**CSCI 5333.3 DBMS  
Spring 2012**

**Suggested Solution for HW #2**

This is a faithful design but other reasonable designs are acceptable.

The relation schema:

[1] Member(AccountName, Password, Nickname, EmailAddress, Sex, BirthYear, CreationTime)

Candidate keys:

1. AccountName
2. Nickname

[2] Administrator(AccountName, Password, LastName, FirstName, EmailAddress, CreationTime, CreatedByAccountName)

Candidate key: AccountName  
Foreign keys:

1. CreatedByAccountName referencing AccountName in Administrator: nullable

[3] Question(QuestionId, Question, NumChoices, Comment, CreationTime, IsOpen, SetterAccountName)

Candidate key: QuestionId  
Foreign keys:

1. SetterAccountName referencing AccountName in Administrator: not nullable

[4] Choice(ChoiceId, QuestionId, DefiningOrder, Description, DisplayOrder)

Candidate keys:

1. ChoiceId
2. QuestionId, DefiningOrder

Foreign key: QuestionId referencing QuestionId in Question: not nullable.

Note: QuestoinId, DefiningOrder being a candidate key is not captured in the UML class diagram.

[5] Vote(VoteId, VoterAccountName, QuestionId, ChoiceId, CreationTime)

Candidate keys:

1. VoteId
2. VoterAccountName, QuestionId

Foreign keys:

1. VoterAccountName referencing AccountName in Member: not nullable
2. QuestionId referencing QuestionId in Question: not nullable
3. ChoiceId referencing ChoiceId in Choice: not nullable.

Note:

* QuestionId is redundant as it can be obtained through ChoiceId and can be removed from the relation. However, it can serve as a part of a composite candidate key to aid in enforcing the constraint that a member can only vote on a question once.

[6] Tag(TagId, TagName, TagDescription)

Candidate keys:

1. TagId
2. TagName

[7] QuestionTag(QTId, QuestionId, TagId)

Candidate keys:

1. QTId
2. QuestionId, TagId

Foreign keys:

1. QuestionId referencing QuestionId in Question: not nullable.
2. TagId referencing TagId in Tag: not nullable.

[8] QuestionQuality(QualityRanking, Description)

Candidate keys:

1. QualityRanking
2. Description

[9] Ranking(RankingId, RankerAccountName, QuestionId, QualityRanking, CreationTime)

Candidate keys:

1. RankingId
2. RankerAccountName, QuestionId

Foreign keys:

1. RankerAccountName referencing AccountName in Member: not nullable.
2. QuestionId referencing QuestionId in Question: not nullable.
3. QualityRanking referencing QualityRanking in QuestionQuality: not nullable.

[10] Comment(CommentId, Comment, CommenterAccountName, QuestionId, CreationTime)

Candidate key:

1. CommentId

Foreign keys:

1. CommenterAccountName referencing AccountName in Member: not nullable.
2. QuestionId referencing QuestionId in Question: not nullable.