

# (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,D</i>)</code>	<code>float(12,3)</code>
Double-precision floating-point	<code>double(<i>M,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		MySQL String Functions	
What	How	What	How
Count rows per group	<code>COUNT(column   *)</code>	Compare strings	<code>strcmp(string1,string2)</code>
Average value of group	<code>AVG(column)</code>	Convert to lower case	<code>lower(string)</code>
Minumum value of group	<code>MIN(column)</code>	Convert to upper case	<code>upper(string)</code>
Maximum value of group	<code>MAX(column)</code>	Left-trim whitespace (similar right)	<code>ltrim(string)</code>
Sum values in a group	<code>SUM(column)</code>	Substring of string	<code>substring(string,index1,index2)</code>
Absolute value	<code>abs(number)</code>	Encrypt password	<code>password(string)</code>
Rounding numbers	<code>round(number)</code>	Encode string	<code>encode(string,key)</code>

Largest integer not greater	<code>floor(number)</code>	Decode string	<code>decode(string,key)</code>
Smallest integer not smaller	<code>ceiling(number)</code>	Get date	<code>curdate()</code>
Square root	<code>sqrt(number)</code>	Get time	<code>curtime()</code>
$n$ th power	<code>pow(base,exponent)</code>	Extract day name from date string	<code>dayname(string)</code>
random number $n$ , $0 < n < 1$	<code>rand()</code>	Extract day number from date string	<code>dayofweek(string)</code>
sin (similar cos, etc.)	<code>sin(number)</code>	Extract month from date string	<code>monthname(string)</code>

### Basic MySQL Commands

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

### SQL Commands: Modifying

What	How	Example(s)
Create table	<code>CREATE TABLE table (</code> <code>column1 type [[NOT] NULL]</code> <code>[AUTO_INCREMENT],</code> <code>column2 type [[NOT] NULL]</code> <code>[AUTO_INCREMENT],</code> <code>...</code> <code>other options,</code> <code>PRIMARY KEY (column(s)) );</code>	<code>CREATE TABLE Students (</code> <code>LastName varchar(30) NOT NULL,</code> <code>FirstName varchar(30) NOT NULL,</code> <code>StudentID int NOT NULL,</code> <code>Major varchar(20),</code> <code>Dorm varchar(20),</code> <code>PRIMARY KEY (StudentID) );</code>
Insert data	<code>INSERT INTO table VALUES</code> <code>(list of values);</code> <code>INSERT INTO table SET</code> <code>column1=value1,</code> <code>column2=value2,</code> <code>...</code> <code>columnk=valuek;</code> <code>INSERT INTO table (column1,column2,...)</code> <code>VALUES (value1,value2...);</code>	<code>INSERT INTO Students VALUES</code> <code>('Smith','John',123456789,'Math','Selleck');</code> <code>INSERT INTO Students SET</code> <code>FirstName='John',</code> <code>LastName='Smith',</code> <code>StudentID=123456789,</code> <code>Major='Math';</code> <code>INSERT INTO Students</code> <code>(StudentID,FirstName,LastName)</code> <code>VALUES (123456789,'John','Smith');</code>
Insert/Select	<code>INSERT INTO table (column1,column2,...)</code> <code>SELECT statement;</code> (See below)	<code>INSERT INTO Students</code> <code>(StudentID,FirstName,LastName)</code> <code>SELECT StudentID,FirstName,LastName</code> <code>FROM OtherStudentTable;</code> <code>WHERE LastName like '%son';</code>
Delete data	<code>DELETE FROM table</code> <code>[WHERE condition(s)];</code>	<code>DELETE FROM Students</code> <code>WHERE LastName='Smith';</code> <code>DELETE FROM Students</code>

		WHERE LastName like '%Smith%'; AND FirstName='John';
	(Omit <b>WHERE</b> to delete all data)	DELETE FROM Students;
Updating Data	UPDATE <i>table</i> SET <i>column1</i> = <i>value1</i> , <i>column2</i> = <i>value2</i> , ... <i>columnk</i> = <i>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> ],	SELECT Points, COUNT(*) AS Cnt FROM Students S,Assignments A

<code>column2 [AS alias2], ... FROM table1 [alias1], table2 [alias2],... [WHERE condition(s)] [GROUP BY column(s)] [HAVING condition(s)] [ORDER BY column(s) [DESC]];</code>	<code>WHERE S.StudentID=A.StudentID AND A.AssignmentID=12 GROUP BY Points HAVING Points &gt; 10 ORDER BY Cnt, Points DESC;</code>
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For more details, see the following pages from [MySQL.com](http://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](#)