L02 - Modeling Your Dreams

Due Feb 4 at 11:59pm **Points** 40 **Questions** 20 **Available** after Feb 3 at 9am **Time Limit** None
Allowed Attempts Unlimited

Instructions

This lab addresses two topics, a bit about Data Modeling and a lot about Entity-Relationship Modeling (ERM).

Information is drawn from the textbook, particularly Chapters 2 (Data Modeling) and 4 (Entity Relationship Modeling), and Monday's lecture.

You will answer questions about data modeling, and create and analyze your own Entity-Relationship Diagrams (ERDs) using a modeling tool of your choice. (**Draw.io** (https://draw.io/) is recommended for ease of use and Google Docs integration.)

Take the Quiz Again

Attempt History

	Attempt	Time	Score
KEPT	Attempt 2	91 minutes	35.93 out of 40
LATEST	Attempt 2	91 minutes	35.93 out of 40
	Attempt 1	561 minutes	13.78 out of 40 *

* Some questions not yet graded

Correct answers are hidden.

Score for this attempt: **35.93** out of 40
Submitted Feb 3 at 9:19pm
This attempt took 91 minutes.

Figure 1

Question 1 2 / 2 pts

Please write out the shorthand relational schema for the CAR entity in Figure 1.

(Be sure to check the formatting for correct bolding and underlining.)

Your Answer:

CAR (**CAR_VIN**, MOD_CODE, CAR_YEAR)

Question 2

0 / 1 pts

According to Figure 1, can a car have multiple colors? If so, how is that represented in the diagram?

Your Answer:

Yes it can have multiple colors, since CAR_COLOR is a multivalued attribute it can be broken down to different colors.
The entity CAR_COLOR that was created holds a one to many relationship with the CAR entity which is more flexible, expandable, and is compatible with the relation model.
It is represented in the diagram by a new entity set composed of a multivalued attributes components. We can essentially say that the top is white, body is blue, trim is gold, and interior is blue.

CAR_COLOR is not a multivalued attribute. CAR_COLOR holds a one-to-one relationship with CAR. Not following this answer actually, let me know if you want to chat.

Question 3

1 / 1 pts

What type of relationship does CAR have to CAR_COLOR in Figure 1?

- One-to-one
- Zero-to-one
- One-to-Many
- Many-to-many
- Zero-to-many

Question 4

1 / 1 pts

The relationship between CAR and CAR_COLOR is weak and mandatory .

Answer 1:

weak

Answer 2:

mandatory

it is actually strong and I messed up with this question, so free points.

Question 5

1 / 1 pts

What type of relationship does CAR_COLOR have to CAR?

- (●) One-to-one
- ( ) One-to-Many
- ( ) Many-to-one
- ( ) Zero-to-many
- ( ) Zero-to-one

Question 6

1 / 1 pts

What type of entity is CAR_COLOR, strong or weak? Why?

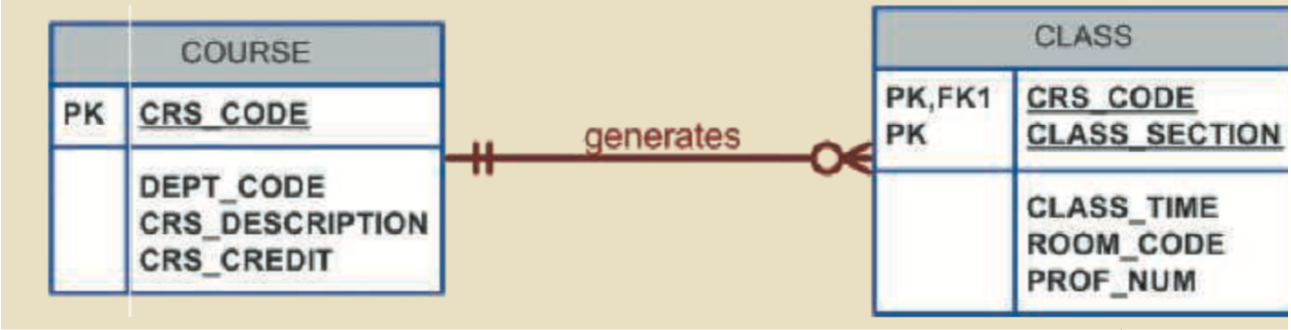
(Be sure to note how it fulfills each specific strong / weak criterion.)

