

In [1]:

```
import sqlite3
from sqlalchemy import create_engine
from datetime import datetime
import os
import numpy as np
import pandas as pd
```

In [2]:

```
if os.path.isfile('Db-IMDB.db'):
    start = datetime.now()
    conn = sqlite3.connect("Db-IMDB.db")
```

Question 1:

List all the directors who directed a 'Comedy' movie in a leap year. (You need to check that the genre is 'Comedy' and year is a leap year) Your query should return director name, the movie name, and the year.

In [254]:

```
Director_info = pd.read_sql_query("select Name,Gender from Person where PID in (select distinct(PID) from M_Director where MID in (Select MID from Movie where (year%4=0) and (year%100!=0) or (year%400=0) and MID in \
                                     (Select MID from M_Genre where GID in (Select GID from Genre where Name like '%Comedy%')))) ",conn)
```

In []:

```
Movie_info = pd.read_sql_query("select title,year from Movie where MID in (select MID from M_Director where PID in (select PID from M_Director where MID in (Select MID from Movie where (year%4=0) and (year%100!=0) or (year%400=0) and MID in \
                                     (Select MID from M_Genre where GID in (Select GID from Genre where Name like '%Comedy%')))) ) ",conn)
```

In [10]:

```
pd.read_sql_query("select p.Name,m.title,m.year,g.Name from Movie m , M_Director md,Genre g,M_Genre mg ,Person p on m.MID = mg.MID and \
m.MID = md.MID and g.Name like '%Comedy%' and md.PID=p.PID and m.year%4=0 group by p.Name,m.title",conn)
```

Out[10]:

	Name	title	year	Name
0	A. Bhimsingh	Aadmi	1968	Action, Comedy, Crime
1	A. Bhimsingh	Joroo Ka Ghulam	1972	Action, Comedy, Crime
2	A. Bhimsingh	Sadhu Aur Shaitaan	1968	Action, Comedy, Crime
3	A. Muthu	Tera Jadoo Chal Gayaa	2000	Action, Comedy, Crime
4	A.R. Murugadoss	Akira	2016	Action, Comedy, Crime
5	A.R. Murugadoss	Ghajini	2008	Action, Comedy, Crime
6	A.R. Murugadoss	Thuppakki	2012	Action, Comedy, Crime
7	Abbas Alibhai Burmawalla	Aitraaz	2004	Action, Comedy, Crime
8	Abbas Alibhai Burmawalla	Daraar	1996	Action, Comedy, Crime
9	Abbas Alibhai Burmawalla	Khiladi	1992	Action, Comedy, Crime
10	Abbas Alibhai Burmawalla	Players	2012	Action, Comedy, Crime

