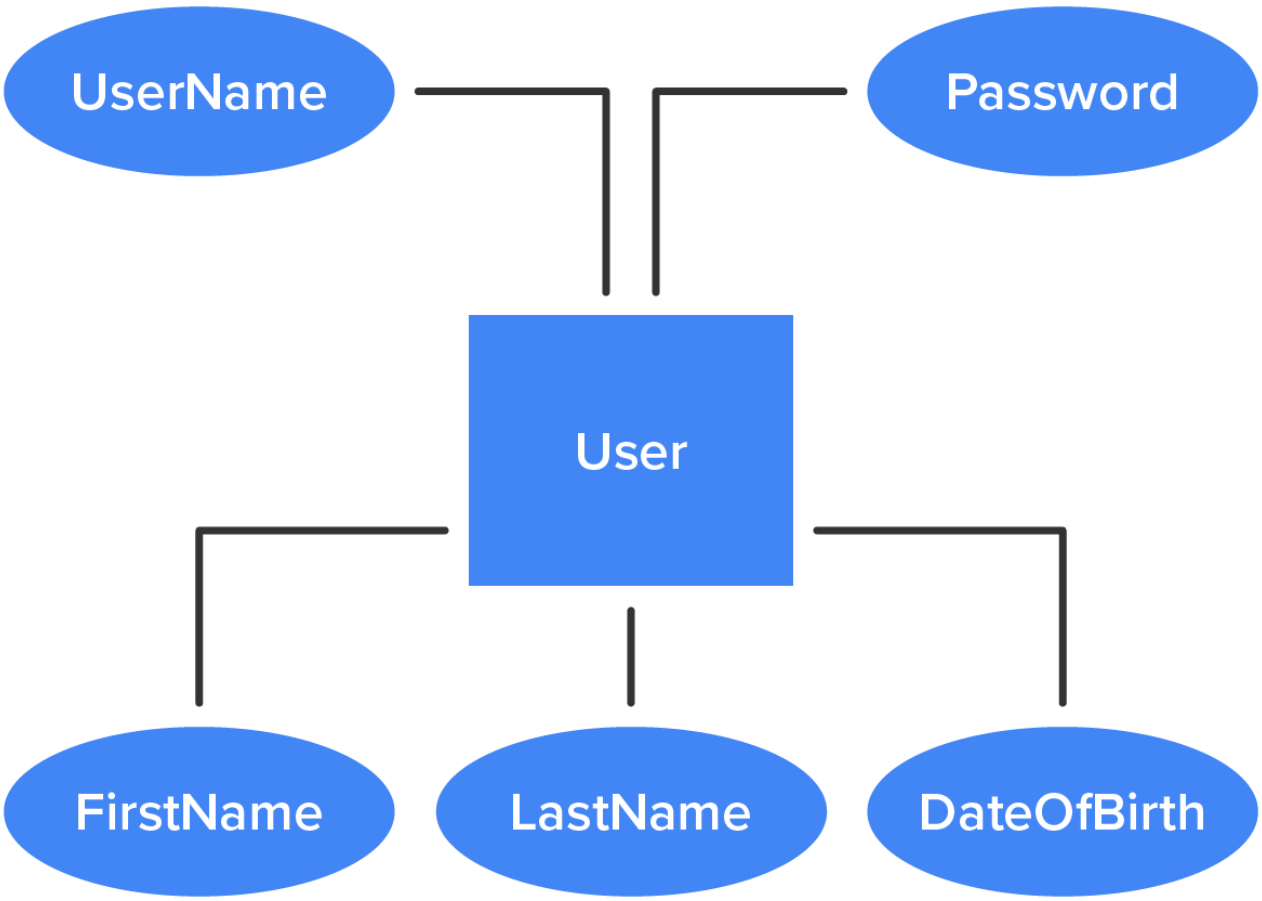
Let us return to the movie ratings scenario: Imagine that an organization would like to create a movie ratings database in which users can rate movies on a numeric scale and provide text comments. Each review should include the date it was written, the user who wrote it, a numeric rating, and optionally, a text comment. The information about each movie should include its release date, title, description, genre(s), and actors. Users will sign into the system using a username/password combination, and the database will also store their first name, last name, and date of birth.

In the prior lesson, you defined your entities as follows:



