(My)SQL Cheat Sheet

Types

Integers
```
int(M)
M = 11
```
Floating-point (real) numbers
```
float(M,D)
M > D
```
Double-precision
```
double(M,D)
M > D
```
Dates and times
```
Date
Datetime
time
timestamp(M)
M = 8
```
Fixed-length strings
```
char(M)
```
Variable-length strings
```
varchar(M)
M < 255
```
A large amount of text
```
text
```
Images
```
blob
```
Values chosen from a list
```
enum('v1','v2',...)
```

Functions - Math

Count rows
```
COUNT(column | *)
```
Average value
```
AVG(column)
```
Minumum value
```
MIN(column)
```
Maximum value
```
MAX(column)
```
Sum all values
```
SUM(column)
```
Absolute value
```
abs(number)
```
Rounding numbers
```
round(number)
floor(number)
ceiling(number)
```
Square root
```
sqrt(number)
```
nth power
```
pow(base,exponent)
```
random number [0;1]
```
rand()
```
sin (i.e.: cos, etc.)
```
sin(number)
```

Functions - String

Concate strings
```
concate(str1,str2, ...)
```
Compare strings
```
strcmp(str1,str2)
```
Convert to lower case
```
lower(string)
```
Convert to upper case
```
upper(string)
```
Trim whitespace
```
ltrim(string)
rtrim(string)
```
Substring of string
```
substring(str,idx1,idx2)
```
Encrypt password
```
password(string)
```
Encode string
```
encode(string,key)
```
Decode string
```
decode(string,key)
```
Get date
```
curdate()
```
Get time
```
curtime()
```
Extract from date string
```
dayname(string)
dayofweek(string)
monthname(string)
```
Cryptage
```
MD5()
SHA1()
```

Basic MySQL Commands

List all databases	`SHOW DATABASES;`
Create database	`CREATE DATABASE database;`
Use a database	`USE database;`
List tables in the database	`SHOW TABLES;`
Show the structure of a table	`DESCRIBE table;` `SHOW COLUMNS FROM table;`
Delete a database (*Careful!*)	`DROP DATABASE database;`

SQL Commands: Modifying

Create table
```
CREATE TABLE table (
        column1 type [[NOT] NULL]
                [AUTO_INCREMENT],
        column2 type [[NOT] NULL]
                [AUTO_INCREMENT], ...
        other options,
        PRIMARY KEY (column(s))    );
```
```
CREATE TABLE Students (
        LastName varchar(30) NOT NULL,
        FirstName varchar(30) NOT NULL,
        StudentID int NOT NULL,
        Major varchar(20),
        Dorm varchar(20),
        PRIMARY KEY (StudentID)    );
```

Insert data
```
INSERT INTO table VALUES
        (list of values);
INSERT INTO table SET
        column1=value1,
        column2=value2, ...
        columnk=valuek;
INSERT INTO table(col1,col2,...)
       VALUES (val1,val2...);
```
```
INSERT INTO Students VALUES
        ('Smith','John',123456789,'Math','Selleck');
INSERT INTO Students SET
        FirstName='John', LastName='Smith',
        StudentID=123456789, Major='Math';
INSERT INTO Students (StudentID,FirstName,LastName)
       VALUES (123456789,'John','Smith')
       VALUES (123456790,'Johny','Al');
```

Insert/Select
```
INSERT INTO table
(column1,column2,...)
        SELECT statement;
        (See below)
```
```
INSERT INTO Students
        (StudentID,FirstName,LastName)
        SELECT StudentID,FirstName,LastName
        FROM OtherStudentTable;
        WHERE LastName like '%son';
```

Delete data
```
DELETE FROM table
        [WHERE condition(s)];

(Omit WHERE to delete all data)
```
```
DELETE FROM Students
       WHERE LastName='Smith';
DELETE FROM Students
       WHERE LastName like '%Smith%';
       AND FirstName='John';
DELETE FROM Students;
```

Updating Data
```
UPDATE table SET
        column1=value1,
        column2=value2,
        ...
        columnk=valuek
        [WHERE condition(s)];
```
```
UPDATE Students SET
       LastName='Jones' WHERE StudentID=987654321;
UPDATE Students SET
        LastName='Jones', Major='Theatre'
        WHERE StudentID=987654321 OR
       (MAJOR='Art' AND FirstName='Pete');
```

Insert column
```
ALTER TABLE table ADD COLUMN
        column type options;
```
```
ALTER TABLE Students ADD COLUMN
        Hometown varchar(20);
```

Delete column
```
ALTER TABLE table
        DROP COLUMN column;
```
```
ALTER TABLE Students
        DROP COLUMN Dorm;
```

Delete table
```
DROP TABLE [IF EXISTS] table;
```
```
DROP TABLE Animals;
```

SQL Commands: Querying

All columns
```
SELECT * FROM table;
```
```
SELECT * FROM Students;
```

Some columns
```
SELECT column1,column2,... FROM table;
```
```
SELECT LastName, FirstName FROM Students;
```

Some rows/ columns
```
SELECT column1,column2,...
        FROM table
        [WHERE condition(s)];
```
```
SELECT LastName,FirstName
        FROM Students
        WHERE StudentID LIKE '%123%';
```

No Repeats
```
SELECT [DISTINCT] column(s)
        FROM table;
```
```
SELECT DISTINCT LastName
        FROM Students;
```

Ordering
```
SELECT column1,column2,...
        FROM table
        [ORDER BY column(s) [DESC]];
```
```
SELECT LastName,FirstName
        FROM Students
        ORDER BY LastName, FirstName DESC;
```

Column Aliases
```
SELECT column1 [AS alias1],
        column2 [AS alias2], ...
        FROM table1;
```
```
SELECT LastName,FirstName AS First
        FROM Students;
```

Grouping
```
SELECT column1,column2,...
        FROM table
        [GROUP BY column(s)];
```
```
SELECT LastName,COUNT(*)
        FROM Students
        GROUP BY LastName;
```

Group Filtering
```
SELECT column1,column2,...
        FROM table
        [GROUP BY column(s)]
        [HAVING condition(s)];
```
```
SELECT LastName,COUNT(*)
        FROM Students
        GROUP BY LastName
        HAVING LastName like '%son';
```

Joins
```
SELECT column1,column2,...
        FROM table1,table2,...
        [WHERE condition(s)];
```
```
SELECT LastName,Points
        FROM Students,Assignments
        WHERE AssignmentID=12 AND
        Students.StudentID=Assignments.StudentID;
```

Table Aliases
```
SELECT column1,column2,...
        FROM table1 [alias1],
        table2 [alias2],...
        [WHERE condition(s)];
```
```
SELECT LastName,Points
        FROM Students S,Assignments A
        WHERE S.StudentID=A.StudentID AND
        A.AssignmentID=12;
```

Everything
```
SELECT [DISTINCT]
        column1 [AS alias1],
        column2 [AS alias2], ...
        FROM table1 [alias1], ...
        [WHERE condition(s)]
        [GROUP BY column(s)]
        [HAVING condition(s)]
        [ORDER BY column(s) [DESC]];
```
```
SELECT Points, COUNT(*) AS Cnt
        FROM Students S,Assignments A
        WHERE S.StudentID=A.StudentID AND
        A.AssignmentID=12
        GROUP BY Points
        HAVING Points > 10
        ORDER BY Cnt, Points DESC;
```

Conditionals

```
field1 = value1
field1 <> value1
field1 LIKE 'value_%'
field1 IS NULL
field1 IS NOT NULL
field1 IN (value1, value2)
field1 NOT IN (value1, value2)

      condition1 AND condition2
      condition1 OR  condition2
 ((c1 OR c2) AND c3 AND c4) OR c5 ...
```

Jointures

```
[LEFT|RIGHT] JOIN table ON cond.
[INNER|OUTER] JOIN
JOIN table USING(field)
```

Command line

Running MySQL
```
mysql -uusername -ppassword   mysql -
                    ucusack2RO -pegbdf5s
```
Importing
```
        mysql -uusername -ppassword <
    filename  mysql -usomeDB -pblah <
                            myNewDB.sql
```
Dumping
```
      (Saving)  mysqldump -uusername -
        ppassword database [tables] >
                                filename
```