

# (My)SQL Cheat Sheet

Here are the most commonly used SQL commands and the most commonly used options for each. There are many more commands and options than listed here. In other words, the syntaxes as I have listed them are far from complete. See the links at the bottom for more complete syntaxes and more commands.

## MySQL Command-Line

What	How	Example(s)
Running MySQL	<code>mysql -uusername -ppassword</code>	<code>mysql -ucusack2RO -pegbdf5s</code>
Importing	<code>mysql -uusername -ppassword &lt;filename</code>	<code>mysql -usomeDB -pblah &lt; myNewDB.sql</code>
Dumping (Saving)	<code>mysqldump -uusername -ppassword database [tables] &gt;filename</code>	<code>mysqldump -ume -pblah myDB &gt; My.sql</code> <code>mysqldump -ume -pblah myDB table1 table2 &gt; my.sql</code>

## Common MySQL Column Types

Purpose	Data Type	Example
Integers	<code>int(<i>M</i>)</code>	<code>int(5)</code>
Floating-point (real) numbers	<code>float(<i>M</i>,<i>D</i>)</code>	<code>float(12,3)</code>
Double-precision floating-point	<code>double(<i>M</i>,<i>D</i>)</code>	<code>double(20,3)</code>
Dates and times	<code>timestamp(<i>M</i>)</code>	<code>timestamp(8)</code> (for YYYYMMDD) <code>timestamp(12)</code> (for YYYYMMDDHHMMSS)
Fixed-length strings	<code>char(<i>M</i>)</code>	<code>char(10)</code>
Variable-length strings	<code>varchar(<i>M</i>)</code>	<code>varchar(20)</code>
A large amount of text	<code>blob</code>	<code>blob</code>
Values chosen from a list	<code>enum('value1','value2',...)</code>	<code>enum('apples','oranges','bananas')</code>

*M* is maximum to display, and *D* is precision to the right of the decimal.

## MySQL Mathematical Functions

What	How
Count rows per group	<code>COUNT(<i>column</i>   *)</code>
Average value of group	<code>AVG(<i>column</i>)</code>
Minimum value of group	<code>MIN(<i>column</i>)</code>
Maximum value of group	<code>MAX(<i>column</i>)</code>
Sum values in a group	<code>SUM(<i>column</i>)</code>
Absolute value	<code>abs(<i>number</i>)</code>
Rounding numbers	<code>round(<i>number</i>)</code>
Largest integer not greater	<code>floor(<i>number</i>)</code>
Smallest integer not smaller	<code>ceiling(<i>number</i>)</code>
Square root	<code>sqrt(<i>number</i>)</code>
<i>n</i> th power	<code>pow(<i>base</i>,<i>exponent</i>)</code>

## MySQL String Functions

What	How
Compare strings	<code>strcmp(<i>string1</i>,<i>string2</i>)</code>
Convert to lower case	<code>lower(<i>string</i>)</code>
Convert to upper case	<code>upper(<i>string</i>)</code>
Left-trim whitespace (similar right)	<code>ltrim(<i>string</i>)</code>
Substring of string	<code>substring(<i>string</i>,<i>index1</i>,<i>index2</i>)</code>
Encrypt password	<code>password(<i>string</i>)</code>
Encode string	<code>encode(<i>string</i>,<i>key</i>)</code>
Decode string	<code>decode(<i>string</i>,<i>key</i>)</code>
Get date	<code>curdate()</code>
Get time	<code>curtime()</code>
Extract day name from date string	<code>dayname(<i>string</i>)</code>

random number  $n$ ,  $0 < n < 1$  rand()sin (similar cos, etc.) sin(*number*)Extract day number from date string dayofweek(*string*)Extract month from date string monthname(*string*)

### Basic MySQL Commands

What	How	Example(s)
List all databases	SHOW DATABASES;	SHOW DATABASES;
Create database	CREATE DATABASE <i>database</i> ;	CREATE DATABASE PhoneDB;
Use a database	USE <i>database</i> ;	USE PhonDB;
List tables in the database	SHOW TABLES;	SHOW TABLES;
Show the structure of a table	DESCRIBE <i>table</i> ; SHOW COLUMNS FROM <i>table</i> ;	DESCRIBE Animals; SHOW COLUMNS FROM Animals;
Delete a database ( <i>Careful!</i> )	DROP DATABASE <i>database</i> ;	DROP DATABASE PhoneDB;

