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Database Management

Lab Assignment 8 – Normalization 2

1) *See attached E/R diagram*

2) SQL Table Create Statements:

```
CREATE TABLE people (  
  pid      char(4) not null,  
  name     text,  
  address  text,  
  primary key(pid)  
);
```

```
CREATE TABLE actors (  
  aid      char(4) not null references people(pid),  
  birthDate date,  
  hairColor text,  
  eyeColor text,  
  heightInches integer,  
  weightLbs real,  
  SAGAnnivDate date,  
  primary key(aid)  
);
```

```
CREATE TABLE directors (  
  did      char(4) not null references people(pid),  
  filmSchoolAttended text,  
  DGAnnivDate date,  
  primary key(did)  
);
```

```
CREATE TABLE movies (  
  mid      char(4) not null,  
  name     text,  
  releaseYear integer,  
  domesticBOSalesUSD numeric(11,2),  
  foreignBOSalesUSD numeric(11,2),  
  DVDBluRaySalesUSD numeric(11,2),  
  primary key(mid)  
);
```

```
CREATE TABLE directors_by_movie (  
  mid   char(4) not null references movies(mid),  
  did   char(4) not null references people(pid),  
  primary key(mid, did)  
);
```

```
CREATE TABLE actors_by_movie (  
  mid   char(4) not null references movies(mid),  
  aid   char(4) not null references people(pid),  
  primary key(mid, aid)  
);
```

3) SQL Table Insert Statements:

```
INSERT INTO people(pid, name, address)  
VALUES('p000', 'Sean Connery', '123 Street Road');
```

```
INSERT INTO people(pid, name, address)  
VALUES('p001', 'Alec Baldwin', '456 Route Avenue');
```

```
INSERT INTO people(pid, name, address)  
VALUES('p002', 'John McTiernan', '111 Way Corner');
```

```
INSERT INTO people(pid, name, address)  
VALUES('p003', 'Steven Spielberg', '25 Highway Way');
```

```
INSERT INTO people(pid, name, address)  
VALUES('p004', 'Harrison Ford', '1 Grail Road');
```

```
INSERT INTO people(pid, name, address)  
VALUES('p005', 'Mark Hamill', '99 Force Street');
```

```
INSERT INTO people(pid, name, address)  
VALUES('p006', 'Richard Marquand', '98 Force Street');
```

```
INSERT INTO people(pid, name, address)  
VALUES('p007', 'Carrie Fisher', '99 Force Street');
```

```
INSERT INTO movies(mid, name, releaseYear, domesticBOSalesUSD, foreignBOSalesUSD, DVDBluRaySalesUSD)  
VALUES('m000', 'Star Wars: Episode VI - The Return of the Jedi', 1983, 200125409.00, 109000000.00,  
123456789.55);
```

```
INSERT INTO movies(mid, name, releaseYear, domesticBOSalesUSD, foreignBOSalesUSD, DVDBluRaySalesUSD)  
VALUES('m001', 'Indiana Jones and the Last Crusade', 1989, 100171806.00, 97000000.00, 234567890.11);
```

```
INSERT INTO movies(mid, name, releaseYear, domesticBOSalesUSD, foreignBOSalesUSD, DVDBluRaySalesUSD)  
VALUES('m002', 'The Hunt for Red October', 1990, 100012000.00, 22000643.00, 345678912.99);
```

```
INSERT INTO actors(aid, birthDate, hairColor, eyeColor, heightInches, weightLbs, SAGAnnivDate)
VALUES ('p000', '1930-08-25', 'white', 'brown', 74, 200, null);
```

```
INSERT INTO actors(aid, birthDate, hairColor, eyeColor, heightInches, weightLbs, SAGAnnivDate)
VALUES ('p001', '1958-04-03', 'brown', 'blue', 72, 205, null);
```

```
INSERT INTO actors(aid, birthDate, hairColor, eyeColor, heightInches, weightLbs, SAGAnnivDate)
VALUES ('p003', '1946-12-18', 'white', 'green', 67, 165, null);
```

```
INSERT INTO actors(aid, birthDate, hairColor, eyeColor, heightInches, weightLbs, SAGAnnivDate)
VALUES ('p004', '1942-07-13', 'white', 'green', 73, 190, null);
```

```
INSERT INTO actors(aid, birthDate, hairColor, eyeColor, heightInches, weightLbs, SAGAnnivDate)
VALUES ('p005', '1951-09-25', 'brown', 'hazel', 69, 170, null);
```

```
INSERT INTO actors(aid, birthDate, hairColor, eyeColor, heightInches, weightLbs, SAGAnnivDate)
VALUES ('p007', '1956-10-21', 'brown', 'brown', 61, 115, null);
```

```
INSERT INTO directors(did, filmSchoolAttended, DGAnnivDate)
VALUES('p002', 'Juliard School', null);
```

```
INSERT INTO directors(did, filmSchoolAttended, DGAnnivDate)
VALUES('p001', 'Lee Strasberg Theatre Institute', null);
```

```
INSERT INTO directors(did, filmSchoolAttended, DGAnnivDate)
VALUES('p003', 'California State University: Long Beach', null);
```

```
INSERT INTO directors(did, filmSchoolAttended, DGAnnivDate)
VALUES('p006', null, null);
```

```
INSERT INTO directors_by_movie(mid, did)
VALUES ('m000', 'p006');
```

```
INSERT INTO directors_by_movie(mid, did)
VALUES ('m001', 'p003');
```

```
INSERT INTO directors_by_movie(mid, did)
VALUES ('m002', 'p002');
```

```
INSERT INTO actors_by_movie(mid, aid)
VALUES ('m000', 'p004');
```

```
INSERT INTO actors_by_movie(mid, aid)
VALUES ('m000', 'p005');
```

```
INSERT INTO actors_by_movie(mid, aid)
VALUES ('m000', 'p007');
```

```
INSERT INTO actors_by_movie(mid, aid)
VALUES ('m001', 'p000');
```

```
INSERT INTO actors_by_movie(mid, aid)
VALUES ('m001', 'p004');
```

```
INSERT INTO actors_by_movie(mid, aid)
VALUES ('m002', 'p000');
```

```
INSERT INTO actors_by_movie(mid, aid)
VALUES ('m002', 'p001');
```

