Big Data – Spring 2016
SQL Lab
February 8th, 2016

Today we will practice writing SQL queries. Our running example will deal with sailors, boats, and reservations.

1. First, we will create the tables and populate them. Copy the sailors-mysql.sql file from the NYU Classes Lab3 folder to your local machine. Open your MySQL client and type

```
source path_to_file/sailors-mysql.sql
```

where path_to_file should be replaced with the path where you saved sailors-mysql.sql file on your laptop.

Here is a summary of what executing this file does. The three tables were created using the following SQL statements:

```
create table sailors(
        sid int PRIMARY KEY,
        sname varchar(30),
        rating int,
        age int
);

create table reserves(
        sid int,
        bid int,
        day date,
        PRIMARY KEY (sid, bid, day)
);

create table boats(
        bid int PRIMARY KEY,
        bname char(20),
        color char(10)
);
```

After creating the tables, the script inputs the following entries:

Table 1: boats

bid	bname	color
101	Interlake	blue
102	Interlake	red
103	Clipper	green
104	Marine	red

Table 2: reserves

sid	bid	day
22	101	10-OCT-98
22	102	10-OCT-98
22	103	10-AUG-98
22	104	10-JUL-98
31	102	10-NOV-98
64	101	05-SEP-98
64	102	08-SEP-98
74	103	08-SEP-98
31	103	06-NOV-98
31	104	12-NOV-98

Table 3: sailors

sid	sname	rating	age
22	dusting	7	45
29	brutus	1	33
31	lubber	8	55.5
32	andy	8	25.5
58	rusty	10	35
64	horatio	7	16
71	zorba	10	35
74	horatio	9	25.5
85	art	3	25.5
95	bob	3	63.5

2. Write the following queries in SQL:
   a) Find the name and ages of all sailors.
   b) Find all sailors with a rating above 7.
   c) Find the names of sailors who have reserved boat number 103.
   d) Find the sids of sailors who have reserved a red boat.
   e) Find the names of sailors who have reserved a red boat.
   f) Find the names of sailors who have reserved at least one boat.
   g) Find the names of sailors who have reserved a red or a green boat.
   h) Find the names of sailors who have reserved both a red and a green boat.
   i) Find the sids of all sailors who have reserved a red boat but not a green boat.
   j) Find the names of sailors who have not reserved boat number 103.
   k) Find the names of sailors whose rating is better than some sailor called Horatio.
   l) Find the names of sailors whose rating is better than all sailors called Horatio.
   m) Find the names of sailors who have reserved *all* boats.
   n) Find the average age of sailors with a rating of 10.
   o) Find the name and age of the oldest sailor.
   p) Find the age of the youngest sailor who is eligible to vote (i.e., is at least 18 years old) for each rating level with at least two such sailors.
   q) Find the sids, snames and bnames of sailors and the boats they have reserved, if any.