

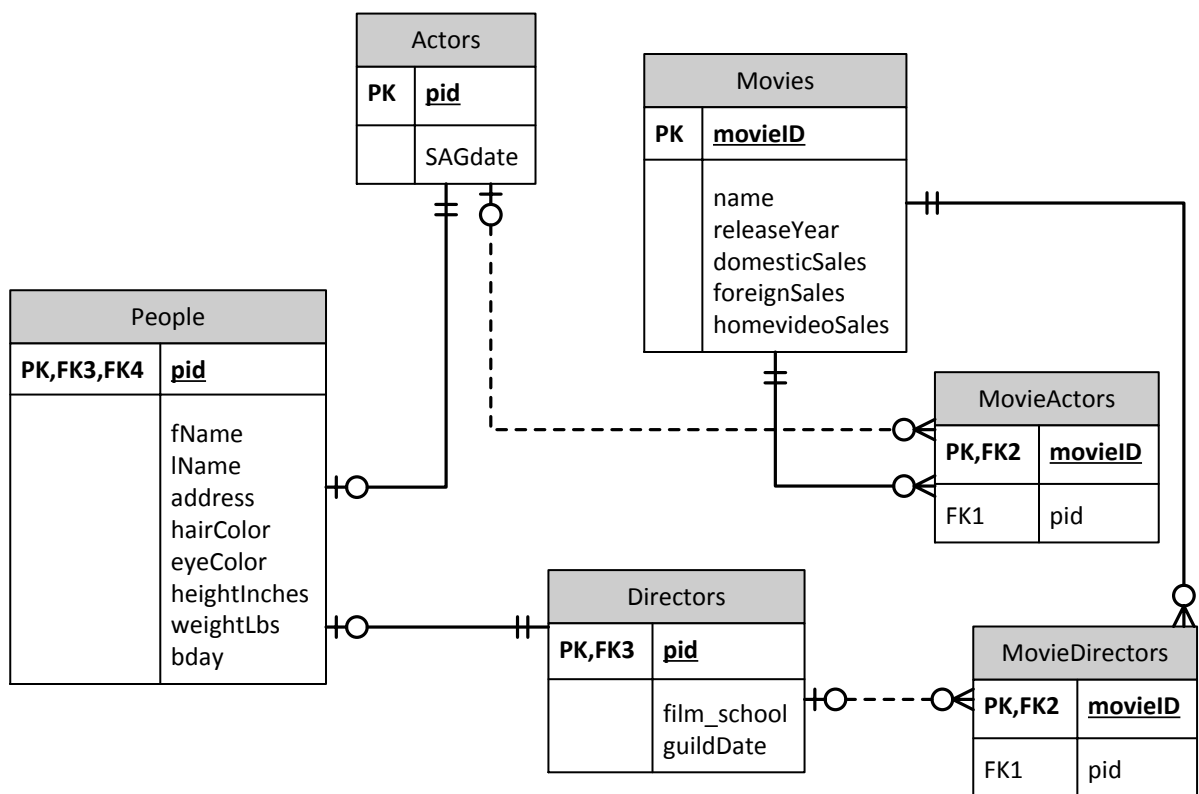
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Database Systems

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Normalization #2



1.

2. See pages 3-5

3. See pages 6-7

4. Functional Dependencies:

a. People

- i. $\text{Pid} \rightarrow \text{fName}, \text{lName}, \text{address}, \text{hairColor}, \text{eyeColor}, \text{heightInches}, \text{weightLbs}, \text{bday}$

b. Directors

- i. $\text{Pid} \rightarrow \text{film_school}, \text{guildDate}$

- c. **Actors**
 - i. Pid → SAGdate
 - d. **Movies**
 - i. movieID → name, releaseYear, domesticSales, foreignSales, homevideoSales
 - e. **MovieActors**
 - i. movieID → pid
 - f. **MovieDirectors**
 - i. movieID → pid
5. See page 7

Database Table Create Statements

```
CREATE TABLE "People"
```

```
(  
    pid integer NOT NULL,  
    "fName" text,  
    "lName" text,  
    "heightInches" integer,  
    "weightLbs" integer,  
    bday date,  
    address text,  
    "hairColor" text,  
    "eyeColor" text,  
    CONSTRAINT "People_pkey" PRIMARY KEY (pid)  
)
```

```
CREATE TABLE "Movies"
```

```
(  
    "movieID" integer NOT NULL,  
    name text,  
    "releaseYear" date,  
    "domesticSales" money,  
    "foreignSales" money,  
    "homevideoSales" money,  
    CONSTRAINT "Movies_pkey" PRIMARY KEY ("movieID")  
)
```

```
CREATE TABLE actors
```

```
(  
    pid integer NOT NULL,
```

```

sagdate date,
CONSTRAINT actors_pkey PRIMARY KEY (pid),
CONSTRAINT actors_pid_fkey FOREIGN KEY (pid)
    REFERENCES "People" (pid) MATCH SIMPLE
)

```

```

CREATE TABLE directors
(
    pid integer NOT NULL,
    film_school text,
    "guildDate" date,
    CONSTRAINT directors_pkey PRIMARY KEY (pid),
    CONSTRAINT directors_pid_fkey FOREIGN KEY (pid)
        REFERENCES "People" (pid) MATCH SIMPLE
)

```

```

CREATE TABLE "MovieDirectors"
(
    "movieID" integer NOT NULL,
    pid integer,
    CONSTRAINT "MovieDirectors_pkey" PRIMARY KEY ("movieID"),
    CONSTRAINT "MovieDirectors_movieID_fkey" FOREIGN KEY ("movieID")
        REFERENCES "Movies" ("movieID") MATCH SIMPLE,
    CONSTRAINT "MovieDirectors_pid_fkey" FOREIGN KEY (pid)
        REFERENCES directors (pid) MATCH SIMPLE
)

```

```

CREATE TABLE "MovieActors"
(

```

```
"movieID" integer NOT NULL,  
  
pid integer,  
  
CONSTRAINT "MovieActors_pkey" PRIMARY KEY ("movieID"),  
CONSTRAINT "MovieActors_movieID_fkey" FOREIGN KEY ("movieID")  
  
    REFERENCES "Movies" ("movieID") MATCH SIMPLE,  
CONSTRAINT "MovieActors_pid_fkey" FOREIGN KEY (pid)  
  
    REFERENCES actors (pid) MATCH SIMPLE  
)
```

SQL Insert Data

People

```
INSERT INTO "People" (pid, "fName", "lName", "heightInches", "weightLbs", bday, address, "hairColor", "eyeColor")
```

```
VALUES ('1','Sean','Connery','75','200','1930-08-25','123 Main Way','grey','brown');
```

```
INSERT INTO "People" (pid, "fName", "lName", "heightInches", "weightLbs", bday, address, "hairColor", "eyeColor")
```

```
VALUES ('2','Tom','Hanks','77','200','1956-07-09','445 Space Cr','brown','blue');
```

```
INSERT INTO "People" (pid, "fName", "lName", "heightInches", "weightLbs", bday, address, "hairColor", "eyeColor")
```

```
VALUES ('3','Jake','Gyllenhaal','70','155','1980-12-19','661 Romaine Dr','brown','blue');
```

```
INSERT INTO "People" (pid, "fName", "lName", "heightInches", "weightLbs", bday, address, "hairColor", "eyeColor")
```

```
VALUES ('4','Terence','Young','75','195','1935-08-25','123 Main Blvd','grey','blue');
```

```
INSERT INTO "People" (pid, "fName", "lName", "heightInches", "weightLbs", bday, address, "hairColor", "eyeColor")
```

```
VALUES ('5','Denis','Villeneuve','45','145','1978-08-25','111 Main Blvd','red','green');
```

Actors

```
INSERT INTO actors (pid, sagdate)
```

```
VALUES ('3','1999-09-15');
```

```
INSERT INTO actors (pid, sagdate)
```

```
VALUES ('2','1989-05-10');
```

```
INSERT INTO actors (pid, sagdate)
```

```
VALUES ('1','1970-10-01');
```

Directors

```
INSERT INTO directors (pid, "guildDate", film_school)
```

```
VALUES ('2','2001-02-16','NYU')
```

Movies

```
INSERT INTO "Movies" ("movieID", name, "releaseYear", "domesticSales", "foreignSales", "homevideoSales")
```

```
VALUES ('1','Larry Crowne','2011-07-01','68608245','59800000','13000000')
```

```
INSERT INTO "Movies" ("movieID", name, "releaseYear", "domesticSales", "foreignSales", "homevideoSales")
```

```
VALUES ('2','Dr. No','1962-10-05','16067035','43500000','23840000')
```

```
INSERT INTO "Movies" ("movieID", name, "releaseYear", "domesticSales", "foreignSales", "homevideoSales")
```

```
VALUES ('3','Prisoners','2013-09-20','59221436','42400000','13000000')
```

MovieDirectors

```
INSERT INTO "MovieDirectors" ("movieID", pid)
VALUES ('1','2')
```

MovieActors

```
INSERT INTO "MovieActors" ("movieID", pid)
VALUES ('3','3')

INSERT INTO "MovieActors" ("movieID", pid)
VALUES ('2','1')

INSERT INTO "MovieActors" ("movieID", pid)
VALUES ('1','2')
```

Find all directors Sean Connery has worked with

```
SELECT p."fName" AS "Director First Name", p."lName" AS "Director Last Name"
FROM "MovieDirectors" md
JOIN "People" p ON p.pid = md.pid
WHERE md."movieID" IN (
    SELECT m."movieID"
    FROM "Movies" m
    JOIN "MovieActors" ma ON ma."movieID" = m."movieID"
    WHERE ma.pid IN
        (
            SELECT ma.pid
            FROM "MovieActors" ma
            JOIN "People" p ON p.pid = ma.pid
            WHERE ma.pid IN (
                SELECT p.pid
                FROM "People" p
                WHERE p."lName" = 'Connery'
                AND p."fName" = 'Sean'
            )
        )
    )
)
```