

ITEC 3335 Database Development Fall 2019

Suggested Solution for HW #4

This is a sample design. Other reasonable designs are acceptable. The relation schema:

1	Category(CategoryId, Category)
Candidate Keys	[1] CategoryId, [2] Category
Foreign Keys	
Nullable Attributes	
Non-nullable Attributes	CategoryId, Category
Notes	
2	Book(ISBN, Title, Edition, PublicationDate)
Candidate Keys	[1] ISBN
Foreign Keys	
Nullable Attributes	Edition, PublicationDate
Non-nullable Attributes	ISBN, Title
Notes	
3	BookCategory(BK_Id, CategoryId, ISBN)
Candidate Keys	[1] BK_Id, [2] CategoryId, ISBN
Foreign Keys	[1] CategoryId references Category(CategoryId), [2] ISBN references Book(ISBN)
Nullable Attributes	
Non-nullable Attributes	BK_Id, CategoryId, ISBN
Notes	[1] The attribute BK_Id is created as the surrogate primary key.
4	Author(AuthorId, FName, LName, Contact, Comment)
Candidate Keys	[1] AuthorId
Foreign Keys	
Nullable Attributes	FName, Contact, Comment
Non-nullable Attributes	AuthorId, LName
Notes	
5	Authoring(A_Id, ISBN, AuthorId, AuthorPosition)
Candidate Keys	[1] A_Id, [2] ISBN, AuthorId, [3] ISBN, AuthorPosition
Foreign Keys	[1] ISBN references Book(ISBN), [2] AuthorId references Author(AuthorId)
Nullable Attributes	
Non-nullable Attributes	A_Id, ISBN, AuthorId, AuthorPosition
Notes	[1] The attribute A_Id is created as the surrogate primary key.
6	BookItem(Tag, ISBN, AcquisitionDate, Status)
Candidate Keys	[1] Tag
Foreign Keys	[1] ISBN references Book(ISBN)
Nullable Attributes	AcquisitionDate, Status
Non-nullable Attributes	Tag, ISBN
Notes	
7	Patron(PatronId, FName, LName, EMail, Phone)
Candidate Keys	[1] PatronId

Foreign Keys	
Nullable Attributes	EEmail, Phone
Non-nullable Attributes	Tag, FName, LName
Notes	
8	Borrow (BorrowId , PatronId, Tag, StartDate, DueDate, ReturnDate)
Candidate Keys	[1] BorrowId, [2] PatronId, Tag, StartDate (possibly)
Foreign Keys	[1] PatronId references Patron(PatronId), [2] Tag references BookItem(Tag)
Nullable Attributes	ReturnDate
Non-nullable Attributes	BorrowId, PatronId, Tag, StartDate, DueDate
Notes	[1] The attribute Borrow_Id is created as the surrogate primary key.
9	Interest (InterestId , PatronId, CategoryId)
Candidate Keys	[1] InterestId, [2] PatronId, CategoryId
Foreign Keys	[1] PatronId references Patron(PatronId), [2] CategoryId references Category(CategoryId)
Nullable Attributes	
Non-nullable Attributes	InterestId, PatronId, CategoryId
Notes	[1] The attribute Interest_Id is created as the surrogate primary key.
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Candidate Keys	
Foreign Keys	
Nullable Attributes	
Non-nullable Attributes	
Notes	