CSC 675

Homework 1

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Due 9/20/21 10:00

Question 1

1. In ER diagrams, a relationship set cannot exist between an entity set and itself.

False

2. Protection from changes in logical structure of data is logical independency.

True

3. Relational schemas define the logical model of our data.

True

4. A database management system can manage several databases.

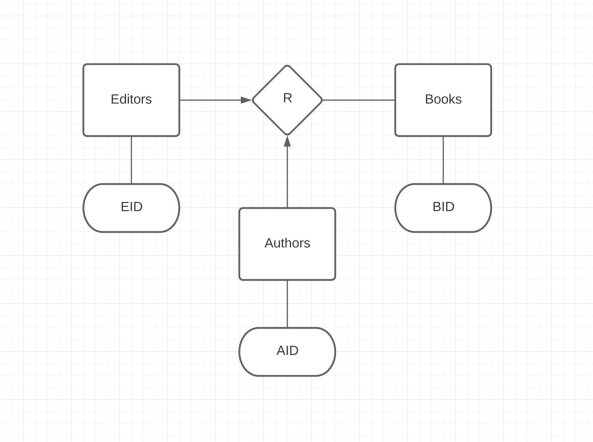
True

Question 2

Consider the following ER model about books written by authors. Assuming there are 30 authors, 100 books, and 10 editors, answer these questions:

1)

a) Modify the ER model such that each editor edits at most one book and works with at most one author.



b) What is the maximum number of triples in R

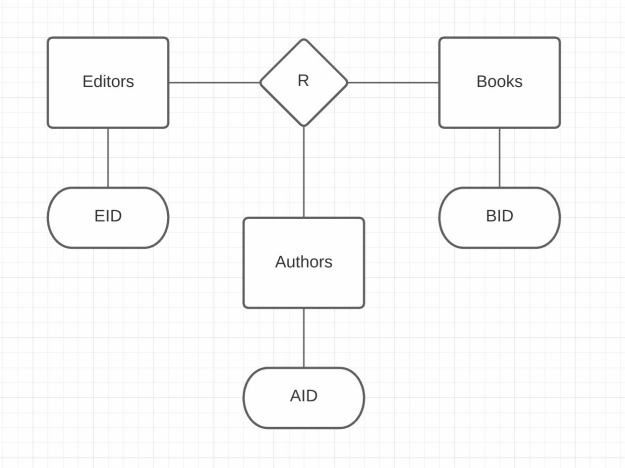
Total of 10 editors who can only work with 1 author each, which means there are 10 possible triples.

c) What is the minimum number of triples in R?

There are no binding contracts or conditions so no minimum number of triples exist.

2)

a) Modify the ER model such that each editor edits at least one book and works with at least one author.



b) What is the maximum number of triples in R

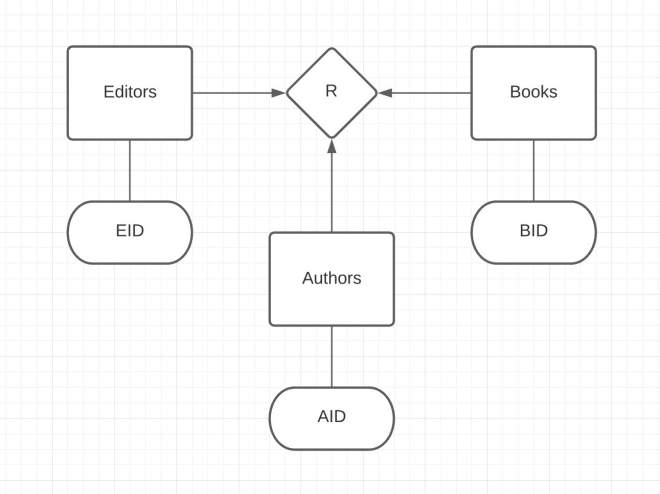
No limit is set on the number of editors and authors who can work together. The only limit we have set is the 100 books. So, there can be a maximum of 100 triples where all the authors and editors work on each of the 100 books.

c) What is the minimum number of triples in R

The minimum number of triples must be at least 1.