	Name	title	year	Name
11	Abbas Alibhai Burmawalla	Race	2008	Action, Comedy, Crime
12	Abbas Alibhai Burmawalla	Taarzan: The Wonder Car	2004	Action, Comedy, Crime
13	Abbas Tyrewala	Jaane Tu... Ya Jaane Na	2008	Action, Comedy, Crime
14	Abhinay Deo	Force 2	2016	Action, Comedy, Crime
15	Abhishek Chaubey	Udta Punjab	2016	Action, Comedy, Crime
16	Abhishek Jain	Kevi Rite Jaish	2012	Action, Comedy, Crime
17	Abhishek Kapoor	Fitoor	2016	Action, Comedy, Crime
18	Abhishek Kapoor	Rock On!!	2008	Action, Comedy, Crime
19	Abhishek Sharma	Tere Bin Laden: Dead Or Alive	2016	Action, Comedy, Crime
20	Aditya Chopra	Befikre	2016	Action, Comedy, Crime
21	Aditya Chopra	Mohabbatein	2000	Action, Comedy, Crime
22	Aditya Chopra	Rab Ne Bana Di Jodi	2008	Action, Comedy, Crime
23	Ahmed Khan	Lakeer - Forbidden Lines	2004	Action, Comedy, Crime
24	Ajay Bahl	B.A. Pass	2012	Action, Comedy, Crime
25	Ajay Devgn	Shivaay	2016	Action, Comedy, Crime
26	Ajay Devgn	U Me Aur Hum	2008	Action, Comedy, Crime
27	Akashdeep	Ghaath	2000	Action, Comedy, Crime
28	Akashdeep	Santa Banta Pvt Ltd	2016	Action, Comedy, Crime
29	Alankrita Shrivastava	Lipstick Under My Burkha	2016	Action, Comedy, Crime
...
1375	Vikram Bhatt	1920	2008	Action, Comedy, Crime
1376	Vikram Bhatt	Aetbaar	2004	Action, Comedy, Crime
1377	Vikram Bhatt	Bambai Ka Babu	1996	Action, Comedy, Crime
1378	Vikram Bhatt	Dangerous Ishhq	2012	Action, Comedy, Crime
1379	Vikram Bhatt	Fareb	1996	Action, Comedy, Crime
1380	Vikram Bhatt	Love Games	2016	Action, Comedy, Crime
1381	Vikram Bhatt	Raaz 3: The Third Dimension	2012	Action, Comedy, Crime
1382	Vikram Bhatt	Raaz Reboot	2016	Action, Comedy, Crime
1383	Vikram Veturi	Krishna Aur Kans	2012	Action, Comedy, Crime
1384	Vikramaditya Motwane	Trapped	2016	Action, Comedy, Crime
1385	Vimal Kumar	Chhote Sarkar	1996	Action, Comedy, Crime
1386	Vimal Kumar	Suno Sasurjee	2004	Action, Comedy, Crime
1387	Vinayak V.V.	Samba	2004	Action, Comedy, Crime
1388	Vinod Mukhi	Diary of a Butterfly	2012	Action, Comedy, Crime
1389	Vishal Mahadkar	Blood Money	2012	Action, Comedy, Crime
1390	Vishal Pandya	Wajah Tum Ho	2016	Action, Comedy, Crime
1391	Vishnupant Govind Damle	Sant Tukaram	1936	Action, Comedy, Crime
1392	Vivek Agnihotri	Buddha in a Traffic Jam	2016	Action, Comedy, Crime
1393	Vivek Agnihotri	Hate Story	2012	Action, Comedy, Crime
1394	Vivek Agnihotri	Junoonyat	2016	Action, Comedy, Crime
1395	Vivek Sharma	Bhoothnath	2008	Action, Comedy, Crime
1396	Y.V.S. Chowdary	Yuvaraju	2000	Action, Comedy, Crime
1397	Yash Chopra	Jab Tak Hai Jaan	2012	Action, Comedy, Crime
1398	Yash Chopra	Kabhie Kabhie	1976	Action, Comedy, Crime
1399	Yash Chopra	Mashaal	1984	Action, Comedy, Crime
1400	Yash Chopra	Veer-Zaara	2004	Action, Comedy, Crime
1401	Yash Chopra	Vijay	1988	Action, Comedy, Crime
1402	Yogesh Ishwar	Aaghaaz	2000	Action, Comedy, Crime
1403	Yograj Bhat	Ranga S.S.L.C	2004	Action, Comedy, Crime
1404	Yûaô Sakô	The Prince of Light	2000	Action. Comedy. Crime

	Page Count	Movie Title or Title	Year	Genre, Comedy, Drama	Name
		title	year		Name

1405 rows × 4 columns

Question 2:

List the names of all the actors who played in the movie 'Anand' (1971)

In [32]:

```
pd.read_sql_query("select Name,Gender from Person where PID in \
                  (select PID from M_Cast where MID in (select MID from Movie where title = 'Anand'
                  )) ",conn)
```

Out[32]:

	Name	Gender
0	Amitabh Bachchan	Male
1	Rajesh Khanna	Male
2	Sumita Sanyal	Female
3	Ramesh Deo	Male
4	Seema Deo	Female
5	Asit Kumar Sen	Male
6	Dev Kishan	Male
7	Atam Prakash	Male
8	Lalita Kumari	Female
9	Savita	Female
10	Brahm Bhardwaj	Male
11	Gurnam Singh	Male
12	Lalita Pawar	Female
13	Durga Khote	Female
14	Dara Singh	Male
15	Johnny Walker	Male
16	Moolchand	Male

Question 3:

List all the actors who acted in a film before 1970 and in a film after 1990. (That is: < 1970 and > 1990.)

