

## Description

You are asked to draw an ER Diagram for the following small database.

Consider a Movie database in which data is recorded about the movie industry. The data requirements are summarized as follows:

- Each movie is identified uniquely by title and year of release.
- Each movie has a length in minutes, and it is classified under one or more genres (such as horror, action, drama, and so forth). Each movie also has a plot outline.
- Movies are produced by a production company. Production companies are identified uniquely by name. They have an address too. An address is composed of Country, City, Street, and building number.
- A production company produces one or more movies. A movie is produced by only one production company.
- Each movie has one or more directors, and one or more actors appear in it. Finally, each movie has zero or more quotable quotes, each of which is spoken by an actor appearing in the movie.
- When the database is created and it is in use, occasionally we need to know how many actors played in a movie. But this query is not a frequent query, so we do not want to take disk space and do not store this information in our database.
- Actors are identified uniquely by name and date of birth and appear in one or more movies. Each actor has a role in the movie such as lead actor, co-star, quest star, and so on.
- Directors are also identified uniquely by name and date of birth and direct one or more movies. It is possible for a director to act in a movie (including one that he/she may also direct).

Draw an entity–relationship diagram for this Movie database.

## Guidelines

1. Find Entities (look for the nouns in database description. They are mostly entities).

**Note:** there are several solutions for modeling Actors and Directors. One solution is to consider them as one entity named crew or cast, and this single entity has two different types of relationship with movie: one relationship is for acting and another relationship is for directing.

Another solution is to model actors and directors as two separate entities. In this case, actors act in a movie and directors act in a movie.

There might be a third solution that you, all smart students, can find it. 😊

2. Find attributes of entities (mostly nouns, adjectives, or adverbs for entities)
3. Attributes can be of 4 types. Use proper Chen's modeling notation for each type of attribute
  - Simple
  - Composite
  - Multi-valued
  - Derived
4. Find Key Attributes and show them on the diagram. All entities must have at least one key attribute!
5. Find relationships (look for verbs in the database description. Use third person single verbs, to display relationships left-to-right or top-down reading direction )
6. Specify cardinality ratio of relationships
7. Specify total and partial participations

You may want to use Microsoft Word for drawing the ER-Diagram. I have included in this lab a template MS Word document. You can use this document to draw your diagram inside its Drawing Canvas. If you have not used this feature of MS Word, it is recommended to draw your ERD to learn this skill for your future projects. There are many videos on

YouTube or other resources to learn how to use the Drawing Canvas in MS Word (e.g. <https://www.youtube.com/watch?v=PYdgEdG7kpM>)

You can use some free websites for drawing ER-Model.

### Submission

For this lab, please submit the following items to the assigned folder on D2L prior to the due time:

1. Convert the MS Word document (that contains your ER-Model) to a PDF (in MS Word 365: File menu -> Save a Copy -> select PDF (\*.pdf) before saving). Rename the PDF file name as lab#\_xy.pdf where # is lab number, and x is your first name, and y is your last name. If I were supposed to submit my lab, the name of the file would be *lab1\_SaeedMirjalili.pdf*

### Marking Scheme

Task		Points	Granted	Comment
Entities identified correctly		15		
Attributes	simple	5		
	composite	6		
	Multi-valued	6		
	derived	4		
Keys for entities specified		12		
Relationships identified correctly		16		
cardinality ratio of relationships		12		
total and partial participations		14		
ERD drawn by MS Word or another software		10		
<b>Total</b>		<b>100</b>	<b>0</b>	