3)

a) Modify the ER model such that each author writes exactly one book and works with exactly one editor. Each editor edits at least one book and works with at least one author.



b) What is the maximum number of triples in R

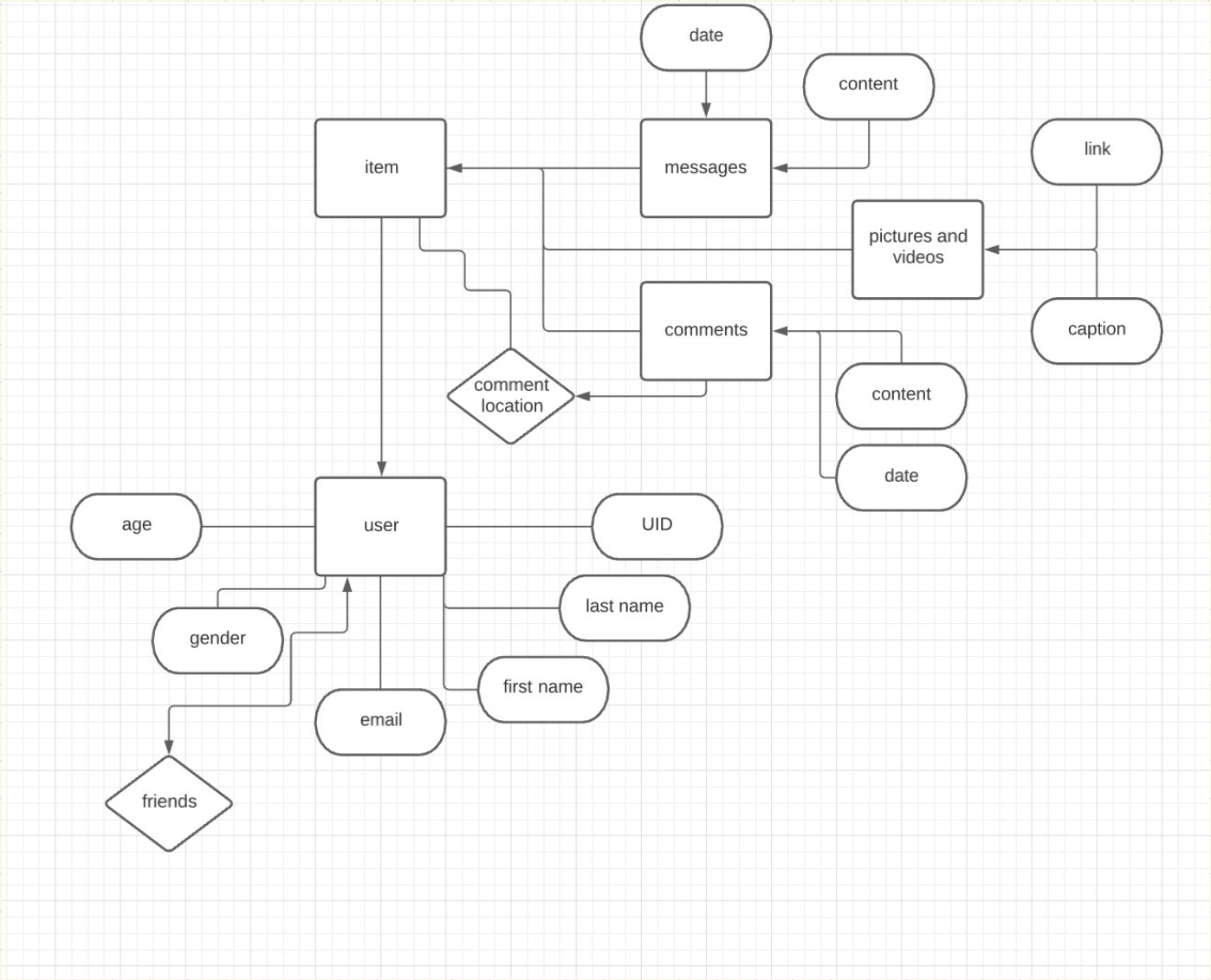
The entities are only allowed to work with one other entity, this means that anything above 2 is impossible and 1 is the maximum.

