# Library Management System

Entity Attributes  
Book ISBN (PK), Title, PublisherID (FK), CategoryID (FK), PublicationYear, Edition  
Author AuthorID (PK), FullName, Bio  
BookAuthor BookAuthorID (PK), BookISBN (FK), AuthorID (FK)  
Category CategoryID (PK), CategoryName  
Publisher PublisherID (PK), Name, Address, City, Country  
LibraryBranch BranchID (PK), BranchName, Address  
BookCopy CopyID (PK), ISBN (FK), BranchID (FK), Status  
Member MemberID (PK), FullName, Email, Phone, Address, MemberType  
  
🔗 Relationships:  
1. Book – Publisher: Many-to-One  
2. Book – Category: Many-to-One  
3. Book – Author: Many-to-Many (through BookAuthor)  
4. Book – BookCopy: One-to-Many  
5. BookCopy – LibraryBranch: Many-to-One  
6. Member – BookCopy: Many-to-Many  
  
  
CREATE TABLE Author (  
 AuthorID INT IDENTITY PRIMARY KEY,  
 FullName NVARCHAR(120) NOT NULL,  
 Bio NVARCHAR(MAX)  
);  
  
CREATE TABLE Publisher (  
 PublisherID INT IDENTITY PRIMARY KEY,  
 Name NVARCHAR(120) NOT NULL,  
 Address NVARCHAR(200),  
 City NVARCHAR(100),  
 Country NVARCHAR(60)  
);  
  
CREATE TABLE Category (  
 CategoryID INT IDENTITY PRIMARY KEY,  
 CategoryName NVARCHAR(80) UNIQUE NOT NULL  
);

CREATE TABLE Book (  
 ISBN CHAR(13) PRIMARY KEY,  
 Title NVARCHAR(200) NOT NULL,  
 PublisherID INT FOREIGN KEY REFERENCES Publisher(PublisherID),  
 CategoryID INT FOREIGN KEY REFERENCES Category(CategoryID),  
 PublicationYear INT,  
 Edition NVARCHAR(30)  
);

CREATE TABLE BookAuthor (  
 BookAuthorID INT IDENTITY PRIMARY KEY,  
 BookISBN CHAR(13) FOREIGN KEY REFERENCES Book(ISBN),  
 AuthorID INT FOREIGN KEY REFERENCES Author(AuthorID)  
);  
  
  
CREATE TABLE LibraryBranch (  
 BranchID INT IDENTITY PRIMARY KEY,  
 BranchName NVARCHAR(100) NOT NULL,  
 Address NVARCHAR(200)  
);  
  
  
CREATE TABLE BookCopy (  
 CopyID INT IDENTITY PRIMARY KEY,  
 ISBN CHAR(13) FOREIGN KEY REFERENCES Book(ISBN),  
 BranchID INT FOREIGN KEY REFERENCES LibraryBranch(BranchID),  
 Status NVARCHAR(20) DEFAULT 'Available'  
);  
  
  
CREATE TABLE Member (  
 MemberID INT IDENTITY PRIMARY KEY,  
 FullName NVARCHAR(120) NOT NULL,  
 Email NVARCHAR(120) UNIQUE,  
 Phone NVARCHAR(20),  
 Address NVARCHAR(200),  
 MemberType NVARCHAR(30) DEFAULT 'Student',  
 CreatedAt DATETIME DEFAULT GETDATE()  
);