```sql
CREATE PROC dbo.LibraryManagementSystemProcedure

AS

CREATE DATABASE db_LibraryManagement

GO

        /* ====================== TABLES =======================*/

        CREATE TABLE tbl_publisher (

                Publisher_PublisherName VARCHAR(100) PRIMARY KEY NOT NULL,

                Publisher_PublisherAddress VARCHAR(200) NOT NULL,

                Publisher_PublisherPhone VARCHAR(50) NOT NULL,

        );

        CREATE TABLE tbl_book (
```

```sql
        Book_BookID INT PRIMARY KEY NOT NULL IDENTITY (1,1),


        Book_Title VARCHAR(100) NOT NULL,


        Book_PublisherName VARCHAR(100) NOT NULL CONSTRAINT fk_publisher_name1
FOREIGN KEY REFERENCES tbl_publisher(publisher_PublisherName) ON UPDATE CASCADE ON DELETE
CASCADE,


        );




        CREATE TABLE tbl_library_branch (


        Library_branch_BranchID INT PRIMARY KEY NOT NULL IDENTITY (1,1),


        Library_branch_BranchName VARCHAR(100) NOT NULL,


        Library_branch_BranchAddress VARCHAR(200) NOT NULL,


        );




        SELECT * FROM tbl_library_branch
```

```sql
CREATE TABLE tbl_borrower (

        Borrower_CardNo INT PRIMARY KEY NOT NULL IDENTITY (100,1),

        Borrower_BorrowerName VARCHAR(100) NOT NULL,

        Borrower_BorrowerAddress VARCHAR(200) NOT NULL,

        Borrower_BorrowerPhone VARCHAR(50) NOT NULL,

);


SELECT * FROM tbl_borrower


CREATE TABLE tbl_book_loans (

        Book_loans_LoansID INT PRIMARY KEY NOT NULL IDENTITY (1,1),

        Book_loans_BookID INT NOT NULL CONSTRAINT fk_book_id1 FOREIGN KEY REFERENCES
tbl_book(book_BookID) ON UPDATE CASCADE ON DELETE CASCADE,

        Book_loans_BranchID INT NOT NULL CONSTRAINT fk_branch_id1 FOREIGN KEY
REFERENCES tbl_library_branch(library_branch_BranchID) ON UPDATE CASCADE ON DELETE CASCADE,

        Book_loans_CardNo INT NOT NULL CONSTRAINT fk_cardno FOREIGN KEY REFERENCES
tbl_borrower(borrower_CardNo) ON UPDATE CASCADE ON DELETE CASCADE,
```

```sql
        Book_loans_DateOut VARCHAR(50) NOT NULL,

        Book_loans_DueDate VARCHAR(50) NOT NULL,

    );




SELECT * FROM tbl_book_loans


        /* Use GETDATE() to retrieve the date values for Date out. Use DATEADD for the
DueDate*/




CREATE TABLE tbl_book_copies (

        Book_copies_CopiesID INT PRIMARY KEY NOT NULL IDENTITY (1,1),

        Book_copies_BookID INT NOT NULL CONSTRAINT fk_book_id2 FOREIGN KEY
REFERENCES tbl_book(book_BookID) ON UPDATE CASCADE ON DELETE CASCADE,

        Book_copies_BranchID INT NOT NULL CONSTRAINT fk_branch_id2 FOREIGN KEY
REFERENCES tbl_library_branch(library_branch_BranchID) ON UPDATE CASCADE ON DELETE CASCADE,

        Book_copies_No_Of_Copies INT NOT NULL,

    );
```

```sql
SELECT * FROM tbl_book_copies



CREATE TABLE tbl_book_authors (

        Book_authors_AuthorID INT PRIMARY KEY NOT NULL IDENTITY (1,1),

        Book_authors_BookID INT NOT NULL CONSTRAINT fk_book_id3 FOREIGN KEY
REFERENCES tbl_book(book_BookID) ON UPDATE CASCADE ON DELETE CASCADE,

        Book_authors_AuthorName VARCHAR(50) NOT NULL,

);



SELECT * FROM tbl_book_authors



/*======================= END TABLES =====================*/
```

```
/*=================== POPULATING TABLES ====================*/


        INSERT INTO tbl_publisher

                (publisher_PublisherName, publisher_PublisherAddress, publisher_PublisherPhone)

                VALUES

                ('DAW Books','375 Hudson Street, New York, NY 10014','212-366-2000'),

                ('Viking','375 Hudson Street, New York, NY 10014','212-366-2000'),

                ('Signet Books','375 Hudson Street, New York, NY 10014','212-366-2000'),

                ('Chilton Books','Not Available','Not Available'),

                ('George Allen & Unwin','83 Alexander Ln, Crows Nest NSW 2065, Australia','+61-2-8425-
0100'),

                ('Alfred A. Knopf','The Knopf Doubleday Group Domestic Rights, 1745 Broadway, New
York, NY 10019','212-940-7390'),

                ('Bloomsbury','Bloomsbury Publishing Inc., 1385 Broadway, 5th Floor, New York, NY
10018','212-419-5300'),

                ('Shinchosa','Oga Bldg. 8, 2-5-4 Sarugaku-cho, Chiyoda-ku, Tokyo 101-0064 Japan','+81-3-
5577-6507'),
```