Actor Before 1970

In [68]:

```
pd.read_sql_query("select p.Name,m.title,m.year from Movie m , M_Cast mc, Person p where m.MID=mc.
MID \
                  and mc.PID=p.PID and m.year<1970 ",conn)
```

Out[68]:

	Name	title	year
0	Patrick Aherne	The Day the Earth Stood Still	1951
1	Walter Bacon	The Day the Earth Stood Still	1951
2	Rama Bai	The Day the Earth Stood Still	1951

3	Mike Name	The Day the Earth Stood Still	1951
4	Frances Bavier	The Day the Earth Stood Still	1951
5	Oscar Blank	The Day the Earth Stood Still	1951
6	Marshall Bradford	The Day the Earth Stood Still	1951
7	Chet Brandenburg	The Day the Earth Stood Still	1951
8	John Brown	The Day the Earth Stood Still	1951
9	John Burton	The Day the Earth Stood Still	1951
10	Wheaton Chambers	The Day the Earth Stood Still	1951
11	Spencer Chan	The Day the Earth Stood Still	1951
12	Jean Charney	The Day the Earth Stood Still	1951
13	Beulah Christian	The Day the Earth Stood Still	1951
14	John Close	The Day the Earth Stood Still	1951
15	Louise Colombet	The Day the Earth Stood Still	1951
16	James Conaty	The Day the Earth Stood Still	1951
17	Frank Conroy	The Day the Earth Stood Still	1951
18	Eric Corrie	The Day the Earth Stood Still	1951
19	John Costello	The Day the Earth Stood Still	1951
20	James Craven	The Day the Earth Stood Still	1951
21	Marjorie Crossland	The Day the Earth Stood Still	1951
22	Jack Daly	The Day the Earth Stood Still	1951
23	Elmer Davis	The Day the Earth Stood Still	1951
24	Lawrence Dobkin	The Day the Earth Stood Still	1951
25	Roy Engel	The Day the Earth Stood Still	1951
26	Charles Evans	The Day the Earth Stood Still	1951
27	Edith Evanson	The Day the Earth Stood Still	1951
28	Franklyn Farnum	The Day the Earth Stood Still	1951
29	Michael Ferris	The Day the Earth Stood Still	1951
...
5164	Mohan Choti	Bhootnath	1963
5165	Vijaya Choudhury	Bhootnath	1963
5166	Rajan Haksar	Bhootnath	1963
5167	Ranjan	Bhootnath	1963
5168	Ulhas	Bhootnath	1963
5169	Shammi Kapoor	Junglee	1961
5170	Shammi Kapoor	Junglee	1961
5171	Azra	Junglee	1961

