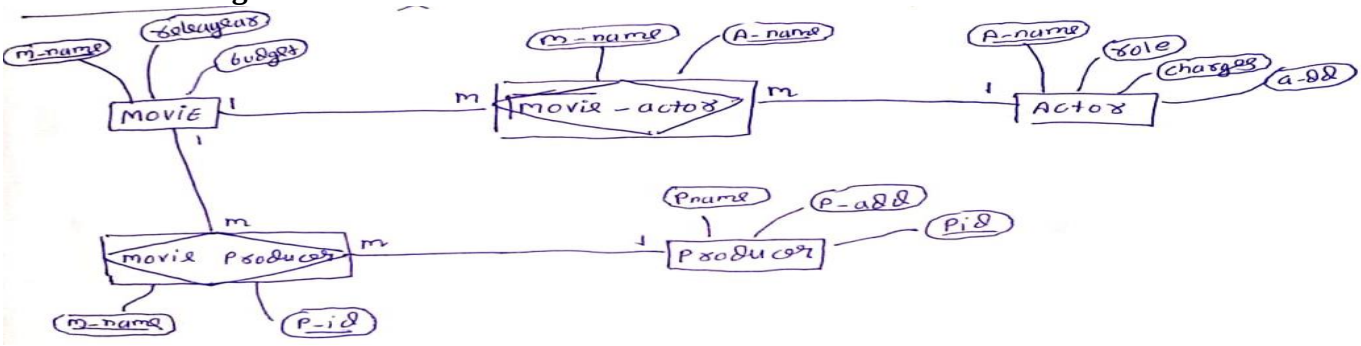
Q1) Practical Questions on PostgresSQL Movie (M_Name,release_year,budget) Actor (A_name, role, charges,a_address) Producer (producer_id, Name,P_address)

a) Draw the ER diagram for above relational schema and normalize it in 3NF.



b) Create the above database in 3NF form in PostgresSQL using constraints.

```
CREATE TABLE Movie (M_Name VARCHAR(100) PRIMARY KEY, release_year INTEGER NOT NULL, budget NUMERIC(10, 2) NOT NULL);

CREATE TABLE Actor (A_Name VARCHAR(100) NOT NULL, Role VARCHAR(100) NOT NULL, Charges NUMERIC(10, 2) NOT NULL, A_Address VARCHAR(255) NOT NULL, PRIMARY KEY (A_Name, Role));

CREATE TABLE Producer (Producer_ID SERIAL PRIMARY KEY, Name VARCHAR(100) NOT NULL, P_Address VARCHAR(255) NOT NULL);

CREATE TABLE Movie_Actor (M_Name VARCHAR(100) REFERENCES Movie(M_Name), A_Name VARCHAR(100) REFERENCES Actor(A_Name), Role VARCHAR(100), PRIMARY KEY (M_Name, A_Name, Role));

CREATE TABLE Movie_Producer (M_Name VARCHAR(100) REFERENCES Movie(M_Name), Producer_ID INTEGER REFERENCES Producer(Producer_ID), PRIMARY KEY (M_Name, Producer_ID));

INSERT INTO Movie (M_Name, release_year, budget) VALUES ('Tanhaji', 2020, 300000000), ('Avatar', 2009, 237000000), ('Inception', 2010, 160000000), ('Interstellar', 2014, 165000000);

INSERT INTO Actor (A_Name, Role, Charges, A_Address) VALUES ('Ajay Devgn', 'Tanhaji', 15000000, 'Mumbai'), ('Leonardo DiCaprio', 'Cobb', 25000000, 'Los Angeles'), ('Tom Hardy', 'Eames', 12000000, 'London'), ('Sigourney Weaver', 'Dr. Grace Augustine', 20000000, 'New York');

INSERT INTO Producer (Name, P_Address) VALUES ('Rohit Shetty', 'Mumbai'), ('Christopher Nolan', 'Los Angeles'), ('James Cameron', 'Los Angeles');

INSERT INTO Movie_Actor (M_Name, A_Name, Role) VALUES ('Tanhaji', 'Ajay Devgn', 'Tanhaji'), ('Avatar', 'Sigourney Weaver', 'Dr. Grace Augustine'), ('Inception', 'Leonardo DiCaprio', 'Cobb'), ('Interstellar', 'Matthew McConaughey', 'Cooper');

INSERT INTO Movie_Producer (M_Name, Producer_ID) VALUES ('Tanhaji', 1), ('Avatar', 3), ('Inception', 2), ('Interstellar', 2), ('Interstellar', 3);
```

Q2) Using above database, solve the following queries:

a) Gives count of movies whose budget is greater than 3 crores.

```
SELECT COUNT(*) FROM Movie WHERE budget > 30000000;
```

b) List details of actors who have acted in movie “Tanhaji”.

```
SELECT * FROM Actor WHERE A_Name IN (SELECT A_Name FROM Movie_Actor WHERE M_Name = 'Tanhaji');
```

c) Delete the details movie starting with ‘a’.

```
DELETE FROM Movie WHERE M_Name LIKE 'a%';
```

d) List the names of movies, produced by more than one producer.

```
SELECT M_Name FROM Movie GROUP BY M_Name HAVING COUNT(*) > 1;
```