('Harper and Row','HarperCollins Publishers, 195 Broadway, New York, NY 10007','212-207-7000'),

('Pan Books','175 Fifth Avenue, New York, NY 10010','646-307-5745'),

('Chalto & Windus','375 Hudson Street, New York, NY 10014','212-366-2000'),

('Harcourt Brace Jovanovich','3 Park Ave, New York, NY 10016','212-420-5800'),

('W.W. Norton',' W. W. Norton & Company, Inc., 500 Fifth Avenue, New York, New York 10110','212-354-5500'),

('Scholastic','557 Broadway, New York, NY 10012','800-724-6527'),

('Bantam','375 Hudson Street, New York, NY 10014','212-366-2000'),

('Picador USA','175 Fifth Avenue, New York, NY 10010','646-307-5745')

;

SELECT * FROM tbl_publisher
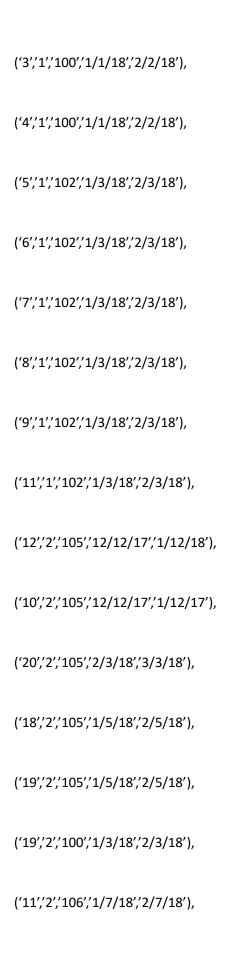
INSERT INTO tbl_book

(book_Title, book_PublisherName)

VALUES

('The Name of the Wind', 'DAW Books'),

('It', 'Viking'),

('The Green Mile', 'Signet Books'),

('Dune', 'Chilton Books'),

('The Hobbit', 'George Allen & Unwin'),

('Eragon', 'Alfred A. Knopf'),

('A Wise Mans Fear', 'DAW Books'),

('Harry Potter and the Philosophers Stone', 'Bloomsbury'),

('Hard Boiled Wonderland and The End of the World', 'Shinchosa'),

('The Giving Tree', 'Harper and Row'),

('The Hitchhikers Guide to the Galaxy', 'Pan Books'),

('Brave New World', 'Chalto & Windus'),

('The Princess Bride', 'Harcourt Brace Jovanovich'),

('Fight Club', 'W.W. Norton'),

('Holes', 'Scholastic'),

('Harry Potter and the Chamber of Secrets', 'Bloomsbury'),

('Harry Potter and the Prisoner of Azkaban', 'Bloomsbury'),

('The Fellowship of the Ring', 'George Allen & Unwin'),

('A Game of Thrones', 'Bantam'),

('The Lost Tribe', 'Picador USA');

SELECT * FROM tbl_book WHERE book_PublisherName = 'George Allen & Unwin'

INSERT INTO tbl_library_branch

(library_branch_BranchName, library_branch_BranchAddress)

VALUES

('Sharpstown','32 Corner Road, New York, NY 10012'),

('Central','491 3rd Street, New York, NY 10014'),

('Saline','40 State Street, Saline, MI 48176'),

('Ann Arbor','101 South University, Ann Arbor, MI 48104');

```
/*UPDATE tbl_library_branch

SET library_branch_BranchName = 'Central'

WHERE library_branch_BranchID = 2;*/
```

```
SELECT * FROM tbl_library_branch
```

```
INSERT INTO tbl_borrower

    (borrower_BorrowerName, borrower_BorrowerAddress, borrower_BorrowerPhone)

    VALUES

    ('Joe Smith','1321 4th Street, New York, NY 10014','212-312-1234'),

    ('Jane Smith','1321 4th Street, New York, NY 10014','212-931-4124'),
```

('Tom Li','981 Main Street, Ann Arbor, MI 48104','734-902-7455'),

('Angela Thompson','2212 Green Avenue, Ann Arbor, MI 48104','313-591-2122'),

('Harry Emnace','121 Park Drive, Ann Arbor, MI 48104','412-512-5522'),

('Tom Haverford','23 75th Street, New York, NY 10014','212-631-3418'),

('Haley Jackson','231 52nd Avenue New York, NY 10014','212-419-9935'),

('Michael Horford','653 Glen Avenue, Ann Arbor, MI 48104','734-998-1513');

SELECT * FROM tbl_borrower

INSERT INTO tbl_book_loans

(book_loans_BookID, book_loans_BranchID, book_loans_CardNo, book_loans_DateOut, book_loans_DueDate)

VALUES

('1','1','100','1/1/18','2/2/18'),

('2','1','100','1/1/18','2/2/18'),

('3','1','100','1/1/18','2/2/18'),

('4','1','100','1/1/18','2/2/18'),

('5','1','102','1/3/18','2/3/18'),

('6','1','102','1/3/18','2/3/18'),

('7','1','102','1/3/18','2/3/18'),

('8','1','102','1/3/18','2/3/18'),

('9','1','102','1/3/18','2/3/18'),

('11','1','102','1/3/18','2/3/18'),

('12','2','105','12/12/17','1/12/18'),

('10','2','105','12/12/17','1/12/17'),

('20','2','105','2/3/18','3/3/18'),

('18','2','105','1/5/18','2/5/18'),

('19','2','105','1/5/18','2/5/18'),

('19','2','100','1/3/18','2/3/18'),

('11','2','106','1/7/18','2/7/18'),

('1','2','106','1/7/18','2/7/18'),

('2','2','100','1/7/18','2/7/18'),

('3','2','100','1/7/18','2/7/18'),

('5','2','105','12/12/17','1/12/18'),

('4','3','103','1/9/18','2/9/18'),

('7','3','102','1/3/18','2/3/18'),

('17','3','102','1/3/18','2/3/18'),

('16','3','104','1/3/18','2/3/18'),

('15','3','104','1/3/18','2/3/18'),

('15','3','107','1/3/18','2/3/18'),

('14','3','104','1/3/18','2/3/18'),

('13','3','107','1/3/18','2/3/18'),

('13','3','102','1/3/18','2/3/18'),

('19','3','102','12/12/17','1/12/18'),

('20','4','103','1/3/18','2/3/18'),

('1','4','102','1/12/18','2/12/18'),

('3','4','107','1/3/18','2/3/18'),

('18','4','107','1/3/18','2/3/18'),

('12','4','102','1/4/18','2/4/18'),

('11','4','103','1/15/18','2/15/18'),

('9','4','103','1/15/18','2/15/18'),

('7','4','107','1/1/18','2/2/18'),

('4','4','103','1/1/18','2/2/18'),

('1','4','103','2/2/17','3/2/18'),

('20','4','103','1/3/18','2/3/18'),

('1','4','102','1/12/18','2/12/18'),

('3','4','107','1/13/18','2/13/18'),

('18','4','107','1/13/18','2/13/18'),

('12','4','102','1/14/18','2/14/18'),

('11','4','103','1/15/18','2/15/18'),

('9','4','103','1/15/18','2/15/18'),

('7','4','107','1/19/18','2/19/18'),

('4','4','103','1/19/18','2/19/18'),

('1','4','103','1/22/18','2/22/18');

SELECT * FROM tbl_book_loans

INSERT INTO tbl_book_copies

(book_copies_BookID, book_copies_BranchID, book_copies_No_Of_Copies)

