MySQL Exam

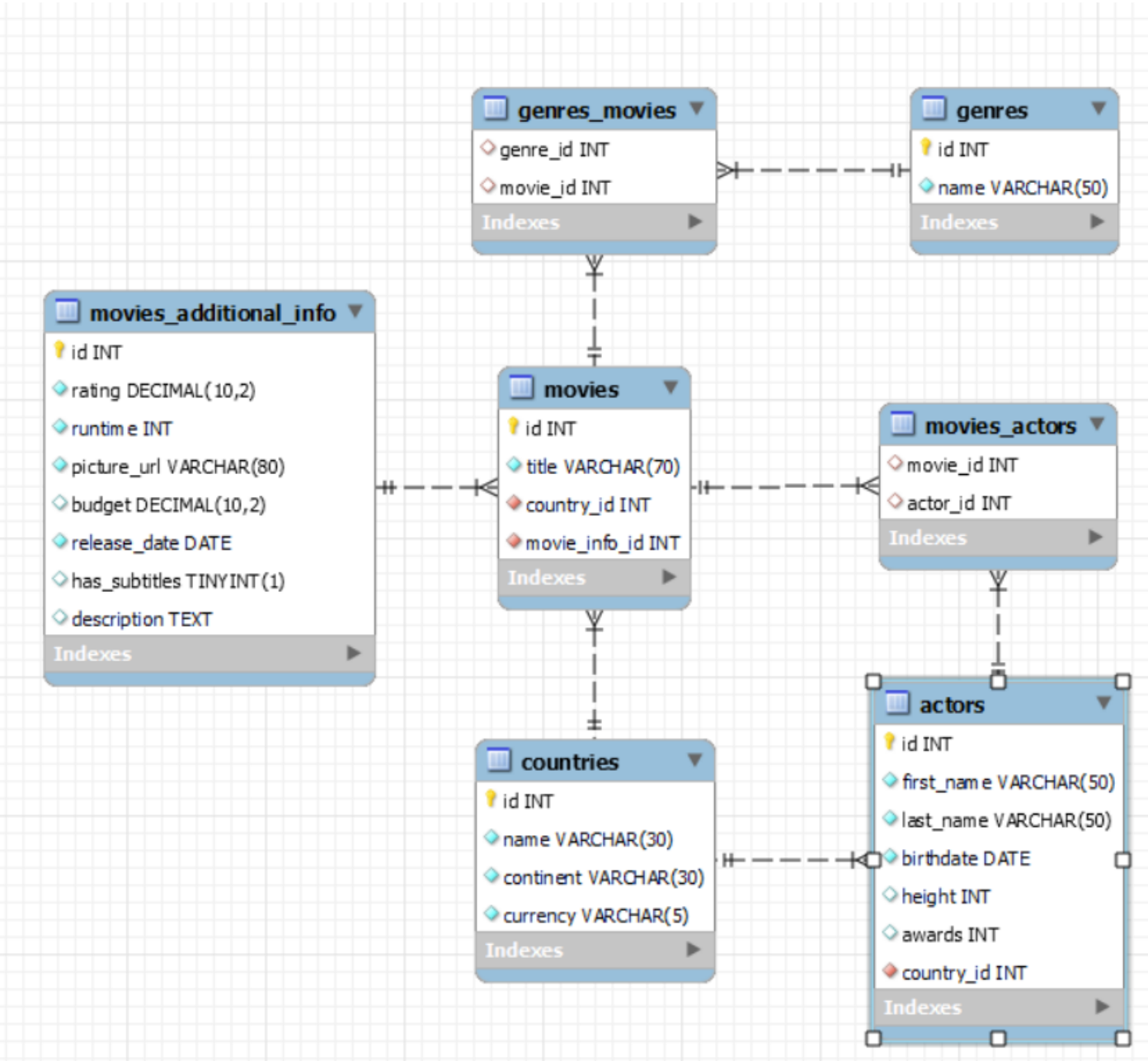
SoftUni Internet Movie Database – SU-IMDb

Exam for the "MySQL" course @ SoftUni.

The biggest international movie festival is about to begin. They hired a team of programmers to help manage their database. Now you are the leader of the team and you need to manage the system so they can keep track of all movies and actors and finally on the ceremony to give the annual awards to the winners.

Section 0: Database Overview

You have been given an Entity / Relationship Diagram of the Database:



The **softuni_imdb's Database** needs to hold information about **movies**, **countries**, **actors**, **genres** and **movies additional info**.

Your task is to create a database called **softuni_imdb**. Then you will have to create several **tables**.

- **countries** – contains information about the **countries**.
- **movies** – contains information about the **movies**.
    - Each **movie** has **actors, country** and **genres**.
- **actors** – contains information about the **actors**.
    - Each **actor** has a **country**.
- **genres** – contains information about the **genres**.
- **movies additional info** – contains information about the **customers**.
- **`movies_actors`** – a **many** to **many mapping** table between the **movies** and the **actors**.
- **`genres_movies`** – a **many** to **many mapping** table between the **genres** and the **movies**.

