A Quick Guide To MySQL
Tables & Queries

This is a Quick reference Guide for MySQL 5.x. MySQL is a relational database management system (RDBMS) based on SQL (Structured Query Language). MySQL is available under GNU public license and through subscription to MySQL Network for business applications. It runs on Unix, iMac, and Windows and provides rich API for many programming languages including C, C++, Java, Perl, Python, Ruby and PHP.

### Database Queries:

- **List all databases**
  
  ```
  SHOW databases;
  ```

- **Select the database**
  ```
  USE <database name>
  ```

- **Create a database**
  ```
  CREATE DATABASE <database name>
  ```

- **Delete a database**
  ```
  DROP DATABASE <database name>
  ```

- **Rename a database**
  ```
  ALTER DATABASE <database name> RENAME <new database name>
  ```

### Table Queries:

- **Create a table**
  ```
  CREATE TABLE <table name> (<field name> <field type> (<field size>), ...)
  ```

- **List all tables in the database**
  ```
  SHOW tables;
  ```

### Database Queries:

- **Show table format with column names and data types**
  ```
  DESCRIBE <table name>
  ```

- **Modify the structure of table**
  ```
  ALTER TABLE <table name> <alter specifications>
  ```

- **Delete the table**
  ```
  DROP TABLE <table name>
  ```

### Retrieving Data:

- **Retrieve from all columns**
  ```
  SELECT * FROM <tables>
  ```

- **Retrieve from selected columns**
  ```
  SELECT <column 1>, <column 2> FROM <tables>
  ```

- **Retrieve unique values**
  ```
  SELECT DISTINCT <column name> FROM <table>
  ```

### Inserting Data:

- **Inserting Data**
  ```
  INSERT INTO <table> (<columns>) VALUES (<data>)
  ```

### Loading Data from Files:

- **Loading Data from Files**
  ```
  LOAD DATA LOCAL INFILE '<filename>' INTO TABLE <table>
  ```

### Modifying Data:

- **Modifying Data**
  ```
  UPDATE <table> SET <field1> = <value1> AND <field2> = <value2> WHERE <conditions>
  ```

### Deleting Data:

- **Deleting Data**
  ```
  DELETE FROM <table> WHERE <condition>
  ```

### Pattern Matching Examples:

- **Pattern Matching Examples**
  ```
  SELECT * FROM teachers WHERE name LIKE 'j%';
  ```

  Wildcard % selects joe, john, jones, etc.

- **Pattern Matching Examples**
  ```
  SELECT * FROM teachers WHERE name LIKE '_ _ _';
  ```

  Selects 3 character values.

- **Pattern Matching Examples**
  ```
  SELECT * FROM teachers WHERE name REGEXP '^A';
  ```

  Selects all entries beginning with A.

- **Pattern Matching Examples**
  ```
  SELECT * FROM teachers WHERE name REGEXP 'p$';
  ```

  Selects all entries ending with p.

<table>
<thead>
<tr>
<th>Character</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>[abc]</td>
<td>match a, b, or c</td>
</tr>
<tr>
<td>['abc']</td>
<td>match all expect a, b, or c</td>
</tr>
<tr>
<td>[A-Z]</td>
<td>match uppercase</td>
</tr>
<tr>
<td>[a-z]</td>
<td>match lowercase</td>
</tr>
<tr>
<td>[0-9]</td>
<td>match any digit</td>
</tr>
</tbody>
</table>
match zero or more instances
match one or more instances
match zero or one instance
match any single char
match the beginning
match the end
separates alternatives
match at least n times but not more than m times
string must occur exactly n times
string must occur at least n times

Sorting:

>SELECT <columns> FROM <table> ORDER BY <column> <ASC or DESC>

>SELECT * FROM teachers ORDER BY age;
>SELECT * FROM teachers ORDER BY name DESC;

Sorts the query results.

Limiting:

>SELECT <columns> FROM <table> LIMIT <from>, <to>
>SELECT * FROM teachers LIMIT 1,5;

Limits query results to specific range.

Grouping:

>SELECT <columns> FROM <table> GROUP BY <column>
>SELECT name, COUNT(*) FROM faculty GROUP BY name;

GROUP BY is used to group values from a column. You can also perform calculations on that column using count, sum, avg. Count returns the number of rows which are selected.

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