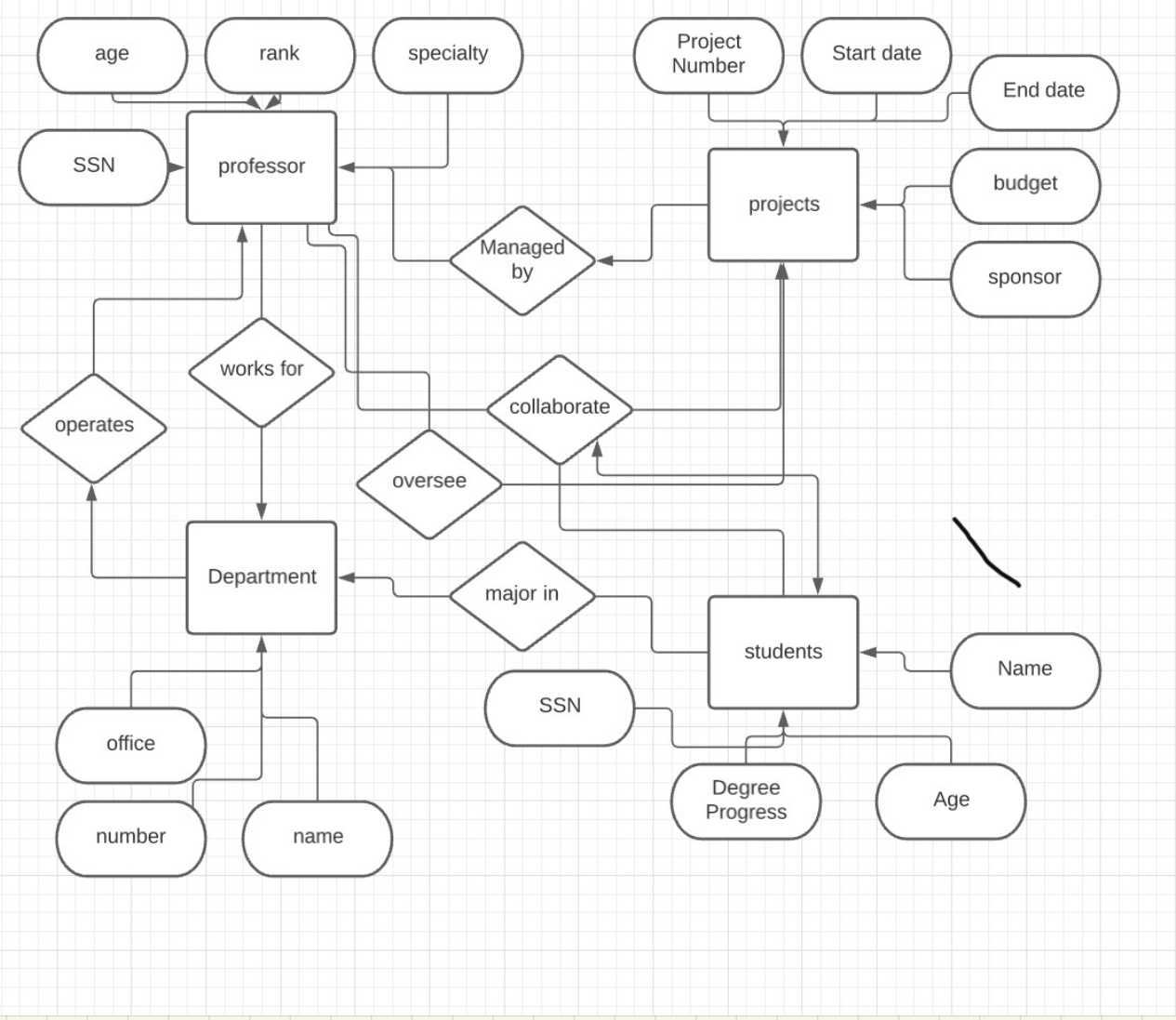
c) What is the minimum number of triples in R

The minimum number of triples is not defined or set so it is 0.

Question 3

Social Network Model:



Question 4

University System Model: