```
In [1]: import sqlite3
        import pandas as pd
        conn = sqlite3.connect('imdb.db')
```

```
In [ ]: df = pd.DataFrame(query1)
```

```
In [ ]: print(df)
```

Question1: 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 [8]: query1 = "SELECT p.Name,m.title ,m.year ,g.Name FROM Movie m , M_Director d,Ge
        nre g,M_Genre mg,Person p \
                                ON m.MID = mg.MID AND m.MID = d.MID AND g.Name LIKE
         '%Comedy%' AND d.PID=p.PID \
                                AND m.year%4=0 group by p.Name,m.title"
```

```
In [10]: result1 = pd.read_sql_query(query1,conn)
         result1
```

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	I 2016	Action, Comedy, Crime
5	A.R. Murugadoss	Ghajini	2008	Action, Comedy, Crime
6	A.R. Murugadoss	Ramana	I 2002	Action, Comedy, Crime
7	A.R. Murugadoss	Thuppakki	2012	Action, Comedy, Crime
8	Aanand L. Rai	Strangers	III 2007	Action, Comedy, Crime
9	Abbas Alibhai Burmawalla	Aitraaz	2004	Action, Comedy, Crime
10	Abbas Alibhai Burmawalla	Daraar	1996	Action, Comedy, Crime
11	Abbas Alibhai Burmawalla	Khiladi	1992	Action, Comedy, Crime
12	Abbas Alibhai Burmawalla	Players	2012	Action, Comedy, Crime
13	Abbas Alibhai Burmawalla	Race	I 2008	Action, Comedy, Crime
14	Abbas Alibhai Burmawalla	Soldier	II 1998	Action, Comedy, Crime
15	Abbas Alibhai Burmawalla	Taarzan: The Wonder Car	2004	Action, Comedy, Crime
16	Abbas Tyrewala	Jaane Tu... Ya Jaane Na	2008	Action, Comedy, Crime
17	Abhinay Deo	Blackmail	I 2018	Action, Comedy, Crime
18	Abhinay Deo	Force 2	2016	Action, Comedy, Crime
19	Abhinay Deo	Game	I 2011	Action, Comedy, Crime
20	Abhishek Chaubey	Udta Punjab	2016	Action, Comedy, Crime
21	Abhishek Jain	Kevi Rite Jaish	2012	Action, Comedy, Crime
22	Abhishek Kapoor	Fitoor	2016	Action, Comedy, Crime
23	Abhishek Kapoor	Rock On!!	2008	Action, Comedy, Crime
24	Abhishek Sharma	Tere Bin Laden: Dead Or Alive	2016	Action, Comedy, Crime
25	Aditya Chopra	Befikre	2016	Action, Comedy, Crime
26	Aditya Chopra	Mohabbatein	2000	Action, Comedy, Crime
27	Aditya Chopra	Rab Ne Bana Di Jodi	2008	Action, Comedy, Crime
28	Ahmed Khan	Lakeer - Forbidden Lines	2004	Action, Comedy, Crime
29	Ajay Bahl	B.A. Pass	2012	Action, Comedy, Crime
...	...	...	...	...