VALUES

('1','1','5'),

('2','1','5'),

('3','1','5'),

('4','1','5'),

('5','1','5'),

('6','1','5'),

('7','1','5'),

('8','1','5'),

('9','1','5'),

('10','1','5'),

('11','1','5'),

('12','1','5'),

('13','1','5'),

('14','1','5'),

('15','1','5'),

('16','1','5'),

('17','1','5'),

('18','1','5'),

('19','1','5'),

('20','1','5'),

('1','2','5'),

('2','2','5'),

('3','2','5'),

('4','2','5'),

('5','2','5'),

('6','2','5'),

('7','2','5'),

('8','2','5'),

('9','2','5'),

('10','2','5'),

('11','2','5'),

('12','2','5'),

('13','2','5'),

('14','2','5'),

('15','2','5'),

('16','2','5'),

('17','2','5'),

('18','2','5'),

('19','2','5'),

('20','2','5'),

('1','3','5'),

('2','3','5'),

('3','3','5'),

('4','3','5'),

('5','3','5'),

('6','3','5'),

('7','3','5'),

('8','3','5'),

('9','3','5'),

('10','3','5'),

('11','3','5'),

('12','3','5'),

('13','3','5'),

('14','3','5'),

('15','3','5'),

('16','3','5'),

('17','3','5'),

('18','3','5'),

('19','3','5'),

('20','3','5'),

('1','4','5'),

('2','4','5'),

('3','4','5'),

('4','4','5'),

('5','4','5'),

('6','4','5'),

('7','4','5'),

('8','4','5'),

('9','4','5'),

('10','4','5'),

('11','4','5'),

('12','4','5'),

('13','4','5'),

('14','4','5'),

('15','4','5'),

('16','4','5'),

('17','4','5'),

('18','4','5'),

('19','4','5'),

('20','4','5');

SELECT * FROM tbl_book_copies

INSERT INTO tbl_book_authors

(book_authors_BookID,book_authors_AuthorName)

VALUES

('1','Patrick Rothfuss'),

('2','Stephen King'),

('3','Stephen King'),

('4','Frank Herbert'),

('5','J.R.R. Tolkien'),

('6','Christopher Paolini'),

('6','Patrick Rothfuss'),

('8','J.K. Rowling'),

('9','Haruki Murakami'),

('10','Shel Silverstein'),

('11','Douglas Adams'),

('12','Aldous Huxley'),

('13','William Goldman'),

('14','Chuck Palahniuk'),

('15','Louis Sachar'),

('16','J.K. Rowling'),

('17','J.K. Rowling'),

('18','J.R.R. Tolkien'),

('19','George R.R. Martin'),

('20','Mark Lee');

SELECT * FROM tbl_book_authors

END

/*============================== END POPULATING TABLES
=============================*/

/* ================== STORED PROCEDURE QUERY QUESTIONS
================================= */

/* #1- How many copies of the book titled "The Lost Tribe" are owned by the library branch whose name is "Sharpstown"? */

CREATE PROC dbo.bookCopiesAtAllSharpstown

```sql
(@bookTitle varchar(70) = 'The Lost Tribe', @branchName varchar(70) = 'Sharpstown')

AS

SELECT copies.book_copies_BranchID AS [Branch ID], branch.library_branch_BranchName AS [Branch Name],

        Copies.book_copies_No_Of_Copies AS [Number of Copies],

        Book.book_Title AS [Book Title]

        FROM tbl_book_copies AS copies

                INNER JOIN tbl_book AS book ON copies.book_copies_BookID = book.book_BookID

                INNER JOIN tbl_library_branch AS branch ON book_copies_BranchID = branch.library_branch_BranchID

        WHERE book.book_Title = @bookTitle AND branch.library_branch_BranchName = @branchName

GO

EXEC dbo.bookCopiesAtAllSharpstown
```

/* #2- How many copies of the book titled "The Lost Tribe" are owned by each library branch? */

```sql
CREATE PROC dbo.bookCopiesAtAllBranches

(@bookTitle varchar(70) = 'The Lost Tribe')

AS

SELECT copies.book_copies_BranchID AS [Branch ID], branch.library_branch_BranchName AS [Branch Name],

        Copies.book_copies_No_Of_Copies AS [Number of Copies],

        Book.book_Title AS [Book Title]

        FROM tbl_book_copies AS copies

                INNER JOIN tbl_book AS book ON copies.book_copies_BookID = book.book_BookID

                INNER JOIN tbl_library_branch AS branch ON book_copies_BranchID = branch.library_branch_BranchID

        WHERE book.book_Title = @bookTitle

GO

EXEC dbo.bookCopiesAtAllBranches
```

/* #3- Retrieve the names of all borrowers who do not have any books checked out. */

```sql
CREATE PROC dbo.NoLoans

AS

SELECT borrower_BorrowerName FROM tbl_borrower

        WHERE NOT EXISTS

                (SELECT * FROM tbl_book_loans

                WHERE book_loans_CardNo = borrower_CardNo)

GO

EXEC dbo.NoLoans
```

