

# Technologies for Information Systems

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Available Time 1h 45m

<b>Last Name</b> _____
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*MovieChannel* is a movie-on-demand channel. The relational database of *MovieChannel* stores detailed information about movies, customers, and the set of movies watched by each customer. Customers are allowed to rate the movies of *MovieChannel* (from 0 to 5 stars).

*MovieComments* is a blog that stores comments about movies. The users of *MovieComments* write comments on movies and rate them by means of a like/dislike rating. The relational database of *MovieComments* is freely available and any company can use it.

*MovieChannel* is owned by the *MovieOnline* company. The marketing office of *MovieOnline* wants to integrate the two sources (*MovieChannel* and *MovieComments*) in order to be able to retrieve quickly the list of preferred movies of each customer. A movie is part of the list of preferred movies of a user if it has been rated with the highest possible rate by the user in at least one of the two sources.

In the following we report the original relational schemas.

## MovieChannel:

Customer(CID, Name, Surname, First-email, Second-email, Birthdate)

Movie(MID, Title, Producer, Description)

Genres(GID, Genre, Description)

Movies\_Genres(MID, GID)

CustomerWatches(CID, Date, Starttime, MID, Rating)

## MovieComments:

User(Nickname, Email, Age, Gender)

Film(Film-Title, Description, Genre)

Comments(CommentID, Film-Title, Nickname, Date, Plain-text)

Rate(Nickname, Film-Title, Opinion) // The domain of Opinion is {'like', 'dislike'}

Consider the query Q “Show all users with at least one horror movie in their list of preferred movies”.

1. Provide, **for each** input data source, the reverse engineering from the logical to the conceptual schema (ER graph).
2. Design an integrated global conceptual schema (ER graph) for MovieOnline capturing **all** the data coming from both MovieChannel and MovieComments, and provide the corresponding logical schema.
3. Write GAV mappings between the schema of MovieOnline and the sources either in Datalog or SQL. **Write the mappings for all the tables of MovieOnline.**
4. Consider query Q posed on MovieOnline’s schema and write it either in Datalog or SQL.
5. Show the rewriting of Q on the data sources either in Datalog or SQL.

## Important:

- 1) Spell out all your assumptions.
- 2) Avoid information loss as much as possible when defining the new schema.
- 3) List clearly all conflicts you detect during schema integration, if any.