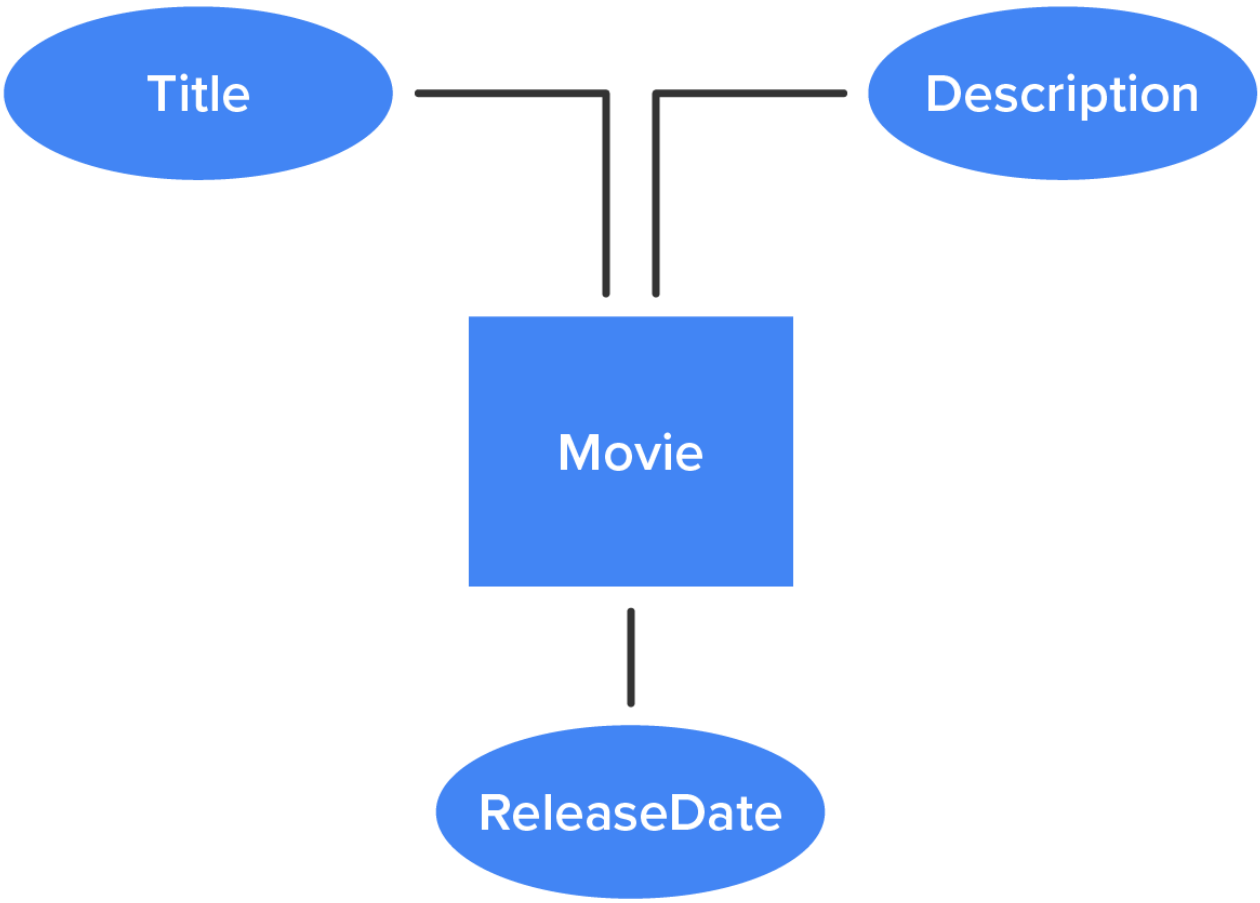
You should now define what the **attributes** are for each of the entities. In looking at your scenario, you can define the following:

For the User entity, you can define the attributes UserName, Password, FirstName, LastName, and DateOfBirth. In Chen notation, you signify attributes as ovals, with a line that connects the attribute to the entity:

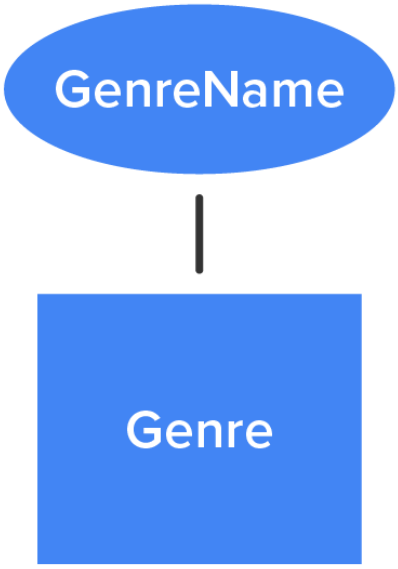


The Rating entity would have the attributes NumericRating and TextualRating:

