CSC343 Worksheet 3

June 11, 2020

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

```
SELECT A B

```

   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 queires, based on our running movie database example in SQL

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

```

   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:

```
Product(maker, model type)
PC(model, speed, ram, hd ,price)
Laptop(model, speed, ram, hd, screen, price)
Printer(model, color, type, price)

```

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 bollean-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:

```
Classes(class, type, country, numGuns, bore, displacement)
Ships(name, class, launched)
Battles(name, date)
Outcomes(ship, battle, result)

```

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 $a >= 10$

d) $a = b$

e) $a <= b$

6.

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

```
    SELECT *
    FROM Movies
    WHERE length <= 120 OR length > 120;

```

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)

Reference

1) Stanford: CS145 - Introduction to Databases, link