Welcome you all
String & Numeric Functions

Day - 3

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Day 3

- **MySQL String Functions**
- **MySQL Numeric Functions**

MySQL String Functions

Function	Description
ASCII	Returns the ASCII value for the specific character
CHARACTER_LENGTH	Returns the length of a string (in characters)
CONCAT	Adds two or more expressions together
CONCAT_WS	Adds two or more expressions together with a separator
FORMAT	Formats a number to a format like "#,###,###.##", rounded to a specified number of decimal places
INSERT	Inserts a string within a string at the specified position and for a certain number of characters
INSTR	Returns the position of the first occurrence of a string in another string
LCASE	Converts a string to lower-case
LEFT	Extracts a number of characters from a string (starting from left)
LENGTH	Returns the length of a string (in bytes)
LOWER	Converts a string to lower-case

MySQL String Functions

Function	Description
LPAD	Left-pads a string with another string, to a certain length
LTRIM	Removes leading spaces from a string
MID	Extracts a substring from a string (starting at any position)
POSITION	Returns the position of the first occurrence of a substring in a string
REPEAT	Repeats a string as many times as specified
REPLACE	Replaces all occurrences of a substring within a string, with a new substring
REVERSE	Reverses a string and returns the result
RIGHT	Extracts a number of characters from a string (starting from right)
RPAD	Right-pads a string with another string, to a certain length
RTRIM	Removes trailing spaces from a string
STRCMP	Compares two strings
SUBSTR	Extracts a substring from a string (starting at any position)
SUBSTRING	Extracts a substring from a string (starting at any position)

MySQL String Functions

Function	Description
TRIM	Removes leading and trailing spaces from a string
UCASE	Converts a string to upper-case
UPPER	Converts a string to upper-case

MySQL String Functions

```
mysql> SELECT CHARACTER_LENGTH("SQL Tutorial") AS LengthOfString;
+----------------+
| LengthOfString |
+----------------+
|             12 |
+----------------+
1 row in set (0.00 sec)
```

```
mysql> SELECT ASCII('a') AS NumCodeOfFirstChar;
+--------------------+
| NumCodeOfFirstChar |
+--------------------+
|                 97 |
+--------------------+
1 row in set (0.04 sec)

mysql> SELECT ASCII('A') AS NumCodeOfFirstChar;
+--------------------+
| NumCodeOfFirstChar |
+--------------------+
|                 65 |
+--------------------+
1 row in set (0.00 sec)

mysql> SELECT CHAR_LENGTH("SQL Tutorial") AS LengthOfString;
+----------------+
| LengthOfString |
+----------------+
|             12 |
+----------------+
1 row in set (0.03 sec)
```

MySQL String Functions

```
mysql> SELECT CONCAT("SQL ", "Tutorial ", "is ", "fun!") AS ConcatenatedString;
+--------------------+
| ConcatenatedString |
+--------------------+
| SQL Tutorial is fun! |
+--------------------+
1 row in set (0.02 sec)

mysql> SELECT CONCAT_WS("-", "SQL", "Tutorial", "is", "fun!") AS ConcatenatedString;
+--------------------+
| ConcatenatedString |
+--------------------+
| SQL-Tutorial-is-fun! |
+--------------------+
1 row in set (0.00 sec)

mysql> SELECT FIELD("q", "s", "q", "l");
+-------------------------+
| FIELD("q", "s", "q", "l") |
+-------------------------+
|                       2 |
+-------------------------+
1 row in set (0.02 sec)
```

MySQL String Functions

```
mysql> SELECT FIND_IN_SET("q", "s,q,l");
+--------------------------+
| FIND_IN_SET("q", "s,q,l") |
+--------------------------+
|                        2 |
+--------------------------+
1 row in set (0.00 sec)

mysql> SELECT FORMAT(250500.5634, 2);
+------------------------+
| FORMAT(250500.5634, 2) |
+------------------------+
| 250,500.56             |
+------------------------+
1 row in set (0.00 sec)

mysql> SELECT LCASE("SQL Tutorial is FUN!");
+------------------------------+
| LCASE("SQL Tutorial is FUN!") |
+------------------------------+
| sql tutorial is fun!          |
+------------------------------+
1 row in set (0.00 sec)

mysql> SELECT LEFT("SQL Tutorial", 3) AS ExtractString;
+---------------+
| ExtractString |
+---------------+
| SQL           |
+---------------+
1 row in set (0.00 sec)
```

MySQL String Functions

```
mysql> SELECT LENGTH("SQL Tutorial") AS LengthOfString;
+----------------+
| LengthOfString |
+----------------+
|             12 |
+----------------+
1 row in set (0.04 sec)

mysql> SELECT LOCATE("3", "microcollege.com") AS MatchPosition;
+---------------+
| MatchPosition |
+---------------+
|             0 |
+---------------+
1 row in set (0.03 sec)

mysql> SELECT LOCATE("i", "microcollege.com") AS MatchPosition;
+---------------+
| MatchPosition |
+---------------+
|             2 |
+---------------+
1 row in set (0.00 sec)
```

MySQL String Functions

```
mysql> SELECT LOCATE("i", "microcollege.com") AS MatchPosition;
+---------------+
| MatchPosition |
+---------------+
|             2 |
+---------------+
1 row in set (0.00 sec)

mysql> SELECT LOCATE("o", "microcollege.com") AS MatchPosition;
+---------------+
| MatchPosition |
+---------------+
|             5 |
+---------------+
1 row in set (0.00 sec)

mysql> SELECT LOWER("SQL Tutorial is FUN!");
+----------------------------+
| LOWER("SQL Tutorial is FUN!") |
+----------------------------+
| sql tutorial is fun!       |
+----------------------------+
1 row in set (0.00 sec)
```

