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 (

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

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,

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,

);

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

(@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? \*/

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. \*/

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. \*/

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. \*/

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 =================================== \*/