Your Answer:

CAR_COLOR entity is a strong (identifying) relationship.
It is a strong relationship because there is a solid line between the entities. A strong relationship also exists when the primary key of the related entity contains a primary key component of the parent entity.
In the case of CAR and CAR_COLOR you can see that there is a 1:M relationship, and the CAR_COLOR entity primary key is composed of CAR_VIN and CAR_SELECTION, therefore, a strong relationship exists between CAR and CAR_COLOR because CAR_VIN is the primary key component in the CAR entity.

CAR_COLOR is in a strong relationship, it is not "a" strong relationship. Strong / weak entities are related to strong / weak relationships but not defined by them.

Figure 2



Question 7

1 / 1 pts

According to Figure 2, a course can be associated with multiple classses.

- (●) True
- ( ) False

Question 8

1 / 1 pts

According to Figure 2, two classes can be in the same room at the same time.

- (●) True
- ( ) False

Question 9

1.75 / 2 pts

According to Figure 2, is it possible to have a class without a course? Explain your answer by referencing specifics in the diagram.

Your Answer:

No, a CLASS is a weak entity to COURSE.
CLASS is always existence-dependent on COURSE, because a CLASS cannot exist without a COURSE.
You can see this in the relationship line and the PK/FK design, one to none or many.

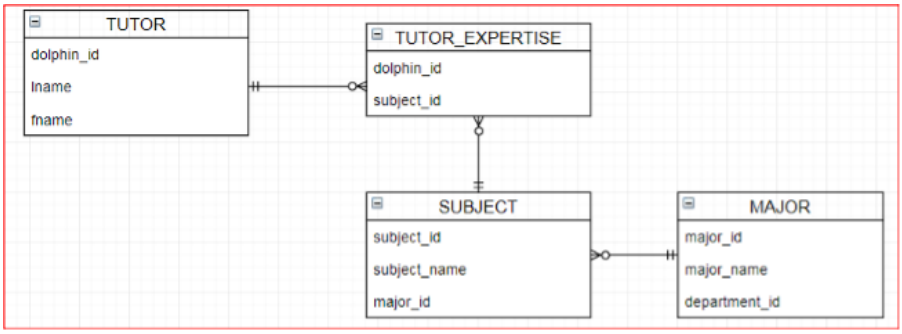
"one to none or many" is not a valid relationship connectivity

For this section, you will draw simple ERD diagrams based on light descriptions. Please use **http://draw.io (http://draw.io)** if possible to draw your diagrams and export them for submission.

For example, *CITOots* is a new database:

1. that tracks undergraduate academic tutors across all majors.
2. Only valid CI students may tutor and a tutor may tutor multiple subjects.
3. A single major may list multiple subjects available for tutoring.

For ERDs in this section, you **do not** need to label primary and foreign keys.



Question 10

4.25 / 4.5 pts

CIMajors is a database that will track students and their majors.

Students may have multiple majors and students need not have a major declared.

A student major must link back to a valid CI academic program.

Please upload your completed ERD diagram.

Lab02-Q11.jpg (https://cilearn.csuci.edu/files/2577541/download)

According to this each university can only have one student. The rest is okay conceptually, but you'll want a major declaration entity to allow for students to have multiple majors in practice.

Question 11

4.5 / 4.5 pts

CI420 is a new database set up to track COMP/IT 420 database projects.

This simple DB will track:

1. student information (name, id, major)
2. project information (project name, id, description)
3. project groups

A project group can have many students. (Think about how to link students to projects.)

