Lab 6
Entity Relationship (ER) Data Model

CSE 4308
DATABASE MANAGEMENT SYSTEMS LAB

OCTOBER 10, 2022

1   Lab Task

We are Booked (WB) is the legal depository of all new books and other printed materials in Bangladesh. Previously they stored all their information on paper. Recently they have decided to use a database. They have come up with the following requirements:

- There are many branches of WB in different locations in the country. Each branch has its unique branch ID, location, and year of establishment.

- Every branch is maintained by some employees. During the recruitment process, the National ID (NID), name, blood group, and birth date are stored. WB has three types of employees, namely Admin, Librarian, and Maintenance. Each has a separate base salary and 40% housing allowance based on the base salary.

- The employees work in different shifts in different branches. Each shift starts at a certain time on a specific day of the week. It also has a fixed duration.

- Of course the branches house many books. Each book can be identified by a 13-digit ISBN number. The name, author, genre, and price of the books are also stored. The number of copies of a book for each branch should be also tracked efficiently.

- Each book comes from different publishers. The publishers have their name, city, and establishment year. Note that, the same city will not have more than one publisher with the same name.

- To issue a book from any branch, a user has to create an account, providing their unique username. In addition to that, the user's name, date of birth, hometown, and occupation are also stored.

- When a book is issued by a user, the employee sets the issue date and number of days the user can keep the book. It might happen that sometimes the employee forgets to put the duration. In that case, the book should be returned within 15 days. Additionally, information about the user, book, and employee involved needs to be tracked for future purposes.

Now, your task is to:

1. Draw an ER Diagram, without any data redundancy, specifying the cardinality explicitly. You may add additional attributes only if it is needed.

2. Convert the ER Diagram into DDL using standard SQL denoting the appropriate constraints.