

# CS 380

## Lab 2

### Getting data from MySQL

All questions below will use the rocket database.

The rocket database consists of 3 tables that show describe the vast majority of rocket launches since WWII. The tables in the database are as follows (in some cases I am not sure of the use/meaning of columns or the contents are obvious)

**SITE:** the location a rocket launch. Columns are:

SiteCode: a unique ID for the site (the primary key)

PadCode: a site may have multiple actual places that rockets launch from

SitePad:

Type:

Country: the country in which the site exists

TimeStart: the date of the first launch from the site

TimeEnd: the date of the last launch from the site

ShortName:

FormalName:

Location: a description of the location

Longitude:

Latitude:

Uncertainty: typically 0, but especially for sea launches, there may not be an exact

location

ParentOrg: e.g. NASA

**Vehicle:** The type of rocket

Name: e.g., Saturn V (primary key)

Family Name: e.g. Saturn

MainStageName:

VehicleVariant:

Manufacturer: the name of the company that built the rocket.

Length: height in meters

Height: diameter in meters

LaunchMass: in kilograms

LEOPayload: low earth orbit payload (kilograms)

GTOPayload: geosynchronous transfer orbit payload (kilograms)

LaunchMass: kilograms

Thrust: kilograms

MaxApogee: The highest it can get (kilometers). Not well defined if can reach escape velocity

**Launch:** describes an actual rocket launch

Tag: A unique ID (primary key)

JD: an alternate unique ID (Primary key)

Date: The launch date (and time)

Vehicle: the launch vehicle (foreign key to vehicle name)

Flight:

Mission: short description of why

Launch Site: foreign key to site code  
Launch Pad: From site.padcode  
Apogee: the actual high point of the launch  
Category:

For this lab, give the SQL statements used to answer each of the following questions. When possible/appropriate your query should give exactly and only the data asked for (i.e., do not return 2 rows when you only need 1).

**The site table in the rocket database uses a date of 1900-01-01 to mean unknown or uncertain.**

**None of the queries asked for here require the use of join**

Thought: once you get past very simple queries, it is usually best to put your query(ies) into a file then run the file using Unix IO redirection. For instance the answer to question 1 is “use rocket;”

if you put that command into a file, cleverly called “rocketq.sql” you can do the following

```
UNIX> mysql -u YOURLOGIN < rocketq.sql
```

This will execute all of the statements in the file rocketq.sql as if you had typed them interactively. Even better, many editors (VSC included) have sql modes to help you write valid SQL. (For VSC, I recommend installing SQLTools.)

Going further, I like blank lines between results, and possibly question number as well. (It just makes things easier to see. So my file (that is correct for the first two questions) looks like

```
\! echo 1  
use rocket;  
\! echo  
\!echo 2  
show tables;
```

Note: \! tells the sql engine to execute a unix command, in this case “echo”

1. use the rocket database?
2. List the tables in the rocket database?
3. How many columns are in the launch table? (You cannot do a query to get only this information, so just give the query from which you could extract this information)
4. What are the primary keys of every table? (You cannot do a query to get only this information, so just give the query from which you could extract this information). (Use one query for each table)
5. How many rows are in each table? (use one query for each table)
6. How many different manufacturers have there been?

7. What launch site has the most recent first launch? (I.e. what is the most recently created launch site?)
8. What was the launch site designation of the first rocket launched (in this database)?
9. List all launch sites that have been (or were) in operation for at least 30 years
10. list launches in 1999 in descending order by apogee.
11. list the ten most used launch vehicles
12. list launches between march 1, 1988 and sep 17, 1988. You can do this with a lot ANDs, consider using a single between.
13. What launch vehicle had the most launches in 2018?
14. In 2016, what launch sites were used and how many launches occurred at each?
15. List the launch vehicles that have been used 500 or more times. (You can do this is a really poor way using order by and limit. To do a direct 500 or more requires a query that creates a subset).

What to Hand In:

As many queries as you were able to write from those above. Send to [gtowell380@cs.brynmawr.edu](mailto:gtowell380@cs.brynmawr.edu)