	Name	title	year
17	Anjana Mumtaz	Saajan	1991
18	Laxmikant Berde	Saajan	1991
19	Kader Khan	Saajan	1991
20	Dinesh Hingoo	Saajan	1991
21	Reema Lagoo	Saajan	1991
22	Raju Shrestha	Saajan	1991
23	Yunus Parvez	Saajan	1991
24	Tej Sapru	Saajan	1991
25	Ekta Sohini	Saajan	1991
26	Pankaj Udhas	Saajan	1991
27	Sudhakar Bokade	Saajan	1991
28	Raja Duggal	Saajan	1991
29	Master Imran	Saajan	1991
...
65304	Sulakshana Patel	Shohrat the Trap	2018
65305	Kiran Sharma	Shohrat the Trap	2018
65306	Dattaprasana Joshi	Shohrat the Trap	2018
65307	Kishor Kotibhaskar	Shohrat the Trap	2018
65308	Vishal Dandagi	Shohrat the Trap	2018
65309	Vighnesh Thalpati	Shohrat the Trap	2018
65310	Mahesh Patil	Shohrat the Trap	2018
65311	Deepak Tamras	Shohrat the Trap	2018
65312	Anand Koni	Shohrat the Trap	2018
65313	Bhaskar Khaire	Shohrat the Trap	2018
65314	Priyanka Roy	Shohrat the Trap	2018
65315	Praful Chaudhari	Shohrat the Trap	2018
65316	Meghana Chougule	Shohrat the Trap	2018
65317	Mayank Agarwal	Shohrat the Trap	2018
65318	Sonam	Shohrat the Trap	2018
65319	Anil Bhavnani	Shohrat the Trap	2018
65320	Ananta Shinde	Shohrat the Trap	2018
65321	Sanjay Sinha	Shohrat the Trap	2018
65322	Anil Waghmare	Shohrat the Trap	2018
65323	Sunil Shelar	Shohrat the Trap	2018
65324	Dilip Kadam	Shohrat the Trap	2018
65325	Viraj Patil	Shohrat the Trap	2018
65326	Kalpesh Chaudhari	Shohrat the Trap	2018
65327	Avinash Baviskar	Shohrat the Trap	2018
65328	Vinod Lokhande	Shohrat the Trap	2018
65329	Shashank Thappa	Shohrat the Trap	2018
65330	Shivam Shrivastava	Shohrat the Trap	2018
65331	Nilesh Malvadkar	Shohrat the Trap	2018
65332	Sagar Patil	Shohrat the Trap	2018
65333	Somnath Landage	Shohrat the Trap	2018

65334 rows × 3 columns

Question 4:

List all directors who directed 10 movies or more, in descending order of the number of

movies they directed. Return the directors' names and the number of movies each of them

directed.

In [67]:

```
pd.read_sql_query("select p.Name,count(*) as count from Person p, M_Director md on md.PID=p.PID group by\
                    p.PID,p.Name having count(*) > 10 order by count desc",conn)
```

Out[67]:

	Name	count
0	David Dhawan	39
1	David Dhawan	39
2	Mahesh Bhatt	35
3	Mahesh Bhatt	35
4	Priyadarshan	30
5	Ram Gopal Varma	30
6	Ram Gopal Varma	30
7	Vikram Bhatt	29
8	Vikram Bhatt	29
9	Hrishikesh Mukherjee	27
10	Hrishikesh Mukherjee	27
11	Yash Chopra	21
12	Yash Chopra	21
13	Basu Chatterjee	19
14	Basu Chatterjee	19
15	Shakti Samanta	19
16	Shakti Samanta	19
17	Subhash Ghai	18
18	Subhash Ghai	18
19	Shyam Benegal	17
20	Shyam Benegal	17
21	Abbas Alibhai Burmawalla	17
22	Abbas Alibhai Burmawalla	17
23	Rama Rao Tatineni	17
24	Manmohan Desai	16
25	Manmohan Desai	16
26	Gulzar	16
27	Gulzar	16
28	Raj N. Sippy	16
29	Raj N. Sippy	16
...
58	Guddu Dhanoa	12
59	Guddu Dhanoa	12
60	Prakash Jha	12
61	Prakash Jha	12
62	Satish Kaushik	12
63	Satish Kaushik	12
64	Nagesh Kukunoor	12
65	Nagesh Kukunoor	12
66	Prakash Mehra	12

67	Prakash Nama	count
68	Umesh Mehra	12
69	Umesh Mehra	12
70	Anil Sharma	12
71	Anil Sharma	12
72	Madhur Bhandarkar	12
73	Madhur Bhandarkar	12
74	Rohit Shetty	12
75	Rohit Shetty	12
76	Pramod Chakravorty	11
77	Pramod Chakravorty	11
78	Sanjay Gupta	11
79	Sanjay Gupta	11
80	Nasir Hussain	11
81	Nasir Hussain	11
82	Ketan Mehta	11
83	Ketan Mehta	11
84	Govind Nihalani	11
85	Govind Nihalani	11
86	Mohit Suri	11
87	Mohit Suri	11

88 rows × 2 columns

Question 5:

a. For each year, count the number of movies in that year that had only female actors.