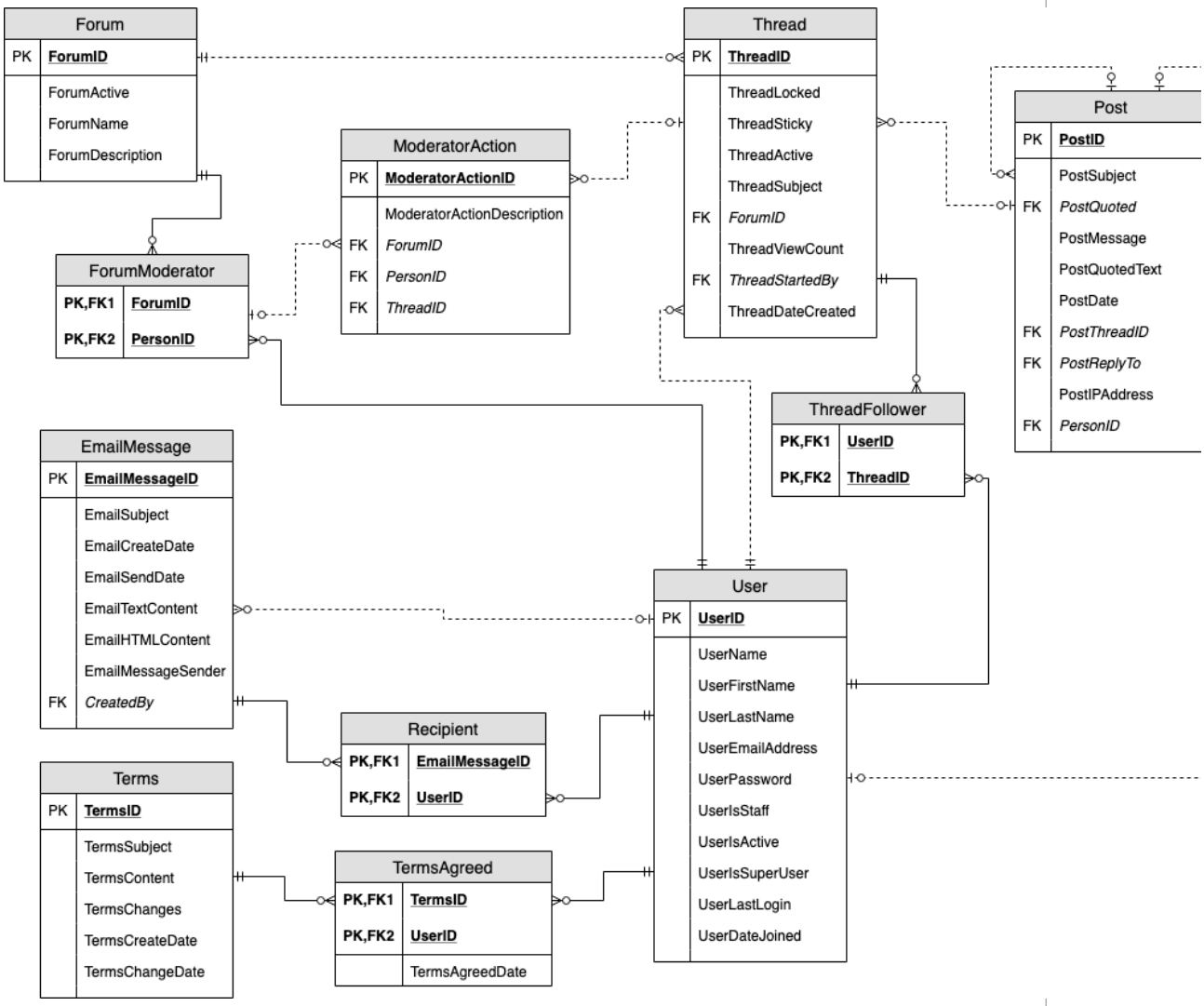
Each student can only work on a single project.

Please upload your completed ERD diagram.

L02Q11.jpg (https://cilearn.csuci.edu/files/2577825/download)

This works conceptually, however the one-to-many from group to student would indicate that there is a group_id in the student entity.

Figure 4



Question 12

2 / 2 pts

Match each entity with the correct "strong" or "weak" status.

Forum Strong

EmailMessage Strong

Terms	Strong
ForumModerator	Weak
Post	Strong

Question 13

1 / 2 pts

Explain why **Thread** is neither a weak entity nor a strong entity.