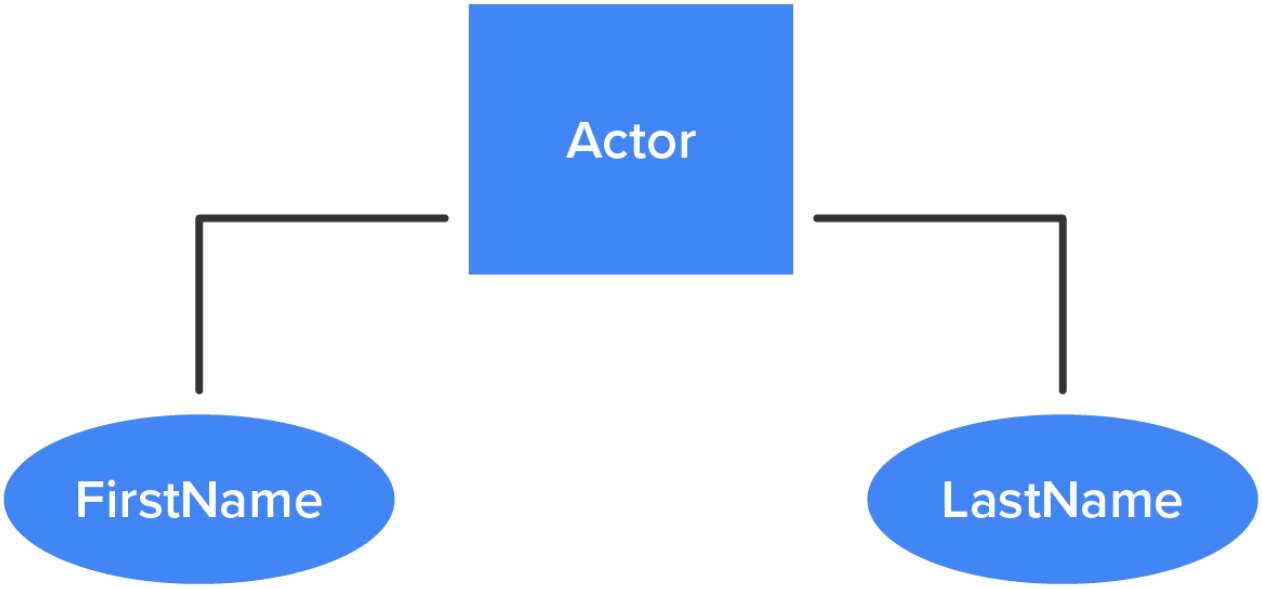
The Movie entity would have the attributes Title, Description, and ReleaseDate:



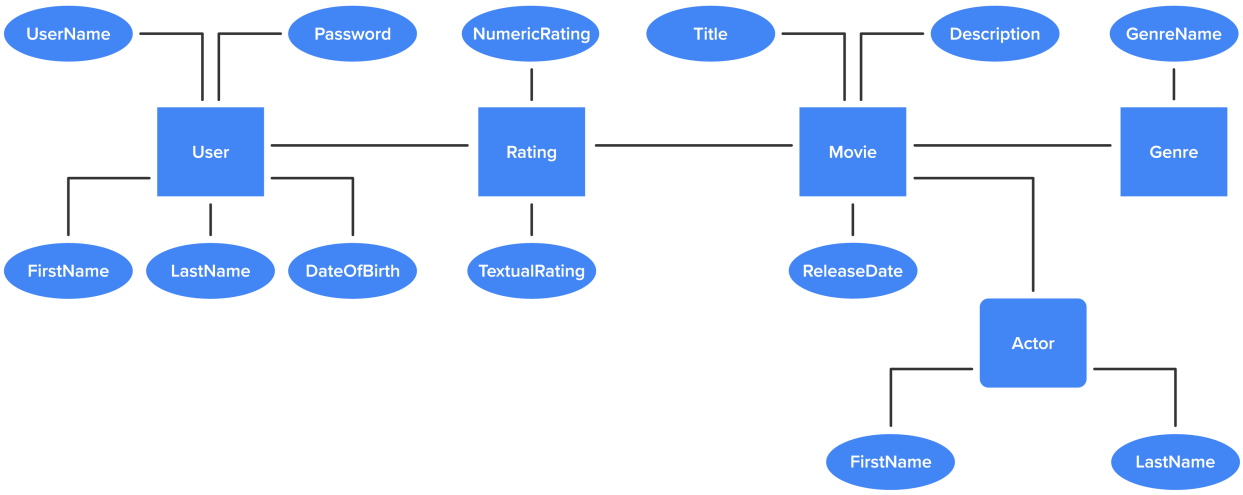
The Genre entity would consist of the GenreName:



The Actor entity would have the attributes FirstName and LastName:



Altogether, the ERD with just the entities and attributes would look like the following:



To distinguish the primary key attributes from the other attributes in the table, the primary key attributes should be underlined within the oval. The primary key helps to uniquely identify each row within the table where each value must be unique and must have a value.

KEY CONCEPT

Chen notation can get very busy and hard to read once there are many attributes and entities. It's a great starting point, but if needed, switching to crow's foot notation can make it visually easier to follow.

TERM TO KNOW

Attribute

A characteristic or property of an entity that is stored in the database. Each column in a database table represents an attribute.

SUMMARY

In this lesson, you learned that once the entities (tables) of the ERD are defined, the next step is to assign **attributes** to each table, which are the columns that will contain the individual pieces of information about each record. You also learned that **defining each entity's attributes** is an important part of creating an ERD. Chen notation represents entities as rectangles and attributes as ovals that are connected to the entity rectangles with lines. Each oval contains the attribute's name. In the movie ratings example database, the attributes for the User entity define the relevant details about each user, including UserName, Password, FirstName, LastName, and DateOfBirth. An underlined attribute name indicates a primary key attribute.

Source: THIS TUTORIAL WAS AUTHORED BY DR. VINCENT TRAN, PHD (2020) AND Faithe Wempen (2024) FOR SOPHIA LEARNING. PLEASE SEE OUR TERMS OF USE.

TERMS TO KNOW

Attribute

A characteristic or property of an entity that is stored in the database. Each column in a database table represents an attribute.