Due:

Wenesday 5 April 2023 by 23:59 MS Teams

Total Points: 150

Deliverables:

The following should be completed and submitted by the due date and time specified above. Submissions received after the deadline will be subject to the late policy described in the syllabus.

Acceptable formats for the submissions include:

- Microsoft Word, text, or PDF document
- Other similar methods

Database Structural Information:

The following tables form part of a Library database held in an RDBMS:

Book **(ISBN, title, edition, year)**
BookCopy **(copyNo, ISBN, available)**
Borrower **(borrowerNo, borrowerName, borrowerAddress)**
BookLoan **(copyNo, dateOut, dateDue, borrowerNo)**

where **Book** contains details of book titles in the library and the **ISBN** is the key.

BookCopy contains details of the individual copies of books in the library and **copyNo** is the key. **ISBN** is a foreign key identifying the book title.

Borrower contains details of library members who can borrow books and **borrowerNo** is the key.

BookLoan contains details of the book copies that are borrowed by library members and **copyNo/dateOut** forms the key. **borrowerNo** is a foreign key identifying the borrower.

Problem Set:

1. Create the four (4) tables including appropriate column types and necessary constraints. - 20 points

2. Assume only four (4) SQL statements were used to create the tables (one for each table). Give two (2) examples of one of the tables that must be created before one of the other ones. Explain why. - 15 points

3. Choose one of your responses for question 2 and explain how you could create table 2 before table 1 by using an extra SQL statement. Explain how the SQL statements would be changed. - 15 points

   Write SQL statements for the following questions. Each question has a number in parentheses. For full credit, you must provide that many substantially different SQL statements that would have the same result.

4. List all book details. (2) - 10 points

5. List all borrower names. (1) - 5 points

6. List the titles and editions of all books published between 2010 and 2020. (2) - 10 points

7. List all book titles that contain the word 'database' and are available for loan. (2) - 10 points

8. List all book titles that have been never been borrowed. (1) - 5 points

9. Remove all books published before 1979 from the database. (1) - 5 points

10. How many copies of each book title are there? (1) - 5 points

11. How many copies of ISBN "9781292061184" are currently available? (1) - 5 points

12. List the names of borrowers with overdue books. (1) - 5 points

13. Give a list of borrowers who have overdue books along with the titles of the books overdue. (1) - 5 points

14. How many times has the book title with ISBN "9781292061184" been borrowed? (1) - 5 points

15. List titles of books that have been borrowed by "Joseph Ledet" (1) - 5 points

16. For each book ISBN with more than three (3) copies, list the names of library members who have borrowed them. (1) - 10 points

17. List book titles and how many times each has been borrowed. (1) - 5 points

18. There could be additional columns on these tables. Use SQL to add columns to two tables that would seem reasonable. (2) - 10 points