### MySQL Data Types

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHAR</td>
<td>String (0 - 255)</td>
</tr>
<tr>
<td>VARCHAR</td>
<td>String (0 - 255)</td>
</tr>
<tr>
<td>TINYTEXT</td>
<td>String (0 - 255)</td>
</tr>
<tr>
<td>TEXT</td>
<td>String (0 - 65535)</td>
</tr>
<tr>
<td>BLOB</td>
<td>String (0 - 65535)</td>
</tr>
<tr>
<td>MEDIUMTEXT</td>
<td>String (0 - 16777215)</td>
</tr>
<tr>
<td>MEDIUMBLOB</td>
<td>String (0 - 16777215)</td>
</tr>
<tr>
<td>LONGTEXT</td>
<td>String (0 - 4294967295)</td>
</tr>
<tr>
<td>LONGBLOB</td>
<td>String (0 - 4294967295)</td>
</tr>
<tr>
<td>TINYINT</td>
<td>Integer (-128 to 127)</td>
</tr>
<tr>
<td>SMALLINT</td>
<td>Integer (-32768 to 32767)</td>
</tr>
<tr>
<td>MEDIUMINT</td>
<td>Integer (-8388608 to 8388607)</td>
</tr>
<tr>
<td>INT</td>
<td>Integer (-2147483648 to 2147483647)</td>
</tr>
<tr>
<td>BIGINT</td>
<td>Integer (-9223372036854775808 to 9223372036854775807)</td>
</tr>
<tr>
<td>FLOAT</td>
<td>Decimal (precise to 23 digits)</td>
</tr>
<tr>
<td>DOUBLE</td>
<td>Decimal (24 to 53 digits)</td>
</tr>
<tr>
<td>DECIMAL</td>
<td>&quot;DOUBLE&quot; stored as string</td>
</tr>
<tr>
<td>DATE</td>
<td>YYYY-MM-DD</td>
</tr>
<tr>
<td>DATETIME</td>
<td>YYYY-MM-DD HH:MM:SS</td>
</tr>
<tr>
<td>TIMESTAMP</td>
<td>YYYYMMDDHHMSS</td>
</tr>
<tr>
<td>TIME</td>
<td>HH:MM:SS</td>
</tr>
<tr>
<td>ENUM</td>
<td>One of preset options</td>
</tr>
<tr>
<td>SET</td>
<td>Selection of preset options</td>
</tr>
</tbody>
</table>

Integers (marked x) that are "UNSIGNED" have the same range of values but start from 0 (i.e., an UNSIGNED TINYINT can have any value from 0 to 255).

### Select queries

- select all columns
  ```sql```
  ```sql
  SELECT * FROM tbl;
  ```
  ```sql```

- select some columns
  ```sql```
  ```sql
  SELECT col1, col2 FROM tbl;
  ```
  ```sql```

- select only unique records
  ```sql```
  ```sql
  SELECT DISTINCT FROM tbl WHERE condition;
  ```
  ```sql```

- column alias with AS
  ```sql```
  ```sql
  SELECT col AS newname FROM tbl;
  ```
  ```sql```

- order results
  ```sql```
  ```sql
  SELECT * FROM tbl ORDER BY col [ASC | DESC];
  ```
  ```sql```

- group results
  ```sql```
  ```sql
  SELECT col1, SUM(col2) FROM tbl GROUP BY col1;
  ```
  ```sql```

### Creating and modifying (cont)

- clear all the values, leaving the table structure
  ```sql```
  ```sql
  TRUNCATE TABLE tbl;
  ```
  ```sql```

- delete the table
  ```sql```
  ```sql
  DROP TABLE tbl;
  ```
  ```sql```

- delete the database
  ```sql```
  ```sql
  DROP DATABASE db_name;
  ```
  ```sql```

### Matching data

- matching data using LIKE
  ```sql```
  ```sql
  SELECT * FROM tbl1 WHERE col LIKE ‘%value%’;
  ```
  ```sql```

- matching data using REGEX
  ```sql```
  ```sql
  SELECT * FROM tbl1 WHERE col RLIKE ‘regular_expression’;
  ```
  ```sql```

### Joins

- INNER returns only where match in both tables
  ```sql```
  ```sql
  SELECT * FROM tbl1 INNER JOIN tbl2 ON tbl1.id = tbl2.id;
  ```
  ```sql```

- OUTER also returns non-matching records from both tables
  ```sql```
  ```sql
  SELECT * FROM tbl1 OUTER JOIN tbl2 ON tbl1.id = tbl2.id;
  ```
  ```sql```

- LEFT also returns non-matching records from left table
  ```sql```
  ```sql
  SELECT * FROM tbl1 LEFT JOIN tbl2 ON tbl1.id = tbl2.id;
  ```
  ```sql```

- RIGHT also returns non-matching records from right table
  ```sql```
  ```sql
  SELECT * FROM tbl1 RIGHT JOIN tbl2 ON tbl1.id = tbl2.id;
  ```
  ```sql```

### JOIN syntax:

- SELECT * FROM tbl1 INNER JOIN tbl2 ON tbl1.id = tbl2.id;

### String functions MySQL

<table>
<thead>
<tr>
<th>Function</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compare strings</td>
<td>STRCMP(&quot;str1&quot;,&quot;str2&quot;)</td>
</tr>
<tr>
<td>Convert to lower case</td>
<td>LOWER(&quot;str&quot;)</td>
</tr>
<tr>
<td>Convert to upper case</td>
<td>UPPER(&quot;str&quot;)</td>
</tr>
<tr>
<td>Left trim</td>
<td>LTRIM(&quot;str&quot;)</td>
</tr>
<tr>
<td>Substring of a string</td>
<td>SUBSTRING(&quot;str&quot;,inx1,inx2)</td>
</tr>
<tr>
<td>Concatenate</td>
<td>CONCAT(&quot;str1&quot;,&quot;str2&quot;)</td>
</tr>
</tbody>
</table>

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cheatography.com/guslong/

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MySQL calculation functions

<table>
<thead>
<tr>
<th>Function</th>
<th>Syntax</th>
</tr>
</thead>
<tbody>
<tr>
<td>Count rows</td>
<td>COUNT(col)</td>
</tr>
<tr>
<td>Average</td>
<td>AVG(col)</td>
</tr>
<tr>
<td>Minimum value</td>
<td>MIN(col)</td>
</tr>
<tr>
<td>Maximum value</td>
<td>MAX(col)</td>
</tr>
<tr>
<td>Sum of values</td>
<td>SUM(col)</td>
</tr>
</tbody>
</table>

Create table with auto-increasing primary key

```
CREATE TABLE table_name (
    id INT AUTO_INCREMENT,
    column VARCHAR(2),
    column VARCHAR(32),
    PRIMARY KEY (`id`)
);
```