
OpenCourseWare

Database

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Exercise 3 solution (Topic Relational Model (2.1))



OpenCourseWare



Data Base

Bachelor in Data Science and Engineering

SUBJECT: Exercises (Topic 2.1: Relational Model)

uc3m

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NETSERIES

Netseries is a Spanish media service provider which offers a web platform with access to series. Netseries is financed through user subscriptions. Each user's subscription is associated with a user account which is identified by a code. Additionally, the user's email address, first name, last name, at least one phone number and a bank account number used to process payment for the subscription must also be provided. The user's year of birth and gender sex will also be saved in the database only in the case that the user wishes to provide this information.

A user account can have several profiles. Each profile is identified by a name along with the identification code of the account to which it belongs.

Each user account accesses the episodes of the available series through one of the profiles associated with that account. For each profile, the platform assigns a percentage of similarity to each series that must be stored.

Information must be provided for each series regarding its genre, URI (from the trailer video), year produced, country of origin, a minimum viewer age and a director. A series can have one or more seasons. The number of seasons must be stored per series.

Each season is identified by a number along with the identifier of each series. The year of each season must also be stored. Each season has episodes and the number of episodes per season must be stored as well.

An episode is identified by its own unique number along with the season identifier. In addition, the description of the episode and the URI with the video of the episode must also be stored.

When each profile accesses an episode, the following information must be stored: the connection start timestamp, the disconnect timestamp and the device from which the user has accessed the episode.

Finally, the type of subscription plan the user has purchased must also be saved. There are various options: basic (download videos on 1 phone or tablet), standard (download videos on 2 phones or tablets) and premium (download videos on 4 phones or tablets).

In order to properly control these restrictions, information regarding which profile has been used to access the video, which episode has been downloaded, the timestamp of when the download was made and what device the episode has been downloaded to must also be saved.

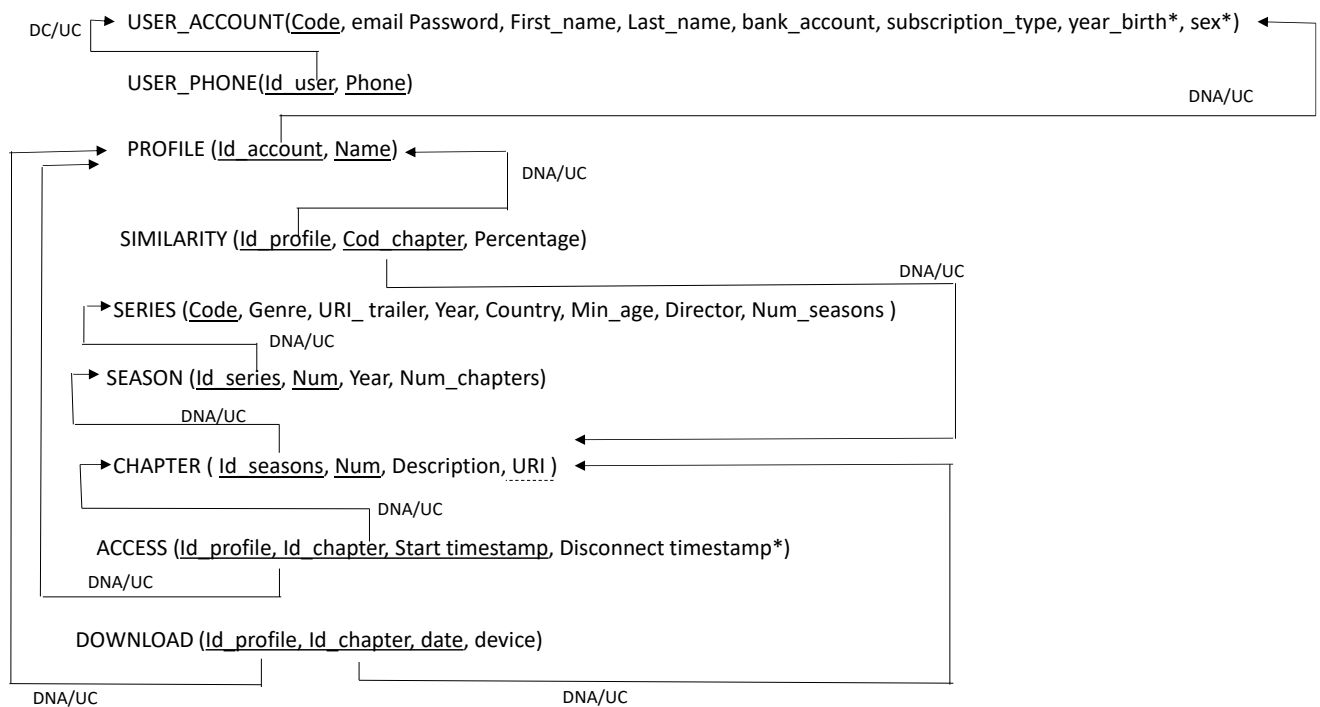
You must:

- Obtain the relational schema/diagram according to requirements with the primary and alternative keys. Indicate the foreign keys with their delete and update options.
- Write additional semantic assumptions to the statement, if needed
- Write additional semantic assumptions to the scheme, if needed

SOLUTION

Partial solution, some semantic assumptions are missing.

A possible solution is:



ASSUMPTIONS

Semantic assumptions to the statement

- The same video can be downloaded several times
- A video can be watched several times
- The information about accesses and downloads is relevant for the service (so DNA has been chosen in involved relations)

Semantic assumptions to the schema

- The number of devices where the videos have been downloaded must match the subscription type
- The attribute for the number of seasons must match the number of tuples for that season appearing in the 'Season' relation
- The attribute with the number of chapters for a season must match the number of tuples available for that season in the 'Chapter' relation

Domains

- Subscription_type: {basic, standard, premium}