In [14]:

```
pd.read_sql_query("select m.year,count(*) Movies_Cnt from Movie m where m.MID not in (select mc.MID from M_Cast mc inner join Person p on p.PID = mc.PID where p.Gender = 'Male') group by m.year order by m.year ASC",conn)
```

Out[14]:

	year	Movies_Cnt
0	1939	1
1	1999	1
2	2000	1
3	2009	1
4	2012	1
5	2018	2

b. Now include a small change: report for each year the percentage of movies in that year with only female actors, and the total number of movies made that year. For example, one answer will be: 1990 31.81 13522 meaning that in 1990 there were 13,522 movies, and 31.81% had only female actors. You do not need to round your answer.

In [16]:

```
pd.read_sql_query("select x.year,((x.Movies_Cnt*100.0)/y.allMov) as Percent , y.allMov as 'tot_mov' from (select m.year,count(*) Movies_Cnt from Movie m where m.MID not in (select mc.MID from M_Cast mc inner join Person p on p.PID = mc.PID where p.Gender = 'Male') group by m.year) x inner join (select m.year as Year, Count(*) allMov from Movie as m group by m.year) y on x.year = y.year",conn)
```


Out[16]:

	year	Percent	tot_mov
0	1939	50.000000	2
1	1999	1.515152	66
2	2000	1.562500	64
3	2009	0.909091	110
4	2012	0.900901	111
5	2018	1.923077	104

In []:

Question 6:

Find the film(s) with the largest cast. Return the movie title and the size of the cast. By "cast size" we mean the number of distinct actors that played in that movie: if an actor played multiple roles, or if it simply occurs multiple times in casts, we still count her/him only once.

In [63]:

```
pd.read_sql_query("select m.title,count(distinct(mc.PID)) as cast_size from Movie m join M_Cast mc\non mc.MID = m.MID\\\n                    group by m.MID order by cast_size desc limit 1",conn)
```

Out[63]:

	title	cast_size
0	Ocean's\nEight	238

Question 7:

A decade is a sequence of 10 consecutive years. For example, say in your database you have movie information starting from 1965. Then the first decade is 1965, 1966, ..., 1974; the second one is 1967, 1968, ..., 1976 and so on. Find the decade D with the largest number of films and the total number of films in D.

In [64]:

```
pd.read_sql_query("select d.year as start, d.year+9 as end, count(*)\\\nas num_movies from (select distinct year from Movie) d \\\njoin Movie m on m.year>=start and m.year<= end \\\n                    group by end order by num_movies desc\\\n                    limit 1",conn)
```

Out[64]:

	start	end	num_movies
0	2008	2017	1205

Question 8:

Find the actors that were never unemployed for more than 3 years at a stretch. (Assume that the actors remain unemployed between two consecutive movies).

In [9]:

```
pd.read_sql_query("select PID,Name from Person where PID not in (select distinct(PID) from M_Cast as c1 natural join Movie as m1 where exists(select MID from M_Cast as c2 natural join Movie as m2 where c1.PID=c2.PID and (m2.year-3)> m1.year and not exists (select MID from M_Cast as c3 natural join Movie as m3 where c1.PID=c3.PID and m1.year<m3.year and m3.year<m2.year)))",conn)
```

Out[9]:

