EECS 495
Introduction to Database Systems
Fall 2018
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Solution: Project No. 1

SQL Solution:

Assumptions:

- Couple is identified by COUPLE_NUM.
- There is only one couple in any movie.
- If a couple remarried each other, it is a different couple from the previous one.

Q1:

SELECT MOVIE FROM APPEARED_IN WHERE STAR = 'Edward Norton';

MOVIE
Fight Club
The Illusionist
The Incredible Hulk

Q2:

SELECT DISTINCT (a2.STAR) FROM APPEARED_IN a1, APPEARED_IN a2 WHERE a1.STAR = 'Brad Pitt' AND a1.MOVIE = a2.MOVIE and a1.star!=a2.star;

STAR
Edward Norton
Angelina Jolie
George Clooney
Matt Damon
Vincent Cassel

Q3:

CREATE VIEW MOVIES AS SELECT DISTINCT (a1.MOVIE) FROM APPEARED_IN a1, APPEARED_IN a2 WHERE a1.STAR = 'Tom Hanks' AND a2.STAR = 'Rita Wilson' AND a1.MOVIE = a2.MOVIE;

SELECT SUM(HOW_MUCH) as Total FROM MOVIES m, MADE_MONEY mm WHERE m.MOVIE = mm.MOVIE;

DROP VIEW MOVIES;

Total
51444736.00

Q4:

SELECT DISTINCT i2.STAR FROM IN_COUPLE i1, IN_COUPLE i2, DIVORCED d WHERE i1.STAR = 'Ben Affleck' AND i1.COUPLE_NUM = i2.COUPLE_NUM AND i2.STAR <> i1.STAR and d.COUPLE_NUM = i1.COUPLE_NUM;

	STAR
▶	Jennifer Garner

Q5:

SELECT i.STAR FROM IN_COUPLE i, MARRIED m, DIVORCED d WHERE m.DAY = d.DAY AND i.COUPLE_NUM = d.COUPLE_NUM AND d.COUPLE_NUM =m.COUPLE_NUM;

	STAR
▶	Angelina Jolie
	Brad Pitt

Q6:

create view married_stars as select a.couple_num, b.star as star1, c.star as star2, a.day as mday from married a, in_couple b, in_couple c where a.couple_num = b.couple_num and b.couple_num = c.couple_num and b.star != c.star;

select distinct e.star1 as star, e.star2 as married_to_whom from appeared_in d, appeared_in f, married_stars e, made_money m where d.movie=f.movie and e.star1=d.star and e.star2=f.star and e.star1<e.star2 and m.day_opened <= e.mday and m.movie=d.movie;

DROP VIEW MARRIED_STARS;

	star	married_to_whom
▶	Angelina Jolie	Brad Pitt
	Ben Affleck	Jennifer Garner
	Monica Bellucci	Vincent Cassel
	Rita Wilson	Tom Hanks

Q7:

CREATE VIEW NUM_MOVIES AS SELECT STAR, COUNT(*) AS NUM FROM APPEARED_IN GROUP BY STAR;

SELECT STAR, NUM FROM NUM_MOVIES WHERE NUM = (SELECT MAX(NUM) FROM NUM_MOVIES);

DROP VIEW NUM_MOVIES;

	STAR	NUM
▶	Tom Hanks	5
	Brad Pitt	5
	Matt Damon	5

Q8:

CREATE VIEW COUNTS AS SELECT i1.STAR AS STAR1, i2.STAR AS STAR2, COUNT(*) AS NUM FROM IN_COUPLE i1, IN_COUPLE i2 WHERE i1.STAR > i2.STAR AND i1.COUPLE_NUM = i2.COUPLE_NUM GROUP BY i1.STAR, i2.STAR;

SELECT STAR1, STAR2 FROM COUNTS WHERE NUM > 1;

DROP VIEW COUNTS;

	STAR1	STAR2
▶	Brad Pitt	Angelina Jolie
	Tom Hanks	Rita Wilson

Q9:

CREATE VIEW COUNTSNEW AS SELECT i.STAR, COUNT(*) AS NUM FROM IN_COUPLE i, DIVORCED d WHERE i.COUPLE_NUM = d.COUPLE_NUM GROUP BY i.STAR;

SELECT STAR FROM COUNTSNEW WHERE NUM > 1;
DROP VIEW COUNTSNEW;

	STAR
▶	Angelina Jolie
	Brad Pitt
	Tom Hanks

Q10:

CREATE VIEW AVG_TOT AS SELECT a.STAR, AVG (m.HOW_MUCH) AS NUM FROM APPEARED_IN a, MADE_MONEY m WHERE a.MOVIE = m.MOVIE GROUP BY a.STAR;

SELECT STAR FROM AVG_TOT WHERE NUM >= ALL (SELECT NUM FROM AVG_TOT);

DROP VIEW AVG_TOT;

	STAR
▶	Scarlett Johansson

Q11:

Tough case: must deal with stars who were NOT ever divorced!!
This is why I have the not exists, and not simply another join.

This is a list of all star-combos and movies they appeared in while married:

```
CREATE VIEW  MOVIES_MARRIED AS SELECT DISTINCT a.MOVIE, i.COUPLE_NUM, mm.HOW_MUCH
FROM IN_COUPLE i, APPEARED_IN a, MARRIED m, MADE_MONEY mm WHERE i.STAR = a.STAR AND
m.COUPLE_NUM = i.COUPLE_NUM AND m.DAY <  mm.DAY_OPENED AND mm.MOVIE = a.MOVIE AND
NOT EXISTS ( SELECT * FROM DIVORCED d WHERE d.DAY <= mm.DAY_OPENED AND d.COUPLE_NUM =
m.COUPLE_NUM);
```

Here is the average per couple:

```
CREATE VIEW  PER_COUPLE AS SELECT COUPLE_NUM, AVG (m.HOW_MUCH) AS NUM FROM
MOVIES_MARRIED m GROUP BY COUPLE_NUM;
```

And the highest average:

```
SELECT COUPLE_NUM FROM PER_COUPLE WHERE NUM >= ALL (SELECT NUM FROM PER_COUPLE);

DROP VIEW MOVIES_MARRIED;

DROP VIEW PER_COUPLE;
```

	COUPLE_NUM
▶	2