Section 1: Data Definition Language (DDL) – 40 pts

Make sure you implement the whole database correctly on your local machine, so that you could work with it.

The instructions you'll be given will be the minimal needed for you to implement the database.

01. Table Design

You have been tasked to create the tables in the database by the following models:

countries

Column Name	Data Type	Constraints
`id`	**Integer,** from **1** to **2,147,483,647.**	**Primary Key** **AUTO_INCREMENT**
`name`	A **string** containing a maximum of **30 characters**. Unicode is **NOT** needed.	**NULL** is **NOT** permitted. **UNIQUE** values.
`continent`	A **string** containing a maximum of **30 characters**. Unicode is **NOT** needed.	**NULL** is **NOT** permitted.
`currency`	A **string** containing a maximum of **5 characters**. Unicode is **NOT** needed.	**NULL** is **NOT** permitted.

genres

Column Name	Data Type	Constraints
`id`	**Integer,** from **1** to **2,147,483,647.**	**Primary Key** **AUTO_INCREMENT**
`name`	A **string** containing a maximum of **50 characters**. Unicode is **NOT** needed.	**NULL** is **NOT** permitted. **UNIQUE** values.

actors

Column Name	Data Type	Constraints
`id`	**Integer,** from **1** to **2,147,483,647.**	**Primary Key AUTO_INCREMENT**
`first_name`	A **string** containing a maximum of **50 characters**. Unicode is **NOT** needed.	**NULL** is **NOT** permitted**.**
`last_name`	A **string** containing a maximum of **50 characters**. Unicode is **NOT** needed.	**NULL** is **NOT** permitted**.**
`birthdate`	The birthdate **date** of the person.	**NULL** is **NOT** permitted**.**
`height`	**Integer,** from **1** to **2,147,483,647.**	
`awards`	**Integer,** from **1** to **2,147,483,647.**	
`country_id`	**Integer,** from **1** to **2,147,483,647.**	Relationship with table `countries`. **NULL** is **NOT** permitted**.**

movies_additional_info

Column Name	Data Type	Constraints
`id`	**Integer,** from **1** to **2,147,483,647.**	**Primary Key AUTO_INCREMENT**
`rating`	**DECIMAL**, up to **10 digits**, **2** of which after the **decimal point**.	**NULL** is **NOT** permitted**.**
`runtime`	**Integer,** from **1** to **2,147,483,647.**	**NULL** is **NOT** permitted**.**
`picture_url`	A **string** containing a maximum of **80 characters**. Unicode is **NOT** needed.	**NULL** is **NOT** permitted**.**
`budget`	**DECIMAL**, up to **10 digits**, **2** of which after the **decimal point**.	
`release_date`	The release **date** of the movie.	**NULL** is **NOT** permitted**.**
`has_subtitles`	Can be true or false	
`description`	A very **long** string field	

movies

Column Name	Data Type	Constraints
`id`	**Integer,** from **1** to **2,147,483,647.**	**Primary Key AUTO_INCREMENT**

`title`	A **string** containing a maximum of **70 characters**. Unicode is **NOT** needed.	**NULL** is **NOT** permitted**.** **UNIQUE** values.
`country_id`	**Integer,** from **1** to **2,147,483,647.**	Relationship with table `countries`. **NULL** is **NOT** permitted**.**
`movie_info_id`	**Integer,** from **1** to **2,147,483,647.**	Relationship with table `movies_additional_info`. **NULL** is **NOT** permitted**.** **UNIQUE** values.

movies_actors

Column Name	Data Type	Constraints
`movie_id`	**Integer,** from **1** to **2,147,483,647.**	Relationship with table `movies`.
`actor_id`	**Integer,** from **1** to **2,147,483,647.**	Relationship with table `actors`.

genres_movies

Column Name	Data Type	Constraints
`genre_id`	**Integer**, from **1** to **2,147,483,647.**	Relationship with table `genres`.
`movie_id`	**Integer**, from **1** to **2,147,483,647.**	Relationship with table `movies`.

Submit your solutions in Judge on the first task. Submit **all** SQL table creation statements.

You will also be given a `data.sql` file. It will contain a **dataset** with random data which you will need to **store** in your **local database**. This data will be given to you so you will not have to think of data and lose essential time in the process. The data is in the form of **INSERT** statement queries.

Section 2: Data Manipulation Language (DML) – 30 pts

Here we need to do several manipulations in the database, like changing data, adding data etc.

Select and join only tables and columns that are needed in the exercises. Any additional or less information will be considered wrong.

02. Insert

You will have to **insert** records of data into the **actors** table.

The new data will be based on **actors** with **id** equal or less than **10**. **Insert data** in the **actors** table with the **following values**:

- **first_name** – set it to the first name of the actor but **reversed**.
- **last_name** – set it to the last name of the actor but **reversed**.
- **birthdate** – set it to the **birthdate** of the **actor** but **2 days earlier**.
- **height** – set it to the **height** of the **actor** plus **10**.
- **awards** – set them to the **country_id**.
- **country_id** – set it to the **id** of **Armenia**.