	PID	Name
0	nm0000288	Christian Bale
1	nm0000949	Cate Blanchett
2	nm1212722	Benedict Cumberbatch
3	nm0365140	Naomie Harris
4	nm0785227	Andy Serkis
5	nm0611932	Peter Mullan
6	nm2930503	Jack Reynor
7	nm0550371	Eddie Marsan
8	nm0390903	Tom Hollander
9	nm0722629	Matthew Rhys
10	nm2951768	Freida Pinto
11	nm4575116	Rohan Chand
12	nm10302065	Keveshan Pillay
13	nm6162831	Louis Ashbourne Serkis
14	nm10302066	Moonsamy Narasigadu
15	nm10302067	Soobrie Govender
16	nm10302068	Gopal Singh
17	nm10302069	Kista Munsami
18	nm10302070	Mahomed Araf Cassim
19	nm5151595	Riaz Mansoor
20	nm10302071	Roshan Jayesh Patel
21	nm10302072	T'khai Phillips
22	nm10302073	Sachin Soni
23	nm10302074	Hridhay Somera
24	nm10302075	Ethaniel Jaden Moonsamy
25	nm10302076	Gareth Ryan Benjamin
26	nm10302077	Nirvayesh Chakravorty Thanendra
27	nm10302078	Adiyan Ahmed Choudhury
28	nm10302079	Amara Motala
29	nm10302080	Diyara Prakash
...
38255	nm0712994	Sandip Ray
38256	nm0007161	S.V. Krishna Reddy
38257	nm0783585	R.K. Selvamani
38258	nm2490004	Amma Rajasekhar
38259	nm1687944	Rahat Kazmi
38260	nm3262424	Rohit Gupta

	PID	Name
38261	nm1948254	Bela Negi
38262	nm2833607	Sanjay Talreja
38263	nm1574172	Rajatesh Nayyar
38264	nm0619763	Murali Nair
38265	nm3359416	Pryas Gupta
38266	nm5676626	Shivamani
38267	nm0667393	Oliver Paulus
38268	nm2737088	Vishal Inamdar
38269	nm0787511	Kumar Shahani
38270	nm0906413	Ka-Fai Wai
38271	nm2333111	Avtandil Varsimashvili
38272	nm1421451	G. Ram Prasad
38273	nm4110102	Raja Chanda
38274	nm8558638	Deepak Ramteke
38275	nm2606304	Srinivas Sunderrajan
38276	nm2182643	Kamika Verma
38277	nm1029114	Dhorairaj Bhagavan
38278	nm3769883	Nasir Shaikh
38279	nm0007806	Abbas
38280	nm1470989	Kannan
38281	nm0298158	Adrian Fulle
38282	nm0474806	Gulshan Kumar
38283	nm0066829	Iqbal
38284	nm1421793	Sushma Shiromani

38285 rows × 2 columns

Question 9:

Find all the actors that made more movies with Yash Chopra than any other director.

In [7]:

```
pd.read_sql_query("select Director, Actor, Count(*) as Movies_with_YashChopra from(select p1.Name
as Director, m1.title as Movie from Person p1 Inner Join M_Director md on TRIM(md.PID)=p1.PID Inne
r Join Movie m1 on TRIM(md.MID)=m1.MID and p1.Name LIKE 'Yash%' Group By p1.Name, m1.title) t1 Inn
er Join (select p2.Name as Actor,m2.title as Movie from Person p2 Inner Join M_Cast mc on
TRIM(mc.PID)=p2.PID Inner Join Movie m2 on TRIM(mc.MID)=m2.MID Group By p2.Name, m2.title) t2 on t
1.Movie=t2.Movie Group By t1.Director, t2.Actor Order By Movies_with_YashChopra DESC",conn)
```

Out[7]:

	Director	Actor	Movies_with_YashChopra
0	Yash Chopra	Jagdish Raj	11
1	Yash Chopra	Manmohan Krishna	10
2	Yash Chopra	Manmohan Krishna	10
3	Yash Chopra	Iftekhhar	9
4	Yash Chopra	Madan Puri	8
5	Yash Chopra	Vikas Anand	8
6	Yash Chopra	Anupam Kher	7