/* #4- For each book that is loaned out from the "Sharpstown" branch and whose DueDate is today, retrieve the book title, the borrower's name, and the borrower's address. */
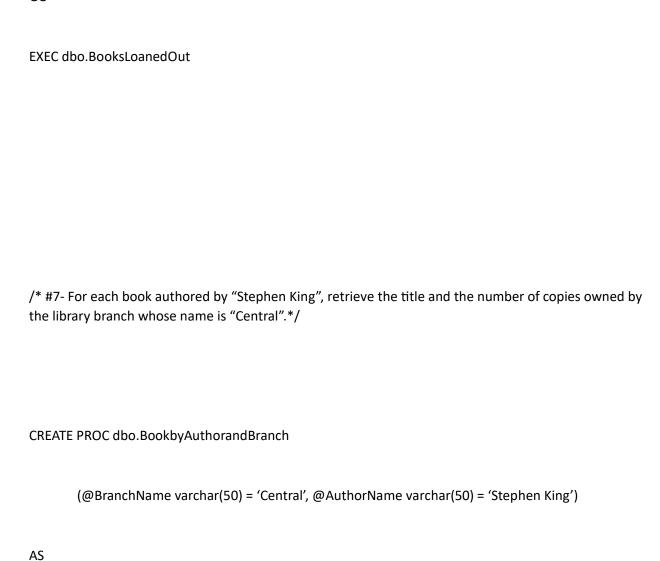
```sql
CREATE PROC dbo.LoanersInfo

(@DueDate date = NULL, @LibraryBranchName varchar(50) = 'Sharpstown')

AS

SET @DueDate = GETDATE()

SELECT Branch.library_branch_BranchName AS [Branch Name],  Book.book_Title [Book Name],

        Borrower.borrower_BorrowerName AS [Borrower Name],
Borrower.borrower_BorrowerAddress AS [Borrower Address],

        Loans.book_loans_DateOut AS [Date Out], Loans.book_loans_DueDate [Due Date]

        FROM tbl_book_loans AS Loans

                INNER JOIN tbl_book AS Book ON Loans.book_loans_BookID =
Book.book_BookID

                INNER JOIN tbl_borrower AS Borrower ON Loans.book_loans_CardNo =
Borrower.borrower_CardNo

                INNER JOIN tbl_library_branch AS Branch ON Loans.book_loans_BranchID =
Branch.library_branch_BranchID
```

```
                WHERE Loans.book_loans_DueDate = @DueDate AND
Branch.library_branch_BranchName = @LibraryBranchName


GO


EXEC dbo.LoanersInfo
```

/* #5- For each library branch, retrieve the branch name and the total number of books loaned out from that branch. */

```
CREATE PROC dbo.TotalLoansPerBranch


AS


SELECT  Branch.library_branch_BranchName AS [Branch Name], COUNT (Loans.book_loans_BranchID)
AS [Total Loans]


        FROM tbl_book_loans AS Loans


            INNER JOIN tbl_library_branch AS Branch ON Loans.book_loans_BranchID =
Branch.library_branch_BranchID


            GROUP BY library_branch_BranchName


GO
```

EXEC dbo.TotalLoansPerBranch

/* #6- Retrieve the names, addresses, and number of books checked out for all borrowers who have more than five books checked out. */

```sql
CREATE PROC dbo.BooksLoanedOut

(@BooksCheckedOut INT = 5)

AS

        SELECT Borrower.borrower_BorrowerName AS [Borrower Name], Borrower.borrower_BorrowerAddress AS [Borrower Address],

                COUNT(Borrower.borrower_BorrowerName) AS [Books Checked Out]

                FROM tbl_book_loans AS Loans

                        INNER JOIN tbl_borrower AS Borrower ON Loans.book_loans_CardNo = Borrower.borrower_CardNo

                        GROUP BY Borrower.borrower_BorrowerName, Borrower.borrower_BorrowerAddress

                HAVING COUNT(Borrower.borrower_BorrowerName) >= @BooksCheckedOut
```

```
GO


EXEC dbo.BooksLoanedOut
```

/* #7- For each book authored by "Stephen King", retrieve the title and the number of copies owned by the library branch whose name is "Central".*/

```
CREATE PROC dbo.BookbyAuthorandBranch


        (@BranchName varchar(50) = 'Central', @AuthorName varchar(50) = 'Stephen King')


AS


        SELECT Branch.library_branch_BranchName AS [Branch Name], Book.book_Title AS [Title],
Copies.book_copies_No_Of_Copies AS [Number of Copies]


            FROM tbl_book_authors AS Authors


                        INNER JOIN tbl_book AS Book ON Authors.book_authors_BookID =
Book.book_BookID
```

```
                    INNER JOIN tbl_book_copies AS Copies ON
Authors.book_authors_BookID = Copies.book_copies_BookID


                    INNER JOIN tbl_library_branch AS Branch ON
Copies.book_copies_BranchID = Branch.library_branch_BranchID


                WHERE Branch.library_branch_BranchName = @BranchName AND
Authors.book_authors_AuthorName = @AuthorName


GO


EXEC dbo.BookbyAuthorandBranch




/* ==================================== STORED PROCEDURE QUERY QUESTIONS
================================== */
```