03. Update

Reduce all **movies runtime** by 10 minutes for **movies** with **movies_additional_info id** equal to or greater than 15 and less than 25 (**inclusive**).

04. Delete

Delete all **countries** that don't have movies.

Section 3: Querying – 50 pts

And now we need to do some data extraction. **Note** that the **example results** from **this section** use a **fresh database**. It is **highly recommended** that you **clear** the **database** that has been **manipulated** by the **previous problems** from the **DML section** and **insert again** the **dataset** you've been given, to ensure **maximum consistency** with the **examples** given in this section.

05. Countries

Extract from the **softuni_imdb** system database, info about the name of **countries**.

Order the results by **currency** in **descending** order and then by **id**.

Required Columns

- `id (countries)`
- `name`
- `continent`
- `currency`

Example

id	name	continent	currency
42	South Africa	Africa	ZAR
53	Uzbekistan	Asia	UZS
50	Uruguay	South America	UYU
...	...		

06. Old movies

Write a query that returns: **title**, **runtime**, **budget** and **release_date** from table **movies_additional_info**. **Filter** movies which have been **released** from 1996 to 1999 **year** (**inclusive**).

Order the results **ascending** by **runtime** then by **id** and show only the first **20** results.

Required Columns

- **id**
- **title**
- **runtime**
- **budget**
- **release_date**

Example

id	title	runtime	budget	release_date
251	Maniac	60	110495.27	1999-10-28
298	Ronin	60	447741.91	1997-07-25
103	Opfergang	62	481899.08	1999-09-02
…	…	…	…	…

07. Movie casting

Some actors are free and can apply the casting for a new movie. You must search for them and prepare their documents.

Write a query that returns: **full name**, **email**, **age** and **height** for all actors that are not participating in a movie.

To find their **email** you must take their last name **reversed** followed by the **number of characters** of their last name and then the casting email **"@cast.com"**

Order by height in **ascending** order.

Required Columns

- **full_name (first_name + " " + last_name)**
- **email (last_name reversed + number of characters from the last_name + @cast.com)**
- **age (2022 – the year of the birth)**
- **height**

Example

full_name	email	age	height
Hube Miranda	adnariM7@cast.com	35	155
Charlotte Eyres	seryE5@cast.com	55	156

…	…	…	…
Connie Mackneis	sienkcaM8@cast.com	27	184

08. International festival

The international movie festival is about to begin. We need to find the countries which are nominated to host the event.

Extract from the database, the **name the country** and the **number of movies** created in this country. The **number of movies** must be higher or equal to **7**.

Order the results **descending** by **name.**

Required Columns

- **name (country)**
- **movies_count (number of movies created in the country)**

Examples

name	movies_count
Sweden	13
Serbia	8
Philippines	9
…	…
Argentina	7

09. Rating system

From the database extract the **title**, **rating**, **subtitles,** and the **budget** of **movies**. If the **rating** is equal or less than **4** the user must see "**poor**", above **4** and less or equal to **7 "good"** and above that it should display "**excellent**". If the movie has subtitles the user should see "english", otherwise "-".

Order the results **descending** by **budget**.

Required Columns

- **title**
- **rating (less or equal to 4 – "poor", above 4 and less or equal to 7 – "good", above 7 – "excellent")**
- **subtitles (if it has subtitles it– "english", otherwise – "-")**
- **budget**

Example

title	rating	subtitles	budget

Metsän tarina	good	english	499981.78
Family Secrets (Familjehemligheter)	poor	-	497338.13
Place in the Sun, A (En plats i solen)	excellent	english	496586.35
. . .	. . .	. . .	. . .
Saban, Son of Saban	good	-	21027.33

Section 4: Programmability – 30 pts

The time has come for you to prove that you can be a little more dynamic on the database. So, you will have to write several procedures.

10. History movies

Create a **user defined function** with the name **udf_actor_history_movies_count(full_name VARCHAR(50))** that receives an **actor's full name** and returns the total number of **history** movies in which the actor has a role.

Required Columns

- **history_movies(udf_customer_products_count)**

Example

Query
SELECT udf_actor_history_movies_count('Stephan Lundberg') AS 'history_movies';
history_movies
2

Query
SELECT udf_actor_history_movies_count('Jared Di Batista') AS 'history_movies';
history_movies
1

11. Movie awards

A movie has won an award. Your task is to find all actors and give them the award.

Create a stored procedure **udp_award_movie** which accepts the following parameters:

- **movie_title(VARCHAR(50))**

Extracts data about the **movie** with the given **title** and find all **actors** that play in it and **increase** their **awards** with **1**.

Result

Query

```
CALL udp_award_movie('Tea For Two');
```

This execution will update 3 actors – **Vanna Bilborough, Armando Cabrera, Ingrid Ackenhead**

Result

full_name	awards before	->	awards after
Vanna Bilborough	20	->	21
Armando Cabrera	18	->	19
Ingrid Ackenhead	24	->	25