

A  
Project Report  
on  
**Movie Database**

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**October - 2018**

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**CERTIFICATE**

This is to certify that the project entitled “Movie Database” is a bonafide report of the work carried out by

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## **ACKNOWLEDGEMENT**

I would like to express my special thanks of gratitude to my teacher Prof. Sunil K. Vithlani as well as our head of department, Prof. Vipul Dabhi who gave us the golden opportunity to do this project on the topic Movie Database, which also helped us in doing a lot of Research and helped us learn many new things that we are really thankful to.

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## **SYSTEM OVERVIEW**

### **1.1 CURRENT SYSTEM**

This project is a database that stores data for an app that enables users to discover new movies, get information about various movies, search movies using different filters, etc. The database stores information of users such as emails, passwords, favorite genres, country, DOB, identity, name, profile picture path, etc. Moreover, it stores information of movies which include but not limited to movie title, runtime, genres, plot, release date, path of poster and information of people who worked to create the movie. Furthermore the database also stores the data of the reviews and rating that are posted by individual users for any movie.

### **1.2 OBJECTIVES OF THE PROPOSED SYSTEM**

The objective of the proposed system should be as follows:

It should allow users to search for movies using detailed and vivid search filters. The application should also recommend the user movies based on their previously watched and like movies, and based on ratings and reviews of other users. These recommendations get better with increase in the use of application by the user. It also allows users to read reviews and ratings posted by other users.

### **1.3 ADVANTAGES OF CURRENT SYSTEM**

The system enables users to discover movies of their choice using the search filters. The recommendations that users get are also helpful in discovering new movies. Moreover, users can read reviews of other movies online. This application can further be scaled to store and retrieve data for music in a similar fashion. All the current uses can be implemented to the newly added music data.

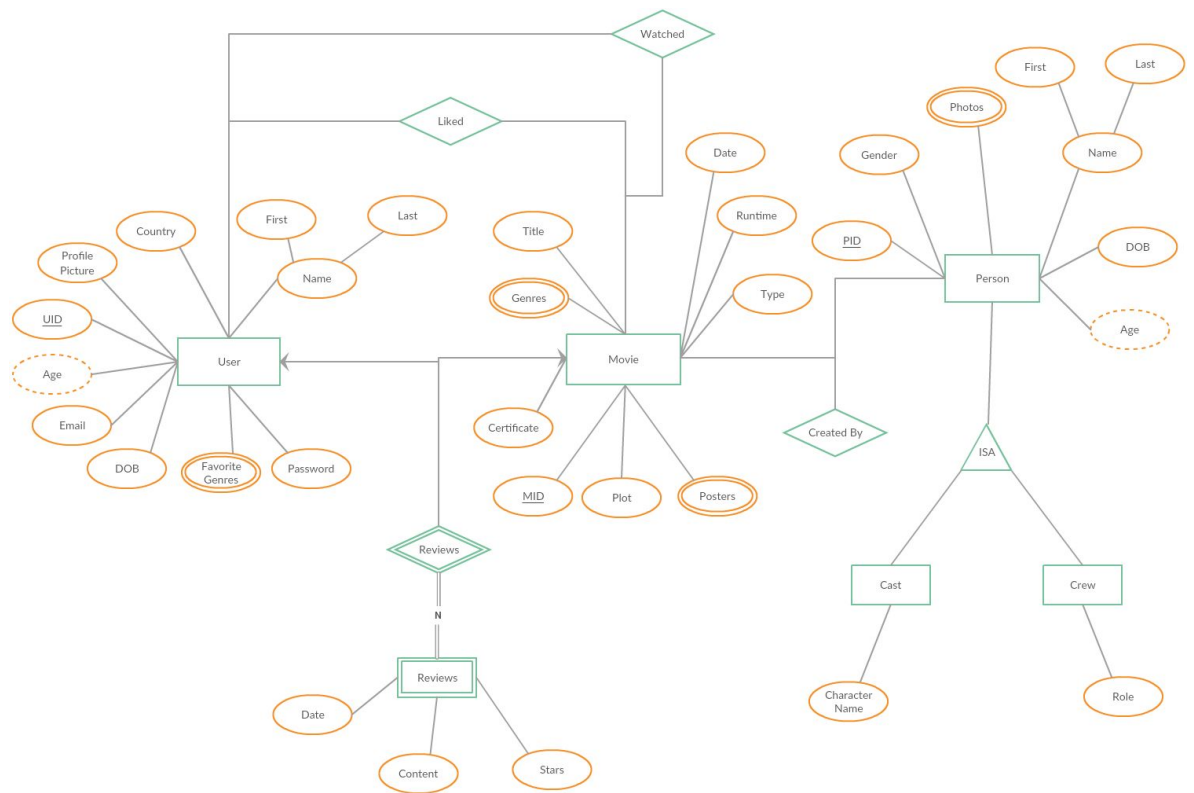
## **FUTURE ENHANCEMENTS OF THE SYSTEM**

This system can further be scaled to store and retrieve data for music in a similar fashion. All the current uses can be implemented to the newly added music data. Moreover it can be scaled to store more information for individual movies.

## **BIBLIOGRAPHY**

- Database System Concepts - Fourth Edition by Silberschatz-Korth-Sudarshan

## E-R DIAGRAM



### 2.1 ENTITIES

- User
- Movie
- Review (weak)
- Person
- Cast
- Crew

### 2.2 RELATIONSHIPS

- Liked (User - Movie)
- Watched (User - Movie)
- Reviews (User - Movie - Review)
- Createdby (Movie - Person)



- ISA (Person - Cast)
- ISA (Person - Crew)

## **2.3 MAPPING CONSTRAINTS**

- Liked :- Many to Many
- Watched :- Many to Many
- Review - Movie :- Many to One
- Review - User :- Many to One
- Createdby :- Many to Many

## DATA DICTIONARY

### cast

| Column                 | Type         | Null | Default | Links to      | Comments | MIME |
|------------------------|--------------|------|---------|---------------|----------|------|
| MID ( <i>Primary</i> ) | int(11)      | No   |         | movies -> MID |          |      |
| PID ( <i>Primary</i> ) | int(11)      | No   |         | people -> PID |          |      |
| CharacterName          | varchar(255) | No   |         |               |          |      |

### Indexes

| Keyname | Type  | Unique | Packed | Column | Cardinality | Collation | Null | Comment |
|---------|-------|--------|--------|--------|-------------|-----------|------|---------|
| PRIMARY | BTREE | Yes    | No     | MID    | 60          | A         | No   |         |
|         |       |        |        | PID    | 60          | A         | No   |         |
| MID     | BTREE | No     | No     | MID    | 60          | A         | No   |         |
| PID     | BTREE | No     | No     | PID    | 60          | A         | No   |         |

### createdby

| Column                 | Type    | Null | Default | Links to      | Comments | MIME |
|------------------------|---------|------|---------|---------------|----------|------|
| PID ( <i>Primary</i> ) | int(11) | No   |         | people -> PID |          |      |
| MID ( <i>Primary</i> ) | int(11) | No   |         | movies -> MID |          |      |

### Indexes

| Keyname | Type  | Unique | Packed | Column | Cardinality | Collation | Null | Comment |
|---------|-------|--------|--------|--------|-------------|-----------|------|---------|
| PRIMARY | BTREE | Yes    | No     | PID    | 45          | A         | No   |         |
|         |       |        |        | MID    | 136         | A         | No   |         |
| PID     | BTREE | No     | No     | PID    | 45          | A         | No   |         |
| MID     | BTREE | No     | No     | MID    | 45          | A         | No   |         |

### crew

| Column                 | Type         | Null | Default | Links to      | Comments | MIME |
|------------------------|--------------|------|---------|---------------|----------|------|
| MID ( <i>Primary</i> ) | int(11)      | No   |         | movies -> MID |          |      |
| PID ( <i>Primary</i> ) | int(11)      | No   |         | people -> PID |          |      |
| Role                   | varchar(255) | No   |         |               |          |      |

### Indexes

| Keyname | Type  | Unique | Packed | Column | Cardinality | Collation | Null | Comment |
|---------|-------|--------|--------|--------|-------------|-----------|------|---------|
| PRIMARY | BTREE | Yes    | No     | PID    | 76          | A         | No   |         |
|         |       |        |        | MID    | 76          | A         | No   |         |
| MID     | BTREE | No     | No     | MID    | 76          | A         | No   |         |

## Movie Database

| Keyname | Type  | Unique | Packed | Column | Cardinality | Collation | Null | Comment |
|---------|-------|--------|--------|--------|-------------|-----------|------|---------|
| PID     | BTREE | No     | No     | PID    | 76          | A         | No   |         |

### favgenres

| Column                  | Type         | Null | Default | Links to     | Comments | MIME |
|-------------------------|--------------|------|---------|--------------|----------|------|
| UID ( <i>Primary</i> )  | int(11)      | No   |         | users -> UID |          |      |
| Name ( <i>Primary</i> ) | varchar(255) | No   |         |              |          |      |

### Indexes

| Keyname | Type  | Unique | Packed | Column | Cardinality | Collation | Null | Comment |
|---------|-------|--------|--------|--------|-------------|-----------|------|---------|
| PRIMARY | BTREE | Yes    | No     | UID    | 34          | A         | No   |         |
|         |       |        |        | Name   | 34          | A         | No   |         |
| UID     | BTREE | No     | No     | UID    | 34          | A         | No   |         |

### genres

| Column                  | Type        | Null | Default | Links to      | Comments | MIME |
|-------------------------|-------------|------|---------|---------------|----------|------|
| MID ( <i>Primary</i> )  | int(11)     | No   |         | movies -> MID |          |      |
| Name ( <i>Primary</i> ) | varchar(32) | No   |         |               |          |      |

### Indexes

| Keyname | Type  | Unique | Packed | Column | Cardinality | Collation | Null | Comment |
|---------|-------|--------|--------|--------|-------------|-----------|------|---------|
| PRIMARY | BTREE | Yes    | No     | MID    | 42          | A         | No   |         |
|         |       |        |        | Name   | 42          | A         | No   |         |
| MID     | BTREE | No     | No     | MID    | 42          | A         | No   |         |

### liked

| Column                 | Type    | Null | Default | Links to      | Comments | MIME |
|------------------------|---------|------|---------|---------------|----------|------|
| UID ( <i>Primary</i> ) | int(11) | No   |         | users -> UID  |          |      |
| MID ( <i>Primary</i> ) | int(11) | No   |         | movies -> MID |          |      |

### Indexes

| Keyname | Type  | Unique | Packed | Column | Cardinality | Collation | Null | Comment |
|---------|-------|--------|--------|--------|-------------|-----------|------|---------|
| PRIMARY | BTREE | Yes    | No     | UID    | 36          | A         | No   |         |
|         |       |        |        | MID    | 36          | A         | No   |         |
| UID     | BTREE | No     | No     | UID    | 36          | A         | No   |         |
| MID     | BTREE | No     | No     | MID    | 36          | A         | No   |         |

## Movie Database

### movies

| Column                 | Type          | Null | Default | Links to | Comments | MIME |
|------------------------|---------------|------|---------|----------|----------|------|
| MID ( <i>Primary</i> ) | int(11)       | No   |         |          |          |      |
| Title                  | varchar(255)  | No   |         |          |          |      |
| ReleaseDate            | date          | No   |         |          |          |      |
| Plot                   | varchar(1023) | Yes  | NULL    |          |          |      |
| Runtime                | smallint(6)   | Yes  | NULL    |          |          |      |
| Type                   | varchar(255)  | Yes  | NULL    |          |          |      |
| Certificate            | varchar(255)  | No   |         |          |          |      |

### Indexes

| Keyname | Type  | Unique | Packed | Column | Cardinality | Collation | Null | Comment |
|---------|-------|--------|--------|--------|-------------|-----------|------|---------|
| PRIMARY | BTREE | Yes    | No     | MID    | 20          | A         | No   |         |

### people

| Column                 | Type         | Null | Default | Links to | Comments | MIME |
|------------------------|--------------|------|---------|----------|----------|------|
| PID ( <i>Primary</i> ) | int(11)      | No   |         |          |          |      |
| FirstName              | varchar(255) | Yes  | NULL    |          |          |      |
| LastName               | varchar(255) | Yes  | NULL    |          |          |      |
| Gender                 | varchar(1)   | Yes  | NULL    |          |          |      |
| DOB                    | date         | Yes  | NULL    |          |          |      |

### Indexes

| Keyname | Type  | Unique | Packed | Column | Cardinality | Collation | Null | Comment |
|---------|-------|--------|--------|--------|-------------|-----------|------|---------|
| PRIMARY | BTREE | Yes    | No     | PID    | 20          | A         | No   |         |

### photos

| Column                      | Type         | Null | Default | Links to      | Comments | MIME |
|-----------------------------|--------------|------|---------|---------------|----------|------|
| PID ( <i>Primary</i> )      | int(11)      | No   |         | people -> PID |          |      |
| FileName ( <i>Primary</i> ) | varchar(255) | No   |         |               |          |      |

### Indexes

| Keyname  | Type  | Unique | Packed | Column   | Cardinality | Collation | Null | Comment |
|----------|-------|--------|--------|----------|-------------|-----------|------|---------|
| PRIMARY  | BTREE | Yes    | No     | PID      | 40          | A         | No   |         |
|          |       |        |        | FileName | 80          | A         | No   |         |
| FileName | BTREE | Yes    | No     | FileName | 80          | A         | No   |         |
| PID      | BTREE | No     | No     | PID      | 40          | A         | No   |         |

## Movie Database

### posters

| Column                      | Type         | Null | Default | Links to      | Comments | MIME |
|-----------------------------|--------------|------|---------|---------------|----------|------|
| MID ( <i>Primary</i> )      | int(11)      | No   |         | movies -> MID |          |      |
| FileName ( <i>Primary</i> ) | varchar(255) | No   |         |               |          |      |

### Indexes

| Keyname  | Type  | Unique | Packed | Column   | Cardinality | Collation | Null | Comment |
|----------|-------|--------|--------|----------|-------------|-----------|------|---------|
| PRIMARY  | BTREE | Yes    | No     | MID      | 40          | A         | No   |         |
|          |       |        |        | FileName | 80          | A         | No   |         |
| FileName | BTREE | Yes    | No     | FileName | 80          | A         | No   |         |
| MID      | BTREE | No     | No     | MID      | 40          | A         | No   |         |

### reviews

| Column                 | Type          | Null | Default | Links to      | Comments | MIME |
|------------------------|---------------|------|---------|---------------|----------|------|
| UID ( <i>Primary</i> ) | int(11)       | No   |         | users -> UID  |          |      |
| MID ( <i>Primary</i> ) | int(11)       | No   |         | movies -> MID |          |      |
| Date                   | date          | No   |         |               |          |      |
| Stars                  | tinyint(4)    | No   |         |               |          |      |
| Content                | varchar(1023) | Yes  | NULL    |               |          |      |

### Indexes

| Keyname | Type  | Unique | Packed | Column | Cardinality | Collation | Null | Comment |
|---------|-------|--------|--------|--------|-------------|-----------|------|---------|
| PRIMARY | BTREE | Yes    | No     | UID    | 46          | A         | No   |         |
|         |       |        |        | MID    | 46          | A         | No   |         |
| UID     | BTREE | No     | No     | UID    | 46          | A         | No   |         |
| MID     | BTREE | No     | No     | MID    | 46          | A         | No   |         |

### users

| Column                 | Type         | Null | Default | Links to | Comments | MIME |
|------------------------|--------------|------|---------|----------|----------|------|
| UID ( <i>Primary</i> ) | int(11)      | No   |         |          |          |      |
| FirstName              | varchar(255) | No   |         |          |          |      |
| LastName               | varchar(255) | No   |         |          |          |      |
| Country                | varchar(2)   | Yes  | NULL    |          |          |      |
| ProfilePicture         | varchar(255) | Yes  | NULL    |          |          |      |
| Email                  | varchar(255) | No   |         |          |          |      |
| Password               | varchar(255) | No   |         |          |          |      |
| DOB                    | date         | Yes  | NULL    |          |          |      |

## Movie Database

### Indexes

| Keyname        | Type  | Unique | Packed | Column         | Cardinality | Collation | Null | Comment |
|----------------|-------|--------|--------|----------------|-------------|-----------|------|---------|
| PRIMARY        | BTREE | Yes    | No     | UID            | 20          | A         | No   |         |
| ProfilePicture | BTREE | Yes    | No     | ProfilePicture | 20          | A         | Yes  |         |

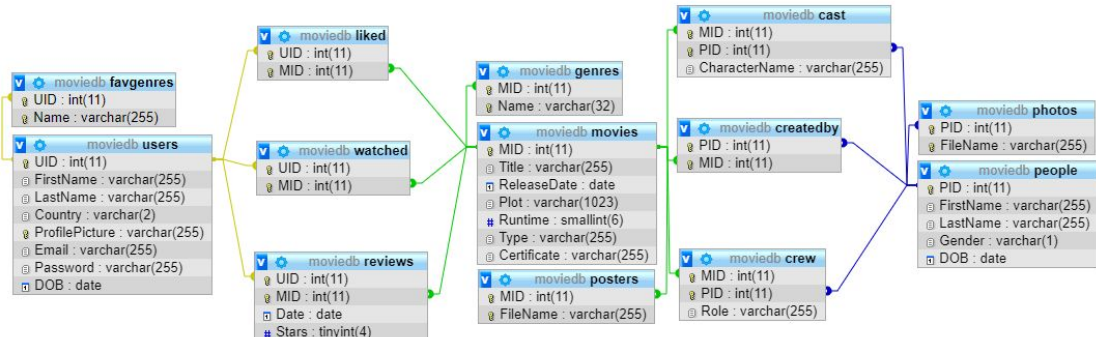
### watched

| Column                 | Type    | Null | Default | Links to      | Comments | MIME |
|------------------------|---------|------|---------|---------------|----------|------|
| UID ( <i>Primary</i> ) | int(11) | No   |         | users -> UID  |          |      |
| MID ( <i>Primary</i> ) | int(11) | No   |         | movies -> MID |          |      |

### Indexes

| Keyname | Type  | Unique | Packed | Column | Cardinality | Collation | Null | Comment |
|---------|-------|--------|--------|--------|-------------|-----------|------|---------|
| PRIMARY | BTREE | Yes    | No     | UID    | 42          | A         | No   |         |
|         |       |        |        | MID    | 84          | A         | No   |         |
| UID     | BTREE | No     | No     | UID    | 42          | A         | No   |         |
| MID     | BTREE | No     | No     | MID    | 42          | A         | No   |         |

## SCHEMA DIAGRAM



## **DATABASE IMPLEMENTATIONS**

### **5.1 CREATE SCHEMA**

```
CREATE TABLE Users (  
    UID int NOT NULL,  
    FirstName varchar(255) NOT NULL,  
    LastName varchar(255) NOT NULL,  
    Country varchar(2),  
    ProfilePicture varchar(255),  
    Email varchar(255) NOT NULL,  
    Password varchar(255) NOT NULL,  
    DOB Date,  
    PRIMARY KEY (UID),  
    UNIQUE(ProfilePicture)  
);  
  
CREATE TABLE Movies (  
    MID int NOT NULL,  
    Title varchar(255) NOT NULL,  
    ReleaseDate Date NOT NULL,  
    Plot varchar(1023),  
    Runtime smallint,  
    Type varchar(255),  
    Certificate varchar(255) NOT NULL,  
    PRIMARY KEY (MID)  
);  
  
CREATE TABLE People (  
    PID int NOT NULL,  
    FirstName varchar(255),  
    LastName varchar(255),  
    Gender varchar(1),  
    DOB Date,  
    PRIMARY KEY (PID)  
);  
  
CREATE TABLE Genres (  
    MID int NOT NULL,  
    Name varchar(32) NOT NULL,  
    FOREIGN KEY (MID) REFERENCES movies(MID),
```



## Movie Database

```
    PRIMARY KEY (MID, Name)
);
```

```
CREATE TABLE Posters (
    MID int NOT NULL,
    FileName varchar(255) NOT NULL,
    FOREIGN KEY (MID) REFERENCES movies(MID),
    UNIQUE(FileName),
    PRIMARY KEY (MID, FileName)
);
```

```
CREATE TABLE Photos (
    PID int NOT NULL,
    FileName varchar(255) NOT NULL,
    FOREIGN KEY (PID) REFERENCES people(PID),
    UNIQUE(FileName),
    PRIMARY KEY (PID, FileName)
);
```

```
CREATE TABLE FavGenres (
    UID int NOT NULL,
    Name varchar(255) NOT NULL,
    FOREIGN KEY (UID) REFERENCES Users(UID),
    PRIMARY KEY (UID, Name)
);
```

```
CREATE TABLE Watched (
    UID int NOT NULL,
    MID int NOT NULL,
    FOREIGN KEY (UID) REFERENCES Users(UID),
    FOREIGN KEY (MID) REFERENCES Movies(MID),
    PRIMARY KEY (UID, MID)
);
```

```
CREATE TABLE Liked (
    UID int NOT NULL,
    MID int NOT NULL,
    FOREIGN KEY (UID) REFERENCES Users(UID),
    FOREIGN KEY (MID) REFERENCES Movies(MID),
    PRIMARY KEY (UID, MID)
);
```

```
CREATE TABLE CreatedBy (  
    PID int NOT NULL,  
    MID int NOT NULL,  
    FOREIGN KEY (PID) REFERENCES People(PID),  
    FOREIGN KEY (MID) REFERENCES Movies(MID),  
    PRIMARY KEY (PID, MID)  
);
```

```
CREATE TABLE Reviews (  
    UID int NOT NULL,  
    MID int NOT NULL,  
    Date Date NOT NULL,  
    Stars tinyint NOT NULL,  
    Content varchar(1023),  
    FOREIGN KEY (UID) REFERENCES Users(UID),  
    FOREIGN KEY (MID) REFERENCES Movies(MID),  
    PRIMARY KEY (UID, MID)  
);
```

```
CREATE TABLE Cast (  
    MID int NOT NULL,  
    PID int NOT NULL,  
    CharacterName varchar(255) NOT NULL,  
    FOREIGN KEY (MID) REFERENCES Movies(MID),  
    FOREIGN KEY (PID) REFERENCES People(PID),  
    PRIMARY KEY (MID, PID)  
);
```

```
CREATE TABLE Crew (  
    MID int NOT NULL,  
    PID int NOT NULL,  
    Role varchar(255) NOT NULL,  
    FOREIGN KEY (MID) REFERENCES Movies(MID),  
    FOREIGN KEY (PID) REFERENCES People(PID),  
    PRIMARY KEY (MID, PID)  
);
```

## 5.2 INSERT DATA VALUES

### ADD NEW USER

```
INSERT INTO
users (UID, FirstName, LastName, Country, ProfilePicture,
Email, Password, DOB)
VALUES (1, 'Ryan', 'Mollin', 'AL', 'dQc2XWyAFqxv1QXp.jpg',
'rmollin0@xrea.com', 'UBT65gm', '2002-01-16');
```

### ADD FAVOURITE GENRES OF A USER

```
INSERT INTO
favgenres (UID, Name)
VALUES
(1, 'Horror'),
(1, 'Mystery');
```

### ADD REVIEW FROM A USER

```
INSERT INTO
reviews (UID, MID, Date, Stars, Content)
VALUES
(2, 4, '2018-08-06', 4, 'Duis aliquam convallis nunc. Proin at
turpis a pede posuere nonummy. Integer non velit.');
```

### ADD LIKED MOVIES

```
INSERT INTO
liked (UID, MID)
VALUES
(1, 3),
(1, 9);
```

### ADD WATCHED MOVIES

```
INSERT INTO
watched (UID, MID)
VALUES
(1, 1),
```

## Movie Database

```
(1, 3),  
(1, 9),  
(1, 17);
```

### ADD PEOPLE

```
INSERT INTO  
people (PID, FirstName, LastName, Gender, DOB)  
VALUES  
(1, 'Bonni', 'Shieldon', 'F', '1989-04-09');
```

### ADD PHOTOS OF PEOPLE

```
INSERT INTO  
photos (PID, FileName)  
VALUES  
(1, 'dVvC6FYupGDt69iV.jpg'),  
(1, 'JRl5Ash7ioWrMrK5.jpg'),  
(1, 'Pcg1CLV9aakEHjvs.jpg'),  
(1, 'rtfVnMVse4Tj23l0.jpg'),  
(1, 'tXH7mMbCVSjLqPd9.jpg'),  
(1, 'wzUh2EDruHhHp1Dm.jpg'),  
(1, 'YTGCH7eRMSI3gnHj.jpg');
```

### ADD NEW MOVIES

```
INSERT INTO  
movies (MID, Title, ReleaseDate, Plot, Runtime, Type,  
Certificate)  
VALUES  
(1, 'The Avengers', '2016-10-26', 'Duis aliquam convallis  
nunc. Proin at turpis a pede posuere nonummy. Integer non  
velit.', 139, 'Feature', 'PG-13');
```

### INSERT GENRES OF MOVIES

```
INSERT INTO  
genres (MID, Name)  
VALUES  
(1, 'Drama'),  
(1, 'Horror');
```

### **ADD POSTERS OF A MOVIE**

```
INSERT INTO
posters (MID, FileName)
VALUES
(1, 'dVvC6FYupGDt69iV.jpg'),
(1, 'JR15Ash7ioWrMrK5.jpg'),
(1, 'Pcg1CLV9aakEHjvs.jpg'),
(1, 'rtfVnMVse4Tj23l0.jpg'),
(1, 'tXH7mMbCVSjLqPd9.jpg'),
(1, 'wzUh2EDruHhHp1Dm.jpg'),
(1, 'YTGCH7eRMSI3gnHj.jpg');
```

### **ADD CREDITS TO A MOVIE**

```
INSERT INTO
createdby (PID, MID)
VALUES
(2, 1),
(9, 1),
(12, 1),
(13, 1),
(15, 1),
(16, 1),
(17, 1),
(19, 1);
```

### **DEFINE CAST MEMBERS OF A MOVIE**

```
INSERT INTO
cast (MID, PID, CharacterName)
VALUES
(1, 2, 'Joshua'),
(1, 15, 'Brooke');
```

### **DEFINE CREW MEMBERS OF A MOVIE**

```
INSERT INTO
Crew (MID, PID, Role)
VALUES
(1, 9),
```

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(1, 12),  
(1, 13),  
(1, 16),  
(1, 17),  
(1, 19);