CS6360 Spring 2021

Assignment 3

Student: Kaden Tran

NetID: stt032000

Define at least one field that is not a primary key that will require an index:

For the member relation, I choose to index the MemberNumber field. The faculty and student relation connects with member relation via MemberNumber. Indexing the MemberNumber would allow for quicker member search. It also allows faster runtime for query that join between these relations.

Subclass/superclass relationship

In my diagram, the member is the super class of faculty and student. The book, cdDvD, magazine are the subclasses of item.

faculty
- memberNumber INT
- ◇ departmentID INT
- ◇ Rank VARCHAR(45)
- Indexes ►

student
- memberNumber INT
- ◇ studenttype ENUM(...)
- ◇ studentMajor VARCHAR(45)
- ◇ DegreeEarned VARCHAR(45)
- Indexes ►

member
- 🔑 UTD_ID INT
- ◇ FirstName VARCHAR(15)
- ◇ LastName VARCHAR(15)
- ◇ Address VARCHAR(100)
- ◆ MemberType INT
- ◇ PhoneNumber CHAR(10)
- ◇ Gender CHAR(1)
- ◇ MemberNumer INT
- Indexes ►

Notification
- memberNumber INT
- ◆ LibrarianID INT
- ◇ NotificationDate DATE
- ◇ Message LONGTEXT
- ◇ NotificationID INT
- Indexes ►

membertype
- 🔑 MemberType INT
- ◇ MemberTypeName ENUM(...)
- ◇ NumberOfItemsLimit INT
- Indexes ►

borrows
- 🔑 BorrowNumber INT
- ◆ UTD_ID INT
- ◆ ItemNumber INT
- ◇ CheckOutDate DATE
- ◇ CheckInDate DATE
- ◇ DueDate DATE
- ◇ LateFee DOUBLE
- ◇ NumberOfItemsLimitLeft INT
- Indexes ►

librarian
- LibrarianID INT
- ◇ LibrarianName VARCHAR(45)
- Indexes ►

itemtype
- ItemTypeCategoryNumber INT
- ◇ ItemTypeName ENUM(...)
- Indexes ►

booksection
- 🔑 SectionNumber INT
- ◇ SectionName VARCHAR(45)
- ◇ LibrarianID INT
- Indexes ►

manageitem
- ItemNumber INT
- ◆ LibrarianID INT
- Indexes ►

item
- 🔑 ItemNumber INT
- ◇ Location VARCHAR(45)
- ◇ Title VARCHAR(45)
- ◇ Description VARCHAR(200)
- ◇ Availibility ENUM(...)
- ◇ ItemType INT
- Indexes ►

cddvd
- 🔑 CDNumber INT
- ◇ Artist(s)Name VARCHAR(45)
- ◇ NumberOfTracks INT
- ◇ cd_dvd type VARCHAR(45)
- ◆ ItemNumber INT
- Indexes ►

book
- 🔑 ISBN VARCHAR(45)
- ◇ AuthorID INT
- ◇ Edition VARCHAR(45)
- ◇ PublicationDate DATE
- ◇ Publisher VARCHAR(45)
- ◇ DeweyNumber VARCHAR(45)
- ◇ CongressCatalogNum INT
- ◇ NumOfPages INT
- ◇ BookType INT
- ◆ SectionID INT
- ◇ ItemType INT
- ◇ ItemNumber INT
- Indexes ►

booktype
- 🔑 BookTypeNumber INT
- ◇ BookTypeCategory VARCHAR(45)
- Indexes ►

magazine
- 🔑 magazineID INT
- ◆ ItemNumber INT
- ◇ PublishDate DATE
- ◇ Issue INT
- ◇ title VARCHAR(45)
- Indexes ►

author
- authorID INT
- ◇ authorName VARCHAR(45)
- Indexes ►