DIAS: Data-Intensive Applications and Systems Laboratory
School of Computer and Communication Sciences
Ecole Polytechnique Fédérale de Lausanne
Building BC, Station 14
CH-1015 Lausanne
URL: http://dias.epfl.ch/

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Databases Project – Spring 2018

Team No: 7

Names:

Da Rocha Rodrigues David Joaquim, Torres Da Cunha Pedro Filipe , Justinas Sukaitis

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Deliverable 1

Assumptions

We assumed that a clip could be in development, which implies that it might not have yet a released date/country, a rating, defined genres, defined languages and associated countries.

We also assumed that a movie staff (i.e. actor, director, producer or writer) doesn't necessarily have a bibliography.

Finally, in this relationship scheme, we imply that a movie staff can be in the data base without being associated to a movie (i.e. the directors' first movie is not released yet or simply isn't in our database)

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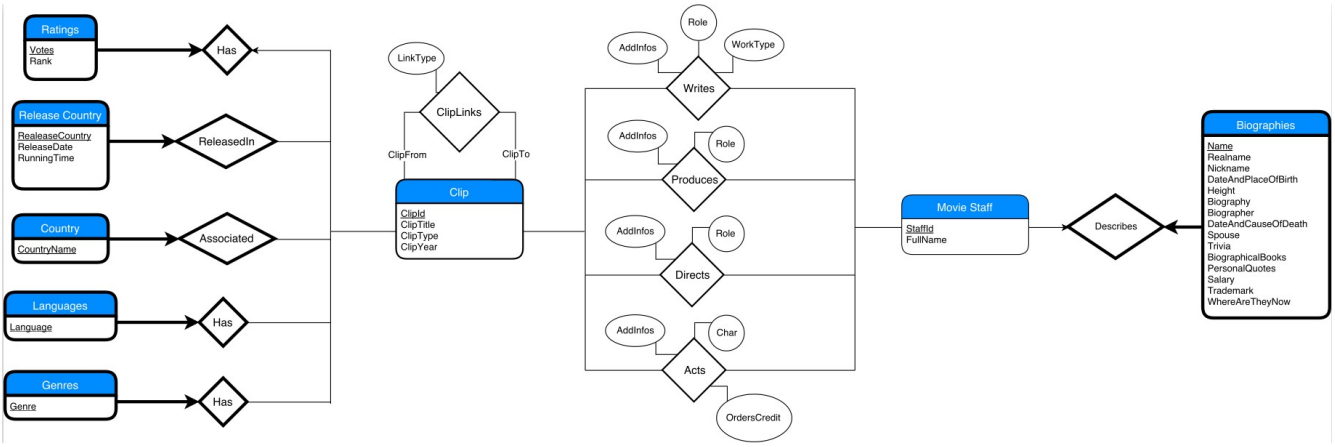
Entity Relationship Schema

Schema



Description

We regrouped the actors, producers, directors and writers into a single entity **Movie Staff** whose instances are identified by a unique *StaffId*.

A **Movie Staff** can be described by at most one **Biography**. A **Biography** describes exactly one **Movie Staff** which makes it a weak entity.

A **Movie Staff** can write, produce, direct or act in **Clip**s.

A **Clip** can have any number of ClipLinks with other **Clip**s.

A **Clip** can have **Genres**, have **Languages**, be associated to **Countries**, have **Release Countries** and have a **Rating**.

A **Genre** instance is a pair composed of a *ClipId* and a *Genre* so each instance is linked to exactly one **Clip**, this makes **Genres** be a weak entity of **Clip**.

Ratings, **Release Country**, **Country** and **Languages** are also all weak entities of **Clip** following the same reasoning.

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Relational Schema

ER schema to Relational schema

Since we only have 2 owner entities: Clips and Movie Staff (the rest being weak entities). Defining the keys was straightforward:

Clips and Movie Staff have a unique Id for each of them: ClipId and StaffId respectively

Weak entities have a pair of values as their primary key, which is always the main attribute of the weak entity and one of the 2 Ids, depending on to which entity we're relating to (ex.: Rating is related to Clips, thus ClipId and Votes).

Relationships that link 2 non-weak entities have their own tables with foreign keys showing what these relationships link.

DDL

```
CREATE TABLE Biographies ( StaffId INT,
                           Name VARCHAR(40),
                           Realname VARCHAR(40),
                           Nickname VARCHAR(40),
                           DateAndPlaceOfBirth VARCHAR(40),
                           Height ENUM(feet, inches),
                           Biography TEXT,
                           Biographer VARCHAR(40),
                           DateAndCauseOfDeath VARCHAR(100),
                           Spouse VARCHAR(40),
                           Trivia TEXT,
                           BiographicalBooks TEXT,
                           PersonalQuotes TEXT,
                           Salary INT,
                           Trademark VARCHAR(20),
                           WhereAreTheyNow TEXT,
                           PRIMARY KEY (StaffId, Name),
                           FOREIGN KEY (StaffId) REFERENCES MovieStaff
                           ON DELETE CASCADE
);
```

