A Project Report on

Movies Collection Database

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I sincerely thank Professor Robert Wahl for this useful course. I learned a lot from him. I learned how to design, implement, manage and maintenance a database. In addition, he introduced me some applicable resources in DBMS. I appreciate Professor Wahl for a great course that helped me to develop this project.

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Introduction

The database Movies Collection has seven tables:

1. movies

2. stars

3. movies_Stars

4. directors

5. movies_directors

6. genres

7. movies_Genres

movies table: The movies table has six columns which are Movie_ID, Movie_Title, Movie_Date, Movie_Description, Movie_Image_URL, and Movie_IMDB_Rate. Movie_ID is the primary key.

stars table: The stars table has three columns which are Star_ID, Star_Name, and Star_About. Star_ID is the primary key.

genres table: The genres table has two columns which are Genre_ID, and Genre_Name. Genre_ID is the primary key.

movies_stars table: The movies_stars table has two columns which are Movie_ID, and Stars_ID. Movie_ID and Stars_ID are the primary key.

movies_directors table: The movies_directors table has two columns which are Movie_ID, Director_ID. Movie_ID and Director_ID are the primary key.

movies_stars table: The movies_stars table has two columns which are Movie_ID, Movie_Title,   Movie_Date, Mocie_Description, Movie_Image_URL, and Movie_IMDB_Rate. Movie_ID is the primary key.

Movies_genres table: The movies_genres table has two columns which are Movie_ID, Genre_ID. Movie_ID and Genre_ID are the primary key.
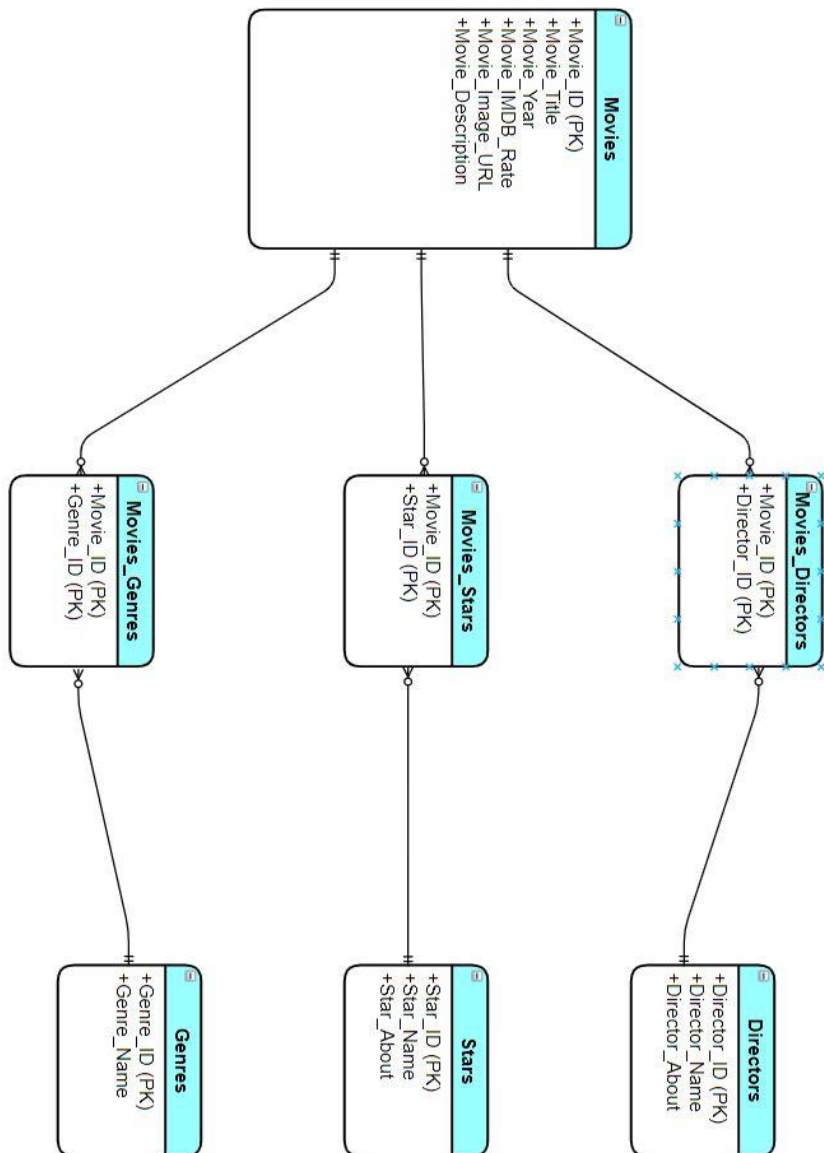
ERD Relationship Entities

Movie: Represents a movie in my movies collection.

Director: Represents a director who has directed one or more movie in my movies collection.

Genre: Represents a genre of a movie in my movies collection.

Star: Represents an actor/actress who have had a role in the movie presents in my movies collection.

*** There are four entities but seven tables in this database, because after normalizing database, each M:N relationship should be changed to two 1:N relationship.

ER Diagram for Movies Collection Database

Movies
+Movie_ID (PK)
+Movie_Title
+Movie_Year
+Movie_IMDB_Rate
+Movie_Image_URL
+Movie_Description

Movies_Genres
+Movie_ID (PK)
+Genre_ID (PK)

Movies_Stars
+Movie_ID (PK)
+Star_ID (PK)

Movies_Directors
+Movie_ID (PK)
+Director_ID (PK)

Genres
+Genre_ID (PK)
+Genre_Name

Stars
+Star_ID (PK)
+Star_Name
+Star_About

Directors
+Director_ID (PK)
+Director_Name
+Director_About

Create the Database

```
1       CREATE SCHEMA `movies_collection` ;
2
```

Create the Tables

```
1   ⊖  CREATE TABLE `movies_collection`.`directors` (
2          `Director_ID` INT NOT NULL AUTO_INCREMENT,
3          `Director_Name` VARCHAR(50) NOT NULL,
4          `Director_About` VARCHAR(500) NULL,
5       └  PRIMARY KEY (`Director_ID`));
6
```

```
1   ⊖  CREATE TABLE `movies_collection`.`genres` (
2          `Genre_ID` INT NOT NULL AUTO_INCREMENT,
3          `Genre_Name` VARCHAR(45) NOT NULL,
4       └  PRIMARY KEY (`Genre_ID`));
5
```

```
1   ⊖  CREATE TABLE `movies_collection`.`movies` (
2          `Movie_ID` INT NOT NULL AUTO_INCREMENT,
3          `Movie_Title` VARCHAR(100) NOT NULL,
4          `Movie_Year` DATETIME NOT NULL,
5          `Movie_Description` VARCHAR(500) NULL,
6          `Movie_Image_URL` VARCHAR(100) NULL,
7          `Movie_IMDB_Rate` INT NULL,
8       └  PRIMARY KEY (`Movie_ID`));
9
```

```
1   ⊖ CREATE TABLE `movies_collection`.`stars` (
2       `Star_ID` INT NOT NULL AUTO_INCREMENT,
3       `Star_Name` VARCHAR(50) NOT NULL,
4       `Star_About` VARCHAR(500) NULL,
5       PRIMARY KEY (`Star_ID`));
6
```

```
1   ⊖ CREATE TABLE `movies_collection`.`movies_directors` (
2       `Movie_ID` INT NOT NULL,
3       `Director_ID` INT NOT NULL,
4       PRIMARY KEY (`Movie_ID`, `Director_ID`));
5
```

```
1   ⊖ CREATE TABLE `movies_collection`.`movies_genres` (
2       `Movie_ID` INT NOT NULL,
3       `Genre_ID` VARCHAR(45) NOT NULL,
4       PRIMARY KEY (`Movie_ID`, `Genre_ID`));
5
```

```
1   ⊖ CREATE TABLE `movies_collection`.`movies_stars` (
2       `Movie_ID` INT NOT NULL,
3       `Star_ID` INT NOT NULL,
4       PRIMARY KEY (`Movie_ID`, `Star_ID`));
5
```

Insert records into Tables

```
1 • INSERT INTO `movies_collection`.`directors`
2   (`Director_ID`,
3    `Director_Name`,
4    `Director_About`)
5   VALUES
6   (1,'Stanley Kubrick',' (July 26, 1928 – March 7, 1999)He was a British and American film director, producer, screenwriter,
7   He is frequently cited as one of the greatest filmmakers in cinematic history.
8   His films, which are mostly adaptations of novels or short stories, cover a wide range of genres, and are noted for their
9 • INSERT INTO `movies_collection`.`directors`
10  (`Director_ID`,
11   `Director_Name`,
12   `Director_About`)
13  VALUES
14  (2,'Alfred Hitchcock',' (13 August 1899 – 29 April 1980)He was an English film director, producer, and screenwriter.
15  He is one of the most influential and widely studied filmmakers in the history of cinema.');
16
```

Director_ID	Director_Name	Director_About
2	Alfred Hitchcock	(13 August 1899 – 29 April 1980)He was an English film director, producer, and screenwriter. He is one of the most influential and...
1	Stanley Kubrick	(July 26, 1928 – March 7, 1999)He was a British and American film director, producer, screenwriter, and photographer. He is frequ...
NULL	NULL	NULL

```
 1 •  INSERT INTO `movies_collection`.`genres`
 2    (`Genre_ID`,
 3    `Genre_Name`)
 4    VALUES
 5    (1,
 6    'Action');
 7
 8 •  INSERT INTO `movies_collection`.`genres`
 9    (`Genre_ID`,
10    `Genre_Name`)
11    VALUES
12    (2,
13    'Horror');
14
```

Genre_ID	Genre_Name
1	Action
2	Horror
NULL	NULL

```
1 •  INSERT INTO `movies_collection`.`movies`
2    (`Movie_ID`, `Movie_Title`, `Movie_Year`, `Movie_Description`, `Movie_Image_URL`, `Movie_IMDB_Rate`)
3    VALUES
4    (1,
5    'The Shawshank Redemption',
6    1994,
7    'Two imprisoned men bond over a number of years, finding solace and eventual redemption through acts of common',
8    'https://www.google.com/url?sa=i&url=https%3A%2F%2Fwww.vanityfair.com',
9    1);
10 • INSERT INTO `movies_collection`.`movies`
11   (`Movie_ID`, `Movie_Title`, `Movie_Year`, `Movie_Description`, `Movie_Image_URL`, `Movie_IMDB_Rate`)
12   VALUES
13   (2,
14   'The Dark Knight',
15   2008,
16   'When the menace known as the Joker wreaks havoc and chaos on the people of Gotham, Batman must accept one of the greatest'
17   'https://www.google.com/imgres?imgurl=https%3A%2F%2Fimages-na.ssl-images-amazon.com',
18   4);
```

Movie_ID	Movie_Title	Movie_Year	Movie_Description	Movie_Image_URL	Movie_IMDB_Rate
1	The Shawshank Redemption	1994	Two imprisoned men bond ove...	https://www.google.com/url?sa...	1
2	The Dark Knight	2008	When the menace known as the...	https://www.google.com/imgre...	4
NULL	NULL	NULL	NULL	NULL	NULL

```
 1 •  INSERT INTO `movies_collection`.`stars`
 2    (`Star_ID`, `Star_Name`, `Star_About`)
 3    VALUES
 4    (1,
 5    'Al Pacino',
 6    '(born April 25, 1940)He is an American actor and filmmaker. In a career spanning over five decades, he has received
 7    many awards and nominations, including an Academy Award, two Tony Awards, and two Primetime Emmy Awards');
 8
 9 •  INSERT INTO `movies_collection`.`stars`
10    (`Star_ID`, `Star_Name`, `Star_About`)
11    VALUES
12    (2,
13    'Marlon Brando',
14    '(April 3, 1924 – July 1, 2004)He was an American actor and film director with a career spanning 60 years,
15    during which he won the Academy Award for Best Actor twice.
16    He is regarded as arguably the greatest and most influential actor in 20th-century film.');
17
```

	Star_ID	Star_Name	Star_About
▶	1	Al Pacino	(born April 25, 1940)He is an American actor and filmmaker. In a career spanning over five decades, he has receive...
	2	Marlon Brando	(April 3, 1924 – July 1, 2004)He was an American actor and film director with a career spanning 60 years, during ...
*	NULL	NULL	NULL

Update the Tables

Director_ID	Director_Name	Director_About
1	Stanley Kubrick	(July 26, 1928 – March 7, 1999)He was a British and American film director, producer, screenwriter, and photographer. He is frequ...
2	Alfred Hitchcock	(13 August 1899 – 29 April 1980)He was an English film director, producer, and screenwriter. He is one of the most influential and...
3	Christopher Nolan	NULL
4	FrDavid Fincher	NULL
NULL		NULL

```
1    UPDATE `movies_collection`.`directors` SET `Director_About` = 'David Andrew
2    Leo Fincher (born August 28, 1962) is an American film director.
3    Known for his psychological thrillers, his films have received 40 nominations
4    at the Academy Awards, including three for him as Best Director.'
5    WHERE (`Director_ID` = '4');
6
```

Director_ID	Director_Name	Director_About
1	Stanley Kubrick	(July 26, 1928 – March 7, 1999)He was a British and American film director, producer, screenwriter, and photographer. He is frequ...
2	Alfred Hitchcock	(13 August 1899 – 29 April 1980)He was an English film director, producer, and screenwriter. He is one of the most influential and...
3	Christopher Nolan	NULL
4	FrDavid Fincher	David Andrew Leo Fincher (born August 28, 1962) is an American film director. Known for his psychological thrillers, his films hav...
NULL	NULL	NULL

```
1      UPDATE `movies_collection`.`movies` SET `Movie_Year` = '1989'
2      WHERE (`Movie_ID` = '6');
3
```

Movie_ID	Movie_Title	Movie_Year	Movie_Description	Movie_Image_URL	Movie_IMDB_Rate
1	The Shawshank Redemption	1994	Two imprisoned men bond ove...	https://www.google.com	1
2	The Dark Knight	2008	When the menace known as the...	https://www.google.com	4
5	The Green Mile	1999	The Green Mile is a 1999 Ameri...	https://www.google.com	27
6	Cinema Paradiso	1989	A boy who grew up in a native ...	https://www.google.com	50
NULL	NULL	NULL	NULL	NULL	NULL

Delete a record

Movie_ID	Movie_Title	Movie_Year	Movie_Description	Movie_Image_URL	Movie_IMDB_Rate
1	The Shawshank Redemption	1994	Two imprisoned men bond ove...	https://www.google.com	1
2	The Dark Knight	2008	When the menace known as the...	https://www.google.com	4
3	The Green Mile	1999	The Green Mile is a 1999 Ameri...	https://www.google.com	27
4	Cinema Paradiso	1988	The plot of Cinema Paradiso is ...	https://www.google.com	50
NULL	NULL	NULL	NULL	NULL	NULL

```
1    DELETE FROM `movies_collection`.`movies` WHERE (`Movie_ID` = '4');
2
```

Movie_ID	Movie_Title	Movie_Year	Movie_Description	Movie_Image_URL	Movie_IMDB_Rate
1	The Shawshank Redemption	1994	Two imprisoned men bond ove...	https://www.google.com	1
2	The Dark Knight	2008	When the menace known as the...	https://www.google.com	4
3	The Green Mile	1999	The Green Mile is a 1999 Ameri...	https://www.google.com	27
NULL	NULL	NULL	NULL	NULL	NULL

Director_ID	Director_Name	Director_About
2	Alfred Hitchcock	(13 August 1899 – 29 April 1980)He was an English film director, producer, and screenwriter. He is one of the most influential and...
1	Stanley Kubrick	(July 26, 1928 – March 7, 1999)He was a British and American film director, producer, screenwriter, and photographer. He is frequ...
3	Christopher Nolan	(born 30 July 1970) is a British-American film director, producer, and screenwriter. His directorial efforts have grossed more than U...
4	FrDavid Fincher	(born August 28, 1962)He is an American film director. Known for his psychological thrillers, his films have received 40 nomination...
NULL	NULL	NULL

```
1    DELETE FROM `movies_collection`.`directors` WHERE (`Director_ID` = '3');
2    DELETE FROM `movies_collection`.`directors` WHERE (`Director_ID` = '4');
3
```
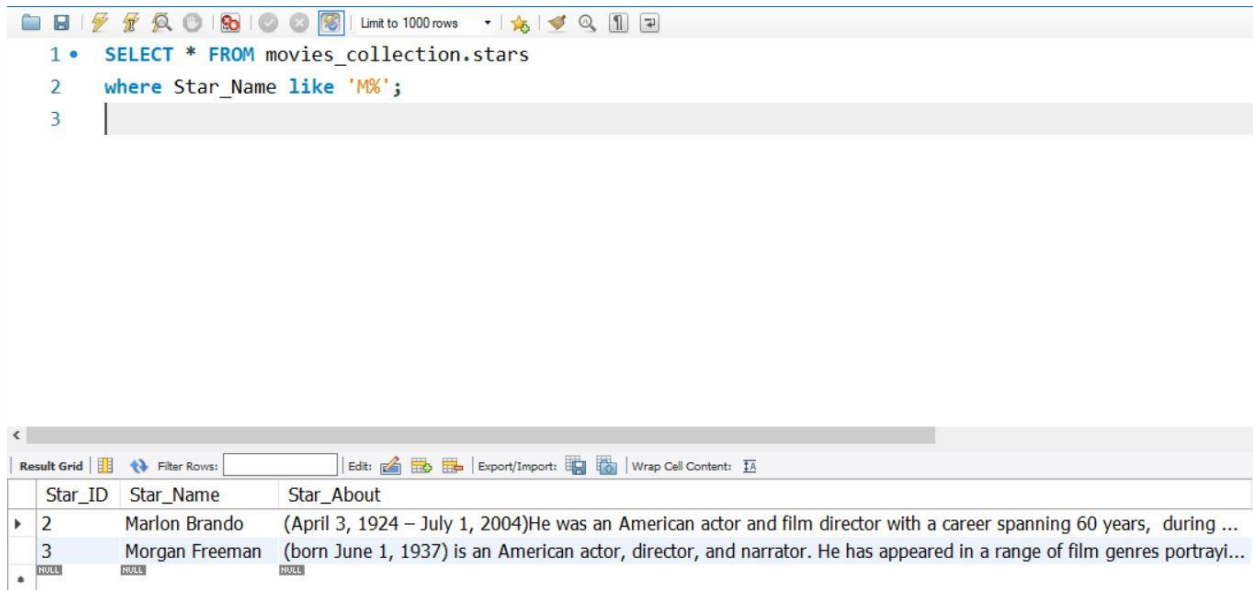
Director_ID	Director_Name	Director_About
1	Stanley Kubrick	(July 26, 1928 – March 7, 1999)He was a British and American film director, producer, screenwriter, and photographer. He is frequ...
2	Alfred Hitchcock	(13 August 1899 – 29 April 1980)He was an English film director, producer, and screenwriter. He is one of the most influential and...
NULL	NULL	NULL

Retrieve some records (Query)

```
1 •  SELECT * FROM movies_collection.movies
2    where Movie_Year < 2000 and Movie_IMDB_Rate < 20;
3
4    |
```

	Movie_ID	Movie_Title	Movie_Year	Movie_Description	Movie_Image_URL	Movie_IMDB_Rate
▸	1	The Shawshank Redemption	1994	Two imprisoned men bond ove...	https://www.google.com	1
*	NULL	NULL	NULL	NULL	NULL	NULL

References:

1. Hoffer, J., Venkataraman , R., & Topi, H. (2012). Modern database management. (11 ed.). Prentice Hall.

2. Hogan, Rex . (2018). A Practical Guide to Database Design. (Second ed.). Taylor & Francis Group

3. https://www.w3schools.com/sql/default.asp