	Director	Actor	Movies_with_YashChopra
7	Yash Chopra	Shashi Kapoor	7
8	Yash Chopra	Anupam Kher	7
9	Yash Chopra	Shashi Kapoor	7
10	Yash Chopra	Amitabh Bachchan	6
11	Yash Chopra	Rakhee Gulzar	5
12	Yash Chopra	Waheeda Rehman	5
13	Yash Chopra	Achala Sachdev	4
14	Yash Chopra	Deven Verma	4
15	Yash Chopra	Hema Malini	4
16	Yash Chopra	Neetu Singh	4
17	Yash Chopra	Ravikant	4
18	Yash Chopra	Rishi Kapoor	4
19	Yash Chopra	Shah Rukh Khan	4
20	Yash Chopra	Deven Verma	4
21	Yash Chopra	Hema Malini	4
22	Yash Chopra	Rishi Kapoor	4
23	Yash Chopra	A.K. Hangal	3
24	Yash Chopra	Anil Kapoor	3
25	Yash Chopra	Annu Kapoor	3
26	Yash Chopra	Leela Chitnis	3
27	Yash Chopra	Mohan Sherry	3
28	Yash Chopra	Parikshat Sahni	3
29	Yash Chopra	Prem Chopra	3
...
484	Yash Chopra	Uttam Sodi	1
485	Yash Chopra	Varun Thajur	1
486	Yash Chopra	Varun Thakur	1
487	Yash Chopra	Varun Vardhan	1
488	Yash Chopra	Vic Waghorn	1
489	Yash Chopra	Vicky Ahuja	1
490	Yash Chopra	Vicky K. Foster	1
491	Yash Chopra	Vinay Sharma	1
492	Yash Chopra	Vinita Sharma	1

	Director	Actor	Movies_with_YashChopra
493	Yash Chopra	Vinod Negi	1
494	Yash Chopra	Vinod Raut	1
495	Yash Chopra	Virat Raj Gupta	1
496	Yash Chopra	Vishal Om Prakash	1
497	Yash Chopra	Yashodra Katju	1
498	Yash Chopra	Yasin Khan	1
499	Yash Chopra	Zohra Sehgal	1
500	Yash Chopra	Aamir Khan	1
501	Yash Chopra	Arjun Sablok	1
502	Yash Chopra	Aziz Mirza	1
503	Yash Chopra	Dev Anand	1
504	Yash Chopra	Feroz Khan	1
505	Yash Chopra	Mehmood	1
506	Yash Chopra	Puneet Issar	1
507	Yash Chopra	Raman Kumar	1
508	Yash Chopra	Rani Mukerji	1
509	Yash Chopra	Romesh Sharma	1
510	Yash Chopra	Sachin	1
511	Yash Chopra	Sajid Khan	1
512	Yash Chopra	Sunny Deol	1
513	Yash Chopra	Tinnu Verma	1

514 rows × 3 columns

Question 10:

The Shahrukh number of an actor is the length of the shortest path between the actor and Shahrukh Khan in the "co-acting" graph. That is, Shahrukh Khan has Shahrukh number 0; all actors who acted in the same film as Shahrukh have Shahrukh number 1; all actors who acted in the same film as some actor with Shahrukh number 1 have Shahrukh number 2, etc.

Return all actors whose Shahrukh number is 2.

In [93]:

```
pd.read_sql_query("select Name from person where trim(Name) like 'Shah%rkh%",conn)
```

Out[93]:

	<u>Name</u> <u>Name</u>
0	Shah Rukh Khan
1	Shahrukh Aksari

In [77]:

```
#pd.read_sql_query("select Name from Person where PID in (select PID from M_Cast where MID in (select MID from M_Cast where PID in (select PID from Person where trim(Name) = 'Shah Rukh Khan')))",conn)
```

In [25]:

```
pd.read_sql_query("select p.Name,m.title from Person p inner join M_Cast mc on p.PID=mc.PID inner join Movie m \non m.MID = mc.MID where title in (select title from Movie where MID in (select MID from M_Cast where PID in (select PID from Person where trim(Name) = 'Shah Rukh Khan')) and trim(Name) like 'Shah rukh%' and not Name =' Shah Rukh Khan'",conn)
```

Out[25]:

<u>Name</u>	<u>title</u>
-------------	--------------

There is noone with name Shahrukh whose acting alongside Shah Rukh Khan in the same film.

There is only one Shahrukh Ansari but he didn't work with Shah Rukh Khan.

In []:

In []:

In []:

In []: