

CSC343 Worksheet 3

June 11, 2020

1. **Exercise 6.1.1:** If a query has a SELECT clause

```
1  SELECT A B
2
```

how do we know whether A and B are two different attributes or B is an alias of A ?

2. **Exercise 6.1.2:** Write the following queries, based on our running movie database example in SQL

```
1  Movies(title, year, length, genre, studioName, producerC\#)
2  StarsIn(movieTitle, movieYear, starName)
3  MovieStar(name, address, gender, birthdate)
4  MovieExec(name, address, cert\#, netWorth)
5  Studio(name, address, presC\#)
6
```

- a) Find the address of MGM studios.
 - b) Find sandra Bullock's birthdate
 - c) Find all the stars that appeared either in a movie made in 1980 or a movie with "Love" in the title
 - d) Find all executives worth at least \$10,000,000
 - e) Find all the stars who either are male or live in malibu (have string *Malibu* as a part of their address)
3. **Exercise 6.1.3:** Write the following queries in SQL. They refer to the database schema of Exercise 2.4.1:

```
1  Product(maker, model type)
2  PC(model, speed, ram, hd, price)
3  Laptop(model, speed, ram, hd, screen, price)
4  Printer(model, color, type, price)
5
```

Show the result of your queries using the data from Exercise 2.4.1

- a) Find the model number, speed and hard-disk size for all PC's whose price is under \$1000
 - b) Do the same as (a), but rename the **speed** column **gigahertz** and the **hd** column **gigabytes**.
 - c) Find the manufacturerers of printers
 - d) Find the model number, memory size, and screen size for laptops costing more than \$1500.
 - e) Find all the tuples in the **Printer** relation for color printers. Remember that **color** is a boolean-valued attribute.
 - f) Find the model nuber and hard-disk size for those PC's that have a speed of 3.2 and a price less than \$2000.
4. **Exercise 6.1.4:** Write the following queries based on the database schema of Exercise 2.4.3:

```

1  Classes(class, type, country, numGuns, bore, displacement)
2  Ships(name, class, launched)
3  Battles(name, date)
4  Outcomes(ship, battle, result)
5

```

and show the result of your query on the data of Exercise 2.4.3

- a) Find the class name and country for all classes with at least 10 guns.
 - b) Find the names of all ships launched prior to 1918, but call the resulting column **shipName**
 - c) Find the names of ships sunk in battle and the name of the battle in which they are sunk
 - d) Find all ships that have the same name as their class
 - e) Find the name of all ships that begin with the letter "R"
 - f) Find the names of all ships whose name consists of three or more words (e.g King George V)
5. **Exercise 6.1.5:** Let a and b be integer-valued attributes that may be *NULL* in some tuples. For each of the following conditions (as may appear in a WHERE clause), describe exactly the set of (a, b) tuples that satisfy the condition, including the case where a and/or b is *NULL*.

- a) $a = 10$ OR $b = 20$
- b) $a = 10$ AND $b = 20$
- c) $a < 10$ OR $a \geq 10$
- d) $a = b$
- e) $a \leq b$

6.

7. **Exercise 6.1.5:** In Example 6.10 we discussed the query

```

1  SELECT *
2  FROM Movies
3  WHERE length <= 120 OR length > 120;
4

```

which behaves unintuitively when the **length** of a movie is *NULL*. Find a simpler, equivalent query, one with a single condition in the **WHERE** clause (no **AND** or **OR** of conditions)

8. **Exercise 6.2.1:** Using the database schema of our running movie example

```

1  Movies(title, year, length, genre, studioName, producerC#)
2  StarsIn(movieTitle, movieYear, starName)
3  MovieStar(name, address, gender, birthdate)
4  MovieExec(name, address, cert\#, netWorth)
5  Studio(name, address, presC#)
6

```

write the following queries in SQL.

- a) Who were the make stars in *Titanic*
- b) Which stars appeared in movie procuded by MGM in 1995
- c) Who is the president of MGM studios?
- d) Which movies are longer than *Gone With the Wind*?
- e) Which executives are worh more than Merv Griffin?

9. **Exercise 6.2.2:** Write the following queries, based on the database schema

```

1  Product(maker, model, type)
2  PC(model, speed, ram, hd, price)
3  Laptop(model, speed, ram, hd, screen, price)
4  Printer(model, color, type, price)
5

```

of Exercise 2.4.1 and evaluate your queries using the data of that exercise.

- a) Give the manufacturer and speed of laptops with a hard disk of at least thirty gigabytes.
- b) Find the model number and price of all products (of any type) made by manufacturer *B*.
- c) Find those manufacturers that sell **Laptops**, but not **PC**'s.
- d) Find those hard-disk sizes that occur in two or more **PC**'s.
- e) Find those pairs of **PC** models that have both the same speed and RAM. A pair should be listed only once; e.g. list (i,j) but not (j, i).

Reference

- 1) Stanford: CS145 - Introduction to Databases, [link](#)