Lab 3

In Lab 2 and Lab 3, we will work with a relational database of a book exchange system in XYZ University. The database records information about students, books they own and books they borrow from other students. Create the tables using the file Schema.sql. Populate the tables using the files Student.sql, Book.sql, Copy.sql and Loan.sql. Understand the database schema. Submit your sql code as a .sql (or text file) through eDimension. Please mark each question in your source file with a comment (use hash).

1. Find the total number of copies.
2. Print the number of copies for each book. (Output the primary key of the book and the number of copies.)
3. Find the books with the largest number of available copies.
4. Find the names of the students who have borrowed some book by 'Charles Dickens'.
5. Find the number of books written by 'Charles Dickens'.
6. Find the names of students who have borrowed all the books by 'Charles Dickens'. Use aggregate functions.
7. Find the names of students who have borrowed all the books by 'Charles Dickens'. Use NOT EXISTS only. (You may also try NOT EXISTS with NOT IN.)
8. Replace Charles Dickens with 'C. J. Date'. Try again query 6 and 7. Describe and explain your findings.
9. Create views for the copies and loans for which the owner is a Computer Science student. Output the number of tuples in the views and compare it with the original tables.
10. We did not specify loan.borrower as a foreign key that references student table. Create a trigger that propagates the update of a students email to the loan.borrower. (Write code that is valid in MySQL, not SQL Standard.)