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```
CREATE TABLE MovieStaff ( StaffId INT,
                          FullName VARCHAR(40),
                          PRIMARY KEY (FullName)
);


CREATE TABLE Writes ( StaffId INT,
                      ClipId INT,
                      AddInfos VARCHAR(100),
                      Role VARCHAR(40),
                      WorkType VARCHAR(40),
                      FOREIGN KEY (StaffId) REFERENCES MovieStaff,
                      FOREIGN KEY (ClipId) REFERENCES Clip
);


CREATE TABLE Produces ( StaffId INT,
                        ClipId INT,
                        AddInfos VARCHAR(100),
                        Role VARCHAR(40),
                        FOREIGN KEY (StaffId) REFERENCES MovieStaff,
                        FOREIGN KEY (ClipId) REFERENCES Clip
);


CREATE TABLE Directs ( StaffId INT,
                       ClipId INT,
                       AddInfos VARCHAR(100),
                       Role VARCHAR(40),
                       FOREIGN KEY (StaffId) REFERENCES MovieStaff,
                       FOREIGN KEY (ClipId) REFERENCES Clip
);


CREATE TABLE Acts ( StaffId INT,
                    ClipId INT,
                    AddInfos VARCHAR(100),
                    Char VARCHAR(40),
                    OrdersCredit INT,
                    FOREIGN KEY (StaffId) REFERENCES MovieStaff,
                    FOREIGN KEY (ClipId) REFERENCES Clip
);
```

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```
CREATE TABLE Clip ( ClipId INT,
                    ClipTitle VARCHAR(100),
                    ClipYear INT,
                    ClipType VARCHAR(20),
                    PRIMARY KEY (ClipId)
);


CREATE TABLE ClipLinks( ClipFrom INT,
                        ClipTo INT,
                        LinkType VARCHAR(20)
                        FOREIGN KEY (ClipId) REFERENCES Clip
                        FOREIGN KEY (ClipId) REFERENCES Clip
);


CREATE TABLE Ratings ( ClipId INT,
                       Votes INT,
                       RANK DOUBLE,
                       PRIMARY KEY (ClipId, Votes),
                       FOREIGN KEY (ClipId) REFERENCES Clip,
                       ON DELETE CASCADE
);


CREATE TABLE ReleaseCountry ( ClipId INT,
                              ReleaseCountry VARCHAR(40),
                              ReleaseDate INT,
                              RunningTime INT,
                              PRIMARY KEY (ClidId, ReleaseCountry),
                              FOREIGN KEY (ClipId) REFERENCES Clip,
                              ON DELETE CASCADE
);


CREATE TABLE Country ( ClipId INT,
                       CountryName VARCHAR(40),
                       PRIMARY KEY (ClipId, CountryName),
                       FOREIGN KEY (ClidId) REFERENCES Clip,
                       ON DELETE CASCADE
);
```

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```
CREATE TABLE Languages (ClipId INT,
                        Language VARCHAR(20),
                        PRIMARY KEY (ClipId, Language),
                        FOREIGN KEY (ClipId) REFERENCES Clip,
                        ON DELETE CASCADE
);


CREATE TABLE Genres (ClipId INT,
                     Genre VARCHAR(20),
                     PRIMARY KEY (ClipId, Genre),
                     FOREIGN KEY (ClipId) REFERENCES Clip,
                     ON DELETE CASCADE
);
```

General Comments

Firstly we tried to think individually about the logical possible relationships between actors, directors, clips etc. After having agreed on a version, we added constraints by looking at the data and using the course proposed book and course material.

Finally after the scheme was rectified, we created the DDL provided above.

We usually work together throughout the week, so there were no difficulties regarding meet ups and keeping a constant progress on the project.

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Deliverable 2

Assumptions

<In this section write down the assumptions you made about the data. Write a sentence for each assumption you made>

Data Loading

Query Implementation

<For each query>

Query a:

Description of logic:

<What does the query do and how do I decide to solve it>

SQL statement

<The SQL statement>

Interface

Design logic Description

<Describe the general logic of your design as well as the technology you decided to use>

Screenshots

<Provide some initial screen shots of your interface>

General Comments

<In this section write general comments about your deliverable (comments and work allocation between team members>

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Deliverable 3

Assumptions

<In this section write down the assumptions you made about the data. Write a sentence for each assumption you made>

Query Implementation

<For each query>

Query a:

Description of logic:

<What does the query do and how do I decide to solve it>

SQL statement

<The SQL statement>

Query Analysis

Selected Queries (and why)

Query 1

<Initial Running time:
Optimized Running time:
Explain the improvement:
Initial plan
Improved plan>

Query 2

<Initial Running time:
Optimized Running time:
Explain the improvement:
Initial plan
Improved plan>

Query 3

<Initial Running time:
Optimized Running time:
Explain the improvement:
Initial plan
Improved plan>

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