Your Answer:

Thread is neither a weak entity and it is also not a strong entity because it is not dependent on another entity existing. The Primary Key doesn't contain a foreign key, so essentially by definition it is not weak, but if you look at some of the attributes it, it takes values from other entities...

Thread is not weak because its primary key is not shared, and not strong because it IS dependent on both user and forum.

Partial

Question 14

1.5 / 2 pts

Please select all the weak relationships from those listed below.

Each pair of entities (Entity 1, Entity 2) indicates the relationship from entity 1 to entity 2.

- [x] Forum, Thread
- [ ] ForumModerator, Forum
- [x] EmailMessage, User
- [x] Terms, TermsAgreed
- [x] Post, Thread
- [ ] ThreadFollower, User
- [x] ModeratorAction, ForumModerator

Question 15

2 / 2 pts

Match each relationship (Entity 1, Entity 2) with the correct connectivity for the direction from Entity 1 **to** Entity 2.

For instance: ThreadFollower, Thread indicates a relationship **from** ThreadFollower **to** Thread.

Forum, Thread	Zero-to-many
Thread, Forum	One-to-one
Post, Thread	Zero-to-many
Recipient, User	One-to-one
ModeratorAction, Thread	Zero-to-one
Post, User	Zero-to-one

Partial

Question 16

3.33 / 5 pts

1. ForumModerator to User is a(n) mandatory relationship.
2. ForumModerator is a(n) associative entity.
3. Post to Post is a(n) unary relationship between the PostMessage and PostReplyTo attributes.
4. EmailMessage to User is a(n) optional relationship.
5. User to ForumModerator is a(n) weak relationship between the UserID and ForumID attributes.

Answer 1:

mandatory

Answer 2:

associative

Answer 3:

unary

Answer 4:

PostMessage

Answer 5:

PostReplyTo

Answer 6:

optional

Answer 7:

weak

Answer 8:

UserID

Answer 9:

ForumID

Question 17

2 / 2 pts

Identify all the simple attributes in the Thread entity.

- [x] ThreadID
- [x] ThreadLocked
- [x] ThreadSticky
- [x] ThreadActive
- [ ] ThreadSubject
- [x] ForumID
- [x] ThreadViewCount

Question 18

2 / 2 pts

Identify any potentially composite attribute and explain why it is potentially composite.

Your Answer:

There are multiple composite attributes throughout this figure diagram.
The first one that comes to mind would be under EmailMessage Entity,
Dealing with EmailCreateDate/EmailSendDate. This could be broken up
into more that just one simple attribute, as this could use atomic attributes
such as (EmailCreateMonth, EmailCreateDay, EmailCreateYear),
(EmailSendMonth, EmailSendDay, EmailSendYear).
When having potentially composite attributes it can sometimes be hard for
a programmer to grab specific data if their application / code doesn't
specify the exact way a user inputted the information. Always assume
your user is "dumb" and wont follow directions unless you put contraints.
IE. enter date may be written specifically above (12/02/2021) as an
example but users still would put (12-02-2021), this is why when
designing your database you can account for these errors by separating
thing out. IE. Enter month, Enter day, Enter year, which will probably
cause less errors.

I think you probably want a different construct than assuming your user is "dumb".

Question 19

3 / 3 pts

True or false:

1. True A Forum can have multiple Threads.
2. True A Thread must be started by a single User.
3. False A ModeratorAction must have an associated User and Thread.
4. [Select] A Recipient can only link a single EmailMessage and a single User.
5. [Select] A TermsAgreed must be created when new Terms are created.

Answer 1:

True

Answer 2:

True

Answer 3:

False

Answer 4:

True

Answer 5:

False

Question 20

0 / 0 pts

Please note any answers that resulted from direct collaboration with another student, including that student's name.

Your Answer:

Rodger Lorelli helped me some with question 13, as I was having trouble understanding how something is neither weak or strong. I figured it out with his help

Quiz Score: **35.93** out of 40

This quiz score has been manually adjusted by +0.6 points.