1533	Vikram Bhatt	Fear	I 2007	Action, Comedy, Crime
1534	Vikram Bhatt	Love Games	2016	Action, Comedy, Crime
1535	Vikram Bhatt	Raaz 3: The Third Dimension	2012	Action, Comedy, Crime
1536	Vikram Bhatt	Raaz Reboot	2016	Action, Comedy, Crime

	Name	title	year	Name
1537	Vikram Veturi	Krishna Aur Kans	2012	Action, Comedy, Crime
1538	Vikramaditya Motwane	Lootera	I 2013	Action, Comedy, Crime
1539	Vikramaditya Motwane	Trapped	XVII 2016	Action, Comedy, Crime
1540	Vimal Kumar	Chhote Sarkar	1996	Action, Comedy, Crime
1541	Vimal Kumar	Suno Sasurjee	2004	Action, Comedy, Crime
1542	Vinayak V.V.	Samba	2004	Action, Comedy, Crime
1543	Vinod Mukhi	Diary of a Butterfly	2012	Action, Comedy, Crime
1544	Vishal Bhardwaj	Rangoon	II 2017	Action, Comedy, Crime
1545	Vishal Mahadkar	Blood Money	II 2012	Action, Comedy, Crime
1546	Vishal Pandya	Wajah Tum Ho	2016	Action, Comedy, Crime
1547	Vishnupant Govind Damle	Sant Tukaram	1936	Action, Comedy, Crime
1548	Vivek Agnihotri	Buddha in a Traffic Jam	2016	Action, Comedy, Crime
1549	Vivek Agnihotri	Hate Story	2012	Action, Comedy, Crime
1550	Vivek Agnihotri	Junooniyat	2016	Action, Comedy, Crime
1551	Vivek Sharma	Bhoothnath	2008	Action, Comedy, Crime
1552	Xavier Agudo	Train Station	I 2015	Action, Comedy, Crime
1553	Y.V.S. Chowdary	Yuvaraju	2000	Action, Comedy, Crime
1554	Yash Chopra	Jab Tak Hai Jaan	2012	Action, Comedy, Crime
1555	Yash Chopra	Kabhie Kabhie	1976	Action, Comedy, Crime
1556	Yash Chopra	Mashaal	1984	Action, Comedy, Crime
1557	Yash Chopra	Veer-Zaara	2004	Action, Comedy, Crime
1558	Yash Chopra	Vijay	1988	Action, Comedy, Crime
1559	Yogesh Ishwar	Aaghaaz	2000	Action, Comedy, Crime
1560	Yograj Bhat	Ranga S.S.L.C	2004	Action, Comedy, Crime
1561	Yûgô Sakô	The Prince of Light	2000	Action, Comedy, Crime
1562	Zaigham Imam	Alif	I 2017	Action, Comedy, Crime

1563 rows × 4 columns

Question2:List the names of all the actors who played in the movie 'Anand' (1971)

```
In [23]: query2 = "SELECT Name Actor from Person p JOIN M_Cast c ON TRIM(p.PID) = TRIM
         (c.PID) WHERE MID IN (SELECT MID from Movie WHERE title = 'Anand')"
```

In [24]:
```
result2 = pd.read_sql_query(query2,conn)
result2
```

Out[24]:

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

Question3: List all the actors who acted in a film before 1970 and in a film after 1990. (That is: < 1970 and > 1990.)

In [26]:
```python
#query is not giving aoutput bcoz it is considering PID including spaces hence
TRIM is used here
query3 = "SELECT name Actor FROM Person WHERE TRIM(PID) IN (SELECT TRIM(PID) F
ROM M_Cast WHERE MID IN \
                                (SELECT MID FROM Movie m1 WHERE m1.year > 1990) AND
 PID IN (SELECT PID FROM M_Cast WHERE MID IN \
                                (SELECT MID FROM Movie m2 WHERE m2.year < 1970)))"
result3 = pd.read_sql_query(query3,conn)
result3
```

Out[26]:

	Actor
0	Rishi Kapoor
1	Amitabh Bachchan
2	Asrani
3	Zohra Sehgal
4	Parikshat Sahni
5	Rakesh Sharma
6	Sanjay Dutt
7	Ric Young
8	Yusuf
9	Suhasini Mulay
10	A.K. Hangal
11	Jeremy Child
12	Farida Jalal
13	Waheeda Rehman
14	Rajesh Khanna
15	Ramesh Deo
16	Seema Deo
17	Asit Kumar Sen
18	Lalita Kumari
19	Brahm Bhardwaj
20	Lalita Pawar
21	Dara Singh
22	Johnny Walker
23	Moolchand
24	Saira Banu
25	Prem Chopra
26	Dina Pathak
27	Achala Sachdev
28	Shashikala
29	Mohandas K. Gandhi
...	...
323	Ismail
324	Miss Firoza
325	Dube
326	Dolly

	Actor
327	Shekhar
328	Poonam
329	Jamila Massey
330	K.R. Vijaya
331	Sethi
332	Suryakantham
333	Sunil Dutt
334	Raj Kapoor
335	Subhash Ghai
336	Feroz Khan
337	Rajendra Kumar
338	Mehmood
339	Manoj Kumar
340	Dev Anand
341	Sachin
342	Prayag Raj
343	Randhir Kapoor
344	Naseeruddin Shah
345	Hema Malini
346	Shashi Kapoor
347	Shammi Kapoor
348	Vinod Mehra
349	Deven Verma
350	Master Bhagwan
351	Rishi Kapoor
352	Asrani

353 rows × 1 columns

Question4: 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 [28]:
```
query4 = "SELECT DISTINCT p.Name Director,COUNT(*) number_of_movies FROM Person p JOIN M_Director d on TRIM(p.PID)=TRIM(d.PID) \
                            GROUP BY TRIM(d.PID) HAVING COUNT(*) >=10 ORDER BY number_of_movies DESC"

result4 = pd.read_sql_query(query4,conn)
result4
```

Out[28]:

	Director	number_of_movies
0	David Dhawan	78
1	Mahesh Bhatt	70
2	Ram Gopal Varma	60
3	Vikram Bhatt	58
4	Hrishikesh Mukherjee	54
5	Yash Chopra	42
6	Basu Chatterjee	38
7	Shakti Samanta	38
8	Subhash Ghai	36
9	Shyam Benegal	34
10	Abbas Alibhai Burmawalla	34
11	Manmohan Desai	32
12	Gulzar	32
13	Raj N. Sippy	32
14	Raj Kanwar	30
15	Mahesh Manjrekar	30
16	Priyadarshan	30
17	Indra Kumar	28
18	Raj Khosla	28
19	Rahul Rawail	28
20	Rajkumar Santoshi	28
21	Rakesh Roshan	26
22	Dev Anand	26
23	Vijay Anand	26
24	Harry Baweja	26
25	Anurag Kashyap	26
26	Ananth Narayan Mahadevan	26
27	K. Raghavendra Rao	26
28	Anees Bazmee	24
29	Guddu Dhanoa	24
...	...	...
126	Aziz Mirza	10
127	Saeed Akhtar Mirza	10
128	Mohan Babu	10
129	Shankar Mukherjee	10

	Director	number_of_movies
130	Subodh Mukherji	10
131	K. Muralimohana Rao	10
132	Shashilal K. Nair	10
133	Amol Palekar	10
134	Pankaj Parashar	10
135	Bharat Rangachary	10
136	Ramanand Sagar	10
137	Mohan Segal	10
138	Bhappi Sonie	10
139	Lekh Tandon	10
140	Rakeysh Omprakash Mehra	10
141	Remo D'Souza	10
142	Sanjay Gadhvi	10
143	Prawaal Raman	10
144	Sujoy Ghosh	10
145	Pradeep Sarkar	10
146	Sajid Khan	10
147	Krishna D.K.	10
148	Subhash Kapoor	10
149	S.S. Rajamouli	10
150	Nishikant Kamat	10
151	Siddharth Anand	10
152	Dibakar Banerjee	10
153	Shoojit Sircar	10
154	R. Balki	10
155	Neeraj Pandey	10

156 rows × 2 columns

Question5: a. For each year, count the number of movies in that year that had only female actors.

In [30]:
```python
query5a = "SELECT movie.year Year,count(*) Count FROM Movie WHERE NOT EXISTS \
                        (SELECT * FROM M_Cast,Person WHERE person.gender='Ma
le' and M_Cast.MID = movie.MID and M_Cast.PID = person.PID )\
                        GROUP BY movie.year"
result5a = pd.read_sql_query(query5a,conn)
result5a
```

Out[30]:

	Year	Count
0	1931	1
1	1936	3
2	1939	2
3	1941	1
4	1943	1
5	1946	2
6	1947	2
7	1948	3
8	1949	3
9	1950	2
10	1951	6
11	1952	6
12	1953	8
13	1954	6
14	1955	9
15	1956	6
16	1957	13
17	1958	9
18	1959	6
19	1960	14
20	1961	7
21	1962	12
22	1963	10
23	1964	14
24	1965	14
25	1966	18
26	1967	19
27	1968	20
28	1969	17
29	1970	24
...	...	...
95	I 2009	9
96	I 2010	6
97	I 2011	5
98	I 2012	1

	Year	Count
99	I 2013	7
100	I 2014	8
101	I 2015	6
102	I 2016	9
103	I 2017	5
104	I 2018	10
105	II 1983	1
106	II 1998	1
107	II 2008	1
108	II 2009	1
109	II 2010	1
110	II 2011	1
111	II 2012	1
112	II 2013	2
113	II 2017	1
114	II 2018	1
115	III 2007	2
116	III 2015	2
117	III 2016	1
118	III 2017	1
119	IV 2010	1
120	IV 2011	1
121	IV 2017	1
122	V 2015	1
123	VI 2015	1
124	XVII 2016	1

125 rows × 2 columns

Question5b: 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 [39]:
```python
query5b = "SELECT female_count.year Year,((female_count.Total_movies_with_only
_female_leads)*100)/total_count.Total Percentage FROM \
                             ((SELECT movie.year Year,count(*) Total_movies_wit
h_only_female_leads FROM movie WHERE NOT EXISTS \
                             ( SELECT * FROM M_Cast,person WHERE M_Cast.mid = m
ovie.MID and M_Cast.PID = person.PID AND person.gender='Male' ) \
                             GROUP BY movie.year) female_count, \
                             (SELECT movie.year,count(*) as Total FROM movie gr
oup by movie.year) total_count) \
                             WHERE female_count.year=total_count.year"
result5b = pd.read_sql_query(query5b, conn)
result5b
```

Out[39]:

	Year	Percentage
0	1931	100
1	1936	100
2	1939	100
3	1941	100
4	1943	100
5	1946	100
6	1947	100
7	1948	100
8	1949	100
9	1950	100
10	1951	100
11	1952	100
12	1953	100
13	1954	100
14	1955	100
15	1956	100
16	1957	100
17	1958	100
18	1959	100
19	1960	100
20	1961	100
21	1962	100
22	1963	100
23	1964	100
24	1965	100
25	1966	100
26	1967	100
27	1968	100
28	1969	100
29	1970	100
...	...	...
95	I 2009	100
96	I 2010	100
97	I 2011	100
98	I 2012	100

	Year	Percentage
99	I 2013	100
100	I 2014	100
101	I 2015	100
102	I 2016	100
103	I 2017	100
104	I 2018	100
105	II 1983	100
106	II 1998	100
107	II 2008	100
108	II 2009	100
109	II 2010	100
110	II 2011	100
111	II 2012	100
112	II 2013	100
113	II 2017	100
114	II 2018	100
115	III 2007	100
116	III 2015	100
117	III 2016	100
118	III 2017	100
119	IV 2010	100
120	IV 2011	100
121	IV 2017	100
122	V 2015	100
123	VI 2015	100
124	XVII 2016	100

125 rows × 2 columns

1. 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 [40]:
```
query6 = "SELECT m.title Movie_Name,count(distinct(c.PID)) Cast_Size FROM Movi
e m JOIN M_Cast c ON c.MID = m.MID GROUP BY m.MID ORDER BY Cast_Size desc"
result6 = pd.read_sql_query(query6, conn)
result6
```

Out[40]:

	Movie_Name	Cast_Size
0	Ocean's Eight	238
1	Apaharan	233
2	Gold	215
3	My Name Is Khan	213
4	Captain America: Civil War	191
5	Geostorm	170
6	Striker	165
7	2012	154
8	Pixels	144
9	Yamla Pagla Deewana 2	140
10	The Avengers	138
11	Housefull 3	129
12	Fan	127
13	Split Wide Open	126
14	Bajrangi Bhaijaan	124
15	Train Station	122
16	Daddy	121
17	Million Dollar Arm	117
18	Octopussy	116
19	Dhoom:3	115
20	Miss Lovely	113
21	Jab Tak Hai Jaan	110
22	Love Aaj Kal	108
23	Mubarakan	108
24	Hey Ram	107
25	Midnight's Children	106
26	Judwaa 2	106
27	The Day the Earth Stood Still	105
28	Corporate	104
29	Oye Lucky! Lucky Oye!	104
...	...	...
3445	Silvat	4
3446	Phullu	4
3447	Haseena	4
3448	Hey Ram Hamne Gandhi Ko maar Diya	4

	Movie_Name	Cast_Size
3449	Halkaa	4
3450	Yaadein	3
3451	Kaun?	3
3452	Rui Ka Bojh	3
3453	Mahakali Ka Insaaf	3
3454	Goopi Gawaiya Bagha Bajaiya	3
3455	Chhota Bheem and the Throne of Bali	3
3456	Man on Mission Fauladi	3
3457	Uyirile Kalanthathu	3
3458	Gauru: Journey of Courage	3
3459	Raja Aur Rangeeli	2
3460	Anjaam	2
3461	Ram Raaj	2
3462	Mumbai Delhi Mumbai	2
3463	Chaar Sahibzaade	2
3464	Man On Mission Jaanbaaz	2
3465	Motu Patlu: King of Kings	2
3466	Leera the Soulmate	2
3467	Pihu	2
3468	Kala Jigar	1
3469	Return of Hanuman	1
3470	Subah Subah	1
3471	Chaar Sahibzaade 2: Rise of Banda Singh Bahadur	1
3472	Vaibhav Sethia: Don't	1
3473	Yeh Hai Malegaon Ka Superman	0
3474	The Wish Fish	0

3475 rows × 2 columns

1. 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 [43]:
```
#referered from github
query7 = "SELECT d.year Start, d.year+9 End, count(*) no_of_films FROM \
                            (SELECT DISTINCT year from Movie) d JOIN Movie m O
N m.year >= Start and m.year<= End \
                                GROUP BY End ORDER BY no_of_films desc LIMIT 1"
result7 = pd.read_sql_query(query7, conn)
result7
```

Out[43]:

	Start	End	no_of_films
0	2008	2017	1128

question8: 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 [45]:
```python
#referred from github
query8 = "select Name as Actor 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)))"

result8 = pd.read_sql_query(query8, conn)
result8
```

Out[45]:

	Actor
0	Christian Bale
1	Cate Blanchett
2	Benedict Cumberbatch
3	Naomie Harris
4	Andy Serkis
5	Peter Mullan
6	Jack Reynor
7	Eddie Marsan
8	Tom Hollander
9	Matthew Rhys
10	Freida Pinto
11	Rohan Chand
12	Keveshan Pillay
13	Louis Ashbourne Serkis
14	Moonsamy Narasigadu
15	Soobrie Govender
16	Gopal Singh
17	Kista Munsami
18	Mahomed Araf Cassim
19	Riaz Mansoor
20	Roshan Jayesh Patel
21	T'khai Phillips
22	Sachin Soni
23	Hridhay Somera
24	Ethaniel Jaden Moonsamy
25	Gareth Ryan Benjamin
26	Nirvayesh Chakravorty Thanendra
27	Adiyan Ahmed Choudhury
28	Amara Motala
29	Diyara Prakash
...	...
38255	Sandip Ray
38256	S.V. Krishna Reddy
38257	R.K. Selvamani
38258	Amma Rajasekhar

	Actor
38259	Rahat Kazmi
38260	Rohit Gupta
38261	Bela Negi
38262	Sanjay Talreja
38263	Rajatesh Nayyar
38264	Murali Nair
38265	Pryas Gupta
38266	Shivamani
38267	Oliver Paulus
38268	Vishal Inamdar
38269	Kumar Shahani
38270	Ka-Fai Wai
38271	Avtandil Varsimashvili
38272	G. Ram Prasad
38273	Raja Chanda
38274	Deepak Ramteke
38275	Srinivas Sunderrajan
38276	Kamika Verma
38277	Dhorairaj Bhagavan
38278	Nasir Shaikh
38279	Abbas
38280	Kannan
38281	Adrian Fulle
38282	Gulshan Kumar
38283	Iqbal
38284	Sushma Shiromani

38285 rows × 1 columns

Question9: Find all the actors that made more movies with Yash Chopra than any other director.

In [46]:
```python
query9 = "SELECT DISTINCT  Actor, Count(*) Movies_with_YashChopra \
 FROM(SELECT DISTINCT p1.Name as Director, m1.title as Movie \
 FROM Person p1 Inner Join M_Director md on TRIM(md.PID)=p1.PID \
 Inner Join Movie m1 on TRIM(md.MID)=m1.MID and  p1.Name LIKE 'Yash%' Group By \
p1.Name, m1.title) t1 \
 Inner Join (SELECT DISTINCT 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 \
 t1.Movie=t2.Movie \
 Group By t2.Actor Order By Movies_with_YashChopra DESC"
result9 = pd.read_sql_query(query9, conn)
result9
```

Out[46]:

	Actor	Movies_with_YashChopra
0	Jagdish Raj	11
1	Manmohan Krishna	10
2	Manmohan Krishna	10
3	Iftekhar	9
4	Madan Puri	8
5	Vikas Anand	8
6	Anupam Kher	7
7	Shashi Kapoor	7
8	Anupam Kher	7
9	Shashi Kapoor	7
10	Amitabh Bachchan	6
11	Rakhee Gulzar	5
12	Waheeda Rehman	5
13	Achala Sachdev	4
14	Deven Verma	4
15	Hema Malini	4
16	Neetu Singh	4
17	Ravikant	4
18	Rishi Kapoor	4
19	Shah Rukh Khan	4
20	Deven Verma	4
21	Hema Malini	4
22	Rishi Kapoor	4
23	A.K. Hangal	3
24	Anil Kapoor	3
25	Annu Kapoor	3
26	Leela Chitnis	3
27	Mohan Sherry	3
28	Parikshat Sahni	3
29	Prem Chopra	3
...	...	...
484	Uttam Sodi	1
485	Varun Thajur	1
486	Varun Thakur	1
487	Varun Vardhan	1

	Actor	Movies_with_YashChopra
488	Vic Waghorn	1
489	Vicky Ahuja	1
490	Vicky K. Foster	1
491	Vinay Sharma	1
492	Vinita Sharma	1
493	Vinod Negi	1
494	Vinod Raut	1
495	Virat Raj Gupta	1
496	Vishal Om Prakash	1
497	Yashodra Katju	1
498	Yasin Khan	1
499	Zohra Sehgal	1
500	Aamir Khan	1
501	Arjun Sablok	1
502	Aziz Mirza	1
503	Dev Anand	1
504	Feroz Khan	1
505	Mehmood	1
506	Puneet Issar	1
507	Raman Kumar	1
508	Rani Mukerji	1
509	Romesh Sharma	1
510	Sachin	1
511	Sajid Khan	1
512	Sunny Deol	1
513	Tinnu Verma	1

514 rows × 2 columns

```
In [ ]: Question10: 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 hav
        e Shahrukh number 2, etc.
        Return all actors whose Shahrukh number is 2.
```

In [47]:
```python
#referred from stackoverflow
query10 = "SELECT DISTINCT TRIM(name) Name \
 FROM Person p INNER JOIN M_Cast c on p.PID = TRIM(c.PID) INNER JOIN Movie m O
N m.MID = c.MID AND TRIM(p.Name)!='Shah Rukh Khan' \
 and m.title in (SELECT DISTINCT title FROM Person p3 INNER JOIN M_Cast c3 on
 p3.PID = TRIM(c3.PID) AND TRIM(p3.Name) = p3.Name \
 INNER JOIN Movie m3 ON m3.MID = c3.MID AND p3.Name IN (SELECT DISTINCT Name F
ROM Person p2 INNER JOIN M_Cast c2 ON p2.PID = TRIM(c2.PID) \
 INNER JOIN Movie m2 ON m2.MID = c2.MID AND TRIM(p2.Name)!='Shah Rukh Khan' AN
D m2.title IN \
 (SELECT DISTINCT title FROM Person p3 INNER JOIN M_Cast c3 ON p3.PID = TRIM(c
3.PID) AND TRIM(p3.Name) = 'Shah Rukh Khan' \
 INNER JOIN Movie m3 ON m3.MID = c3.MID))) ORDER BY Name"
result10 = pd.read_sql_query(query10, conn)
result10
```

Out[47]:

	Name
0	'Musafir' Radio Performing
1	A'Ali de Sousa
2	A. Abdul Hameed
3	A. Darpan
4	A. Gabibi
5	A. Khan
6	A. Kukereja
7	A. Lakshmi
8	A. Narsimha
9	A. Prabhakar
10	A. Ravi Verma
11	A. Shalomayev
12	A. Sharma
13	A.A. Deepak
14	A.A. Khan
15	A.C. Murali
16	A.C. Sarkar
17	A.D. Singh
18	A.G. Poddar
19	A.H. Shore
20	A.K. Hangal
21	A.K. Raina
22	A.K. Rana
23	A.R. Basha
24	A.R. Manikandan
25	A.R. Rama
26	A.R. Rana
27	A.R.S.
28	A.S. Duggal
29	A.V. Iyenger
...	...
16135	Zia Ahmed
16136	Zia Ur-Rehman
16137	Zibrail Ansari
16138	Zippy

	Name
16139	Zivile Matikiene
16140	Zoa Morani
16141	Zoe Woodruff
16142	Zoeb
16143	Zoha Tapia
16144	Zohra Sehgal
16145	Zongra Tulku Rinpoche
16146	Zoran Korach
16147	Zorawar Shukla
16148	Zoya Afroz
16149	Zoya Merchant
16150	Zoya Shah
16151	Zubaida
16152	Zubair Khan
16153	Zubeda
16154	Zubeda Khan
16155	Zubeen Garg
16156	Zubeida
16157	Zubin Jauhari
16158	Zufin
16159	Zul Vellani
16160	Zulfi Sayed
16161	Zulkhumor Muminova
16162	Zurab Kapianidze
16163	Zuri Echea
16164	Zuzanna Zajac

16165 rows × 1 columns

In [ ]: