1. **Create Database project_movie_data and deploy table data according to ER diagram.**

   create database project_movie_data;

   use project_movie_data;

2. **Create 9 tables which are presented in ER model and load the data with their foreign key and primary key values.**

   create table actor(

   act_id int primary key auto_increment,act_fname varchar(45),

   act_lname varchar(45),act_gender enum('M','F'))auto_increment=101;

   create table director(dir_id int primary key auto_increment,

   dir_fname varchar(45),dir_lname varchar(45))auto_increment=201;

   create table movie_direction(

   dir_id int not null,mov_id int not null,

   foreign key(dir_id) references director(dir_id),

   foreign key(mov_id) references movie(mov_id));

   create table movie_cast(act_id int not null,

   mov_id int not null,role varchar(30),

   foreign key(act_id) references actor(act_id),

   foreign key(mov_id) references movie(mov_id));

```sql
create table movie(mov_id int primary key auto_increment,

mov_title varchar(50),mov_year int not null,mov_time int not null,

mov_lang varchar(50) not null,mov_dt_rel date,mov_rel_country
varchar(10))auto_increment=901;


create table reviewer(rev_id int primary key auto_increment,

rev_name varchar(30))auto_increment=9001;


create table genres(gen_id int primary key auto_increment,

gen_title varchar(20))auto_increment=1001;


create table movie_generes(mov_id int not null,gen_id int not null,

foreign key(mov_id) references movie(mov_id),foreign key(gen_id)
references genres(gen_id));


create table rating(mov_id int not null,rev_id int not null,

rev_stars int,num_o_ratings int,foreign key(mov_id) references
movie(mov_id),

foreign key(rev_id) references reviewer(rev_id) );


INSERT INTO director(dir_fname,dir_lname)

values('Alfred','Hitchcock'),('Jack','Clayton'),('David','Lean'),('Michael','Cimin
o'),('Milos','Forman'),

('Ridley','Scott'),('Stanley','Kubrick'),('Bryan','Singer'),('Roman','olanski'),('Pa
ul','Thomas Anderson'),
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('Woody','Allen'),('Hayao','Miyazaki'),('Frank','Darabont'),('Sam','Mendes'),('James','Cameron'),

('Gus',' Van Sant'),('John','Boorman'),('Danny','Boyle'),('Christopher','Nolan'),('Richard','Kelly'),

('Kevin','Spacey'),('Andrei','Tarkovsky'),('Peter','Jackson');


insert into movie(mov_title,mov_year,mov_time,mov_lang,mov_dt_rel,mov_rel_country)

values('Vertigo',1958,128,'English','1958-08-24','UK'),('The Innocents',1961,100,'English','1962-02-19','SW'),

('Lawrence of Arabia',1962,216,'English','1962-12-11','UK'),('The Deer Hunter',1978,183,'English','1979-03-08','UK'),

('Amadeus',1984,160,'English','1985-01-07','UK'),('Blade Runner',1982,117,'English','1982-09-09','UK'),

('Eyes Wide Shut',1999,159,'English',null,'UK'),('The Usual Suspects',1995,106,'English','1995-08-09','UK'),

('Chinatown',1974,130,'English','1974-08-09','UK'),('Boogie Nights',1997,155,'English','1998-02-16','UK'),

('Annie Hall',1977,93,'English','1977-04-20','USA'),('Princess Mononoke',1997,134,'Japanese','2001-10-19','UK'),

('The Shawshank Redemption','1994','142','English',' 1995-02-17','UK'),

('American Beauty',1999,122,'English',null,'UK'),('Titanic',1997,194,'English','1998-01-23','UK'),

('Good Will Hunting',1997,126,'English','1998-06-03','UK'),('Deliverance',1972,109,'English','1982-10-05','UK'),

('Trainspotting',1996,94,'English','1996-02-23','UK'),('The Prestige',2006,130,'English','2006-11-10','UK'),
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('Donnie Darko',2001,113,'English',null,'UK'),('Slumdog Millionaire',2008,120,'English','2009-01-09','UK'),

('Aliens',1986,137,'English','1986-08-29','UK'),('Beyond the Sea',2004,118,'English','2004-11-26','UK'),

('Avatar',2009,162,'English','2009-12-17','UK'),('Seven Samurai',1954,207,'Japanese','1954-04-26','JP'),

('Spirited Away',2001,125,'Japanese','2003-09-12','UK'),('Back to the Future',1985,116,'English','1985-12-04','UK'),

('Braveheart',1995,178,'English','1995-09-08','UK');

insert into movie_direction(dir_id,mov_id)

values(201,901),(202,902),(203,903),(204,904),(205,905),(206,906),(207,907),(208,908),

(209,909),(210,910),(211,911),(212,912),(213,913),(214,914),(215,915),(216,916),(217,917),

(218,918),(219,919),(220,920),(218,921),(215,922),(221,923);

insert into genres(gen_title)

values('Action'),('Adventure'),('Animation'),('Biography'),('Comedy'),('Crime'),

('Drama'),('Horror'),('Music'),('Mystery'),('Romance'),('Thriller'),('War');

insert into actor(act_fname,act_lname,act_gender)

values('James','Stewart','M'),('Deborah','Kerr','F'),('Peter','Otoole','M'),('Robert','DeNiro','M'),

('F.Murray','Abraham','M'),('Harrison','Ford','M'),('Nicole','Kidman','F'),('Stephen','Baldwin','M'),

('Jack','Nicholson','M'),('Mark','Wahlberg','M'),('Woody','Allen','M'),('Claire','Danes','F'),('Tim','Robbins','M'),

('jon','Voight','M'),('Kevin','Spacey','M'),('Kate','Winslet','F'),('Robin','Robbins','M'),('Ewan','McGregor','M'),

('Christian','Bale','M'),('Maggie','Gyllenhaal','F'),('Dev','Patel','M'),('Sigourney','Weaver','F'),

('David','Aston','M'),('Ali','Astin','F');

insert into movie_cast(act_id,mov_id,role)

values(101,901,'John Scottie Ferguson'),(102,902,'Miss Giddens'),(103,903,'T.F.Lawrence'),(104,904,'Michael'),

(105,905,'Antonia Salieri'),(106,906,'Rick Deckard'),(107,907,'Alice Harford'),(108,908,'McManus'),

(110,910,'Eddie Adams'),(111,911,'Alvy Singer'),(112,912,'San'),(113,913,'Andy Dulresne'),(114,914,'Lester Burnham'),

(115,915,'Rose DeWitt Bukater'),(116,916,'Sean Maguire'),(117,917,'Ed'),(118,918,'Renton'),

(120,920,'Elizabeth Darko'),(121,921,'Older Jamal'),(122,922,'Ripley'),(114,923,'Bobby Darin'),

(109,909,'J.J.Gittes'),(119,919,'Alfred Borden');

insert into reviewer(rev_name)

values('Righty sock'),('Jack Malven'),('Flagrant Malvern'),('Alec Shaw'),(null),

('Victor Woeltjen'),('Simon Wright'),('Neal Wruck'),('Paul Monks'),('Mike Salvati'),(null),

('Weasly S.Walker'),('Sasha Goldshtein'),('Josh Cates'),('Krug Stillo'),('Scott LeBrun'),('Hannah Steele'),

('Vincent Cadena'),('Brandt Sponseller'),('Richard Adams');

insert into movie_generes(mov_id,gen_id)values(922,1001),(917,1002),(903,1002),(912,1003),(911,1005),

(908,1006),(913,1006),(926,1007),(928,1007),(918,1007),(921,1007),(902,1008),(923,1009),(907,1010),(927,1010),

(901,1010),(914,1011),(906,1012),(904,1013);

insert into rating(mov_id,rev_id,rev_stars,num_o_ratings)values(901,9001,8.4,263575),(902,9002,7.9,20207),

(903,9003,8.3,202778),(906,9005,8.2,484746),(924,9006,7.3,null),(908,9007,8.6,779489),(909,9008,null,227235),

(910,9009,3,195961),(911,9010,8.1,203875),(912,9011,8.4,null),(914,9013,7,862618),(915,9001,7.7,830095),

(916,9014,4,642132),(925,9015,7.7,81328),(918,9016,null,580301),(920,9017,8.1,609451),(921,9018,8,667758),

(922,9019,8.4,511613),(923,9020,6.7,13091);

3. Write a query in SQL to list the Horror movies?

select mov_title,gen_title from movie

inner join movie_generes on movie.mov_id=movie_generes.mov_id

inner join genres on genres.gen_id=movie_generes.gen_id

where genres.gen_title='Horror';

Output:-

mov_title	gen_title
The Innocents	Horror

4. Write a query in SQL to find the name of all reviewers who have rated 8 or more stars?

select rev_name,rev_stars from reviewer

inner join rating on reviewer.rev_id=rating.rev_id

where rev_stars>=8;

Output:-

rev_name	rev_stars
Righty sock	8
Jack Malven	8
Flagrant Malvern	8
NULL	8
Simon Wright	9
Mike Salvati	8
NULL	8
Righty sock	8
Krug Stillo	8
Hannah Steele	8
Vincent Cadena	8
Brandt Sponseller	8

5. **Write a query in SQL to list all the information of the actors who played a role in the movie 'Deliverance'**

select act_fname,act_lname,act_gender,mov_title from actor

inner join movie_cast on actor.act_id=movie_cast.act_id

inner join movie on movie_cast.mov_id=movie.mov_id

where movie.mov_title='Deliverance';

Output:-

act_fname	act_lname	act_gender	mov_title
Robin	Robbins	M	Deliverance

6. **Write a query in SQL to find the name of the director (first and last names) who directed a movie that casted a role for 'Eyes Wide Shut'. (using subquery)**

select distinct dir_fname,dir_lname from director

natural join movie_direction

natural join movie_cast

where act_id in

(select act_id from movie

natural join movie_cast

natural join actor

where role is not null

and mov_title='Eyes Wide Shut');

Output:-

dir_fname	dir_lname
Stanley	Kubrick

8. Write a query in SQL to find all the years which produced at least one movie and that received a rating of more than 4 stars.

select mov_title,rev_stars,mov_year from movie

inner join rating on movie.mov_id=rating.mov_id

where rev_stars>=4;

Output:-

mov_title	rev_stars	mov_year
Vertigo	8	1958
The Innocents	8	1961
Lawrence of Arabia	8	1962
Blade Runner	8	1982
Avatar	7	2009
The Usual Suspects	9	1995
Annie Hall	8	1977
Princess Mononoke	8	1997
American Beauty	7	1999
Titanic	8	1997
Good Will Hunting	4	1997
Seven Samurai	8	1954
Donnie Darko	8	2001
Slumdog Millionaire	8	2008
Aliens	8	1986
Beyond the Sea	7	2004

10. Write a query in SQL to find the name of movies who were directed by 'David'

select mov_title,dir_fname,dir_lname from movie

inner join movie_direction on movie.mov_id=movie_direction.mov_id

inner join director on movie_direction.dir_id=director.dir_id

where director.dir_fname='David' or director.dir_lname='David';

Output:-

	mov_title	dir_fname	dir_lname
▶	Lawrence of Arabia	David	Lean

11. Write a query in SQL to list the first and last names of all the actors who were cast in the movie 'Boogie Nights', and the roles they played in that production.

select act_fname,act_lname,mov_title,role from actor

inner join movie_cast on actor.act_id=movie_cast.act_id

inner join movie on movie_cast.mov_id=movie.mov_id

where movie.mov_title='Boogie Nights';

Output:-

	act_fname	act_lname	mov_title	role
▶	Mark	Wahlberg	Boogie Nights	Eddie Adams

12. Find the name of the actor who have worked in more than one movie.

select mov_title,act_fname,act_lname,role

from movie

join movie_cast

on movie_cast.mov_id=movie.mov_id

join actor

on movie_cast.act_id=actor.act_id

where actor.act_id in (

select act_id from movie_cast

group by act_id

having count(*)>1);

Output:-

	mov_title	act_fname	act_lname	role
▶	American Beauty	jon	Voight	Lester Burnham
	Beyond the Sea	jon	Voight	Bobby Darin