SQL

CS Scholars

April 18 and April 20, 2017

1 Warm Up

Suppose we have the following table `vidya_gaems`:

title	release	developer	genre
The Legend of Zelda	1986	Nintendo	adventure
Super Mario Bros.	1985	Nintendo	platformer
Tetris	1984	Pajitnov	puzzle
Assassins Creed	2007	Ubisoft	adventure
WATCH_DOGS	2014	Ubisoft	adventure
Prince of Persia	1989	Ubisoft	adventure
Civilization	1991	MicroProse	strategy

1. Write a query that selects the `title` and `genre` of `vidya_gaems` developed by Ubisoft in chronological orders.

2. Write a query that outputs the `title` of `vidya_gaems` between the release of 1990 and 2016 in alphabetical order.

Assume that the following table of movie ratings has been created:

```
create table ratings as
  select "The Matrix" as title,     9 as rating union
  select "The Matrix Reloaded",     7           union
  select "The Matrix Revolutions", 5            union
  select "Toy Story",               8           union
  select "Toy Story 2",             8           union
  select "Toy Story 3",             9           union
  select "Terminator",              8           union
  select "Judgment Day",            9           union
  select "Rise of the Machines",    5;
```

Correct output
Judgment Day
Terminator
The Matrix
Toy Story
Toy Story 2
Toy Story 3

3. Select the titles of all movies that have a rating greater than 7 in alphabetical order.

2 Table Joins

Suppose we have the following tables:

straight_outta_compton

real_name	stage_name
antoine carraby	dj yella
lorenzo patterson	mc ren
oshea jackson	ice cube
andrew young	dr dre
eric wright	eazy e

albums

album	artist
i am the west	ice cube
eazy-duz-it	eazy e
compton	dr dre
reincarnated	mc ren
slice	dj yella

1. Write a query that will output the real name of each member and his album in alphabetical order (by name).

3 Aggregation

Suppose we have the following tables:

title	release	developer	genre
The Legend of Zelda	1986	Nintendo	adventure
Super Mario Bros.	1985	Nintendo	platformer
Assassin's Creed	2007	Ubisoft	adventure
WATCH_DOGS	2014	Ubisoft	adventure
Prince of Persia	1989	Ubisoft	adventure
Civilization	1991	MicroProse	strategy

1. Select the title and the release of the oldest game for each developer.

4 With... As

1. A Hamming number is a positive integer that has no prime factors other than 2, 3, or 5. That is, all Hamming numbers are pow(2, i) * pow(3, j) * pow(5, k) for some non-negative integers i, j, and k. The first 20 Hamming numbers are 1, 2, 3, 4, 5, 6, 8, 9, 10, 12, 15, 16, 18, 20, 24, 25, 27, 30, 32, and 36. Complete the SQL statements below so that the final statement generates a single-column table that contains as its rows the Hamming numbers less than 100 in increasing order.

```
CREATE TABLE t AS SELECT 2 AS k UNION SELECT 3 UNION SELECT 5;

WITH ham(n) AS (

  SELECT _____________________ UNION

  SELECT _____________________

    FROM _____________________

    WHERE _____________________

) SELECT n FROM ham ORDER BY n;
```

2. Suppose we have the following table:

title	rating
The Matrix	9
The Matrix Reloaded	7
The Matrix Revolutions	5
Toy Story	8
Toy Story 2	8
Toy Story 3	9
Terminator	8
Judgment Day	9
Rise of the Machines	5

Select the titles of all movies which at least 2 other movies have the same rating. The results should appear in alphabetical order. Repeated results are acceptable. *You may only use the SQL features introduced in this course*.

```
with

   groups(name, score, n ) as (

      select _________, _________. _________ from ratings union

      select _______, _______, _______, from groups, ratings

         where ____________________________________________

      )

      select title from ____________________________

         where ____________________________________________

         order by ____________________________________________;
```