### SQL Commands: Modifying

What	How	Example(s)
Create table	CREATE TABLE <i>table</i> ( <i>column1 type</i> [[NOT] NULL [AUTO_INCREMENT], <i>column2 type</i> [[NOT] NULL [AUTO_INCREMENT], ... <i>other options</i> , PRIMARY KEY ( <i>column(s)</i> ) );	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 <i>table</i> VALUES ( <i>list of values</i> ); INSERT INTO <i>table</i> SET <i>column1=value1</i> , <i>column2=value2</i> , ... <i>columnk=valuek</i> ; INSERT INTO <i>table</i> ( <i>column1,column2,...</i> ) VALUES ( <i>value1,value2...</i> );	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');
Insert/Select	INSERT INTO <i>table</i> ( <i>column1,column2,...</i> ) SELECT <i>statement</i> ; (See below)	INSERT INTO Students (StudentID,FirstName,LastName) SELECT StudentID,FirstName,LastName FROM OtherStudentTable; WHERE LastName like '%son';
Delete data	DELETE FROM <i>table</i> [WHERE <i>condition(s)</i> ];  (Omit <b>WHERE</b> 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 <i>table</i> SET <i>column1=value1</i> , <i>column2=value2</i> , ... <i>columnk=valuek</i> [WHERE <i>condition(s)</i> ];	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 <i>table</i> ADD COLUMN <i>column type options</i> ;	ALTER TABLE Students ADD COLUMN Hometown varchar(20);
Delete column	ALTER TABLE <i>table</i> DROP COLUMN <i>column</i> ;	ALTER TABLE Students DROP COLUMN Dorm;
Delete table ( <i>Careful!</i> )	DROP TABLE [IF EXISTS] <i>table</i> ;	DROP TABLE Animals;

SQL Commands: Querying		
What	How	Example(s)
All columns	SELECT * FROM <i>table</i> ;	SELECT * FROM Students;
Some columns	SELECT <i>column1,column2,...</i> FROM <i>table</i> ;	SELECT LastName, FirstName FROM Students;
Some rows/ columns	SELECT <i>column1,column2,...</i> FROM <i>table</i> [WHERE <i>condition(s)</i> ];	SELECT LastName,FirstName FROM Students WHERE StudentID LIKE '% 123% ';
No Repeats	SELECT [DISTINCT] <i>column(s)</i> FROM <i>table</i> ;	SELECT DISTINCT LastName FROM Students;
Ordering	SELECT <i>column1,column2,...</i> FROM <i>table</i> [ORDER BY <i>column(s)</i> [DESC]];	SELECT LastName,FirstName FROM Students ORDER BY LastName, FirstName DESC;
Column Aliases	SELECT <i>column1</i> [AS <i>alias1</i> ], <i>column2</i> [AS <i>alias2</i> ], ... FROM <i>table1</i> ;	SELECT LastName,FirstName AS First FROM Students;
Grouping	SELECT <i>column1,column2,...</i> FROM <i>table</i> [GROUP BY <i>column(s)</i> ];	SELECT LastName,COUNT(*) FROM Students GROUP BY LastName;
Group Filtering	SELECT <i>column1,column2,...</i> FROM <i>table</i> [GROUP BY <i>column(s)</i> ] [HAVING <i>condition(s)</i> ];	SELECT LastName,COUNT(*) FROM Students GROUP BY LastName HAVING LastName like '%son';
Joins	SELECT <i>column1,column2,...</i> FROM <i>table1,table2,...</i> [WHERE <i>condition(s)</i> ];	SELECT LastName,Points FROM Students,Assignments WHERE AssignmentID=12 AND Students.StudentID=Assignments.StudentID;
Table Aliases	SELECT <i>column1,column2,...</i> FROM <i>table1</i> [ <i>alias1</i> ], <i>table2</i> [ <i>alias2</i> ],... [WHERE <i>condition(s)</i> ];	SELECT LastName,Points FROM Students S,Assignments A WHERE S.StudentID=A.StudentID AND A.AssignmentID=12;
Everything	SELECT [DISTINCT] <i>column1</i> [AS <i>alias1</i> ], <i>column2</i> [AS <i>alias2</i> ], ... FROM <i>table1</i> [ <i>alias1</i> ], <i>table2</i> [ <i>alias2</i> ],... [WHERE <i>condition(s)</i> ] [GROUP BY <i>column(s)</i> ] [HAVING <i>condition(s)</i> ] [ORDER BY <i>column(s)</i> [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;

For more details, see the following pages from [MySQL.com](http://www.mysql.com).

- [MySQL Reference Manual](#)
- [MySQL Column Types](#)
- [SHOW syntax](#)
- [CREATE TABLE syntax](#)

- [ALTER TABLE syntax](#)
- [INSERT syntax](#)
- [DELETE syntax](#)
- [UPDATE syntax](#)
- [SELECT syntax](#)
- [INSERT ... SELECT syntax](#)
- [MySQL Functions](#)