4) Functional Requirements (by Table):

People: pid → name, address

Actors: aid → birthDate, hairColor, eyeColor, heightInches, weightLbs, SAGAnnivDate

Directors: did → filmSchoolAttended, DGAnnivDate

Movies: mid → name, releaseYear, domesticBOSalesUSD, foreignBOSalesUSD, DVDBluRaySalesUSD

Actors_By_Movie: (mid, aid) →

Directors_By_Movie: (mid, did) →

5) 'Sean Connery' SQL Query:

```
select distinct p.*, d.filmSchoolAttended, d.DGAnnivDate
from people p, directors d
where p.pid = d.did
and p.pid in (select distinct dir.did
              from directors dir, actors_by_movie abm, directors_by_movie dbm
              where dbm.mid = abm.mid
              and dir.did = dbm.did
              and (abm.mid in (select abm.mid
                              from actors_by_movie abm
                              where abm.aid in (select p.pid
                                                from people p
                                                where p.name = 'Sean Connery'
                                                )
                              )
              )
or dbm.mid in (select dbm.mid
              from directors_by_movie dbm
              where dbm.did in (select p.pid
                              from people p
                              where p.name = 'Sean Connery'
                              )
              )
);
```

People

pid	name	address
p000	Sean Connery	123 Street Road
p001	Alec Baldwin	456 Route Avenue
p002	John McLernan	111 Way Corner
p003	Steven Spielberg	25 Highway Way
p004	Harrison Ford	1 Grail Road
p005	Mark Hamill	99 Force Street
p006	Richard Marquand	98 Force Street
p007	Carrie Fisher	99 Force Street

Directors

dld	filmSchoolAttended	DGAAnnivDate
p001	Lee Strasberg Theatre Institute	NULL
p002	Julliard School	NULL
p003	California State University: Long Beach	NULL
p006	NULL	NULL

Actors

aid	birthDate	hairColor	eyeColor	heightInches	weightLbs	SAGAnnivDate
p000	1930-08-25	white	brown	74	200	NULL
p001	1958-04-03	brown	blue	72	205	NULL
p003	1946-12-18	white	green	67	165	NULL
p004	1942-07-13	white	green	73	190	NULL
p005	1951-09-25	brown	hazel	69	170	NULL
p007	1956-10-21	brown	brown	61	115	NULL

Movies

mid	name	releaseYear	domesticBOSales	foreignBOSales	DVDBluRaySales
m000	Star Wars: Episode VI - The Return of the Jedi	1983	200125409.00	109000000.00	123456789.55
m001	Indiana Jones and the Last Crusade	1989	100171806.00	97000000.00	234567890.11
m002	The Hunt for Red October	1990	100012000.00	22000643.00	345678912.99

Directors_By_Movie

mid	dld
m000	p006
m001	p003
m002	p002

Actors_By_Movie

mid	aid
m000	p004
m000	p005
m000	p007
m001	p000
m001	p001
m002	p000
m002	p001