MySQL String Functions

```
mysql> SELECT LPAD("SQL Tutorial", 20, "ABC");
+--------------------------------+
| LPAD("SQL Tutorial", 20, "ABC") |
+--------------------------------+
| ABCABCABSQL Tutorial           |
+--------------------------------+
1 row in set (0.00 sec)

mysql> SELECT LTRIM("      SQL Tutorial") AS LeftTrimmedString;
+-------------------+
| LeftTrimmedString |
+-------------------+
| SQL Tutorial      |
+-------------------+
1 row in set (0.00 sec)

mysql> SELECT MID("SQL Tutorial", 5, 3) AS ExtractString;
+---------------+
| ExtractString |
+---------------+
| Tut           |
+---------------+
1 row in set (0.00 sec)
```

MySQL String Functions

```
mysql> SELECT POSITION("3" IN "W3Schools.com") AS MatchPosition;
+---------------+
| MatchPosition |
+---------------+
|             2 |
+---------------+
1 row in set (0.00 sec)

mysql> SELECT POSITION("c" IN "microcollege.com") AS MatchPosition;
+---------------+
| MatchPosition |
+---------------+
|             3 |
+---------------+
1 row in set (0.00 sec)

mysql> SELECT REPEAT("SQL Tutorial", 3);
+---------------------------------------+
| REPEAT("SQL Tutorial", 3)             |
+---------------------------------------+
| SQL TutorialSQL TutorialSQL Tutorial  |
+---------------------------------------+
1 row in set (0.00 sec)
```

MySQL String Functions

```
mysql> SELECT REPLACE("SQL Tutorial", "SQL", "HTML");
+-------------------------------------+
| REPLACE("SQL Tutorial", "SQL", "HTML") |
+-------------------------------------+
| HTML Tutorial                       |
+-------------------------------------+
1 row in set (0.00 sec)

mysql> SELECT REVERSE("SQL Tutorial");
+------------------------+
| REVERSE("SQL Tutorial") |
+------------------------+
| lairotuT LQS           |
+------------------------+
1 row in set (0.02 sec)

mysql> SELECT RIGHT("SQL Tutorial is cool", 4) AS ExtractString;
+--------------+
| ExtractString |
+--------------+
| cool         |
+--------------+
1 row in set (0.00 sec)
```

MySQL String Functions


```
mysql> SELECT RPAD("SQL Tutorial", 20, "ABC");
+----------------------------------+
| RPAD("SQL Tutorial", 20, "ABC")  |
+----------------------------------+
| SQL TutorialABCABCAB             |
+----------------------------------+
1 row in set (0.04 sec)

mysql> SELECT RTRIM("SQL Tutorial      ") AS RightTrimmedString;
+--------------------+
| RightTrimmedString |
+--------------------+
| SQL Tutorial       |
+--------------------+
1 row in set (0.00 sec)

mysql> SELECT SPACE(10);
+-----------+
| SPACE(10) |
+-----------+
|           |
+-----------+
1 row in set (0.00 sec)
```

MySQL String Functions

```
mysql> SELECT STRCMP("SQL Tutorial", "SQL Tutorial");
+----------------------------------------+
| STRCMP("SQL Tutorial", "SQL Tutorial") |
+----------------------------------------+
|                                      0 |
+----------------------------------------+
1 row in set (0.00 sec)

mysql> SELECT SUBSTR("SQL Tutorial", 5, 3) AS ExtractString;
+---------------+
| ExtractString |
+---------------+
| Tut           |
+---------------+
1 row in set (0.00 sec)

mysql> ^C
mysql> sELECT SUBSTRING("SQL Tutorial", 5, 3) AS ExtractString;
+---------------+
| ExtractString |
+---------------+
| Tut           |
+---------------+
1 row in set (0.00 sec)
```

MySQL String Functions

```
mysql> SELECT SUBSTRING_INDEX("www.microcollege.com", ".", 1);
+-------------------------------------------------+
| SUBSTRING_INDEX("www.microcollege.com", ".", 1) |
+-------------------------------------------------+
| www                                             |
+-------------------------------------------------+
1 row in set (0.00 sec)

mysql> SELECT SUBSTRING_INDEX("www.microcollege.com", "o", 1);
+-------------------------------------------------+
| SUBSTRING_INDEX("www.microcollege.com", "o", 1) |
+-------------------------------------------------+
| www.micr                                        |
+-------------------------------------------------+
1 row in set (0.00 sec)

mysql> SELECT SUBSTRING_INDEX("www.microcollege.com", "o", 2);
+-------------------------------------------------+
| SUBSTRING_INDEX("www.microcollege.com", "o", 2) |
+-------------------------------------------------+
| www.microc                                      |
+-------------------------------------------------+
1 row in set (0.00 sec)
```

MySQL String Functions


```
mysql> SELECT TRIM('    SQL Tutorial    ') AS TrimmedString;
+---------------+
| TrimmedString |
+---------------+
| SQL Tutorial  |
+---------------+
1 row in set (0.00 sec)

mysql> SELECT UCASE("SQL Tutorial is FUN!");
+------------------------------+
| UCASE("SQL Tutorial is FUN!") |
+------------------------------+
| SQL TUTORIAL IS FUN!          |
+------------------------------+
1 row in set (0.00 sec)

mysql> SELECT UPPER("SQL Tutorial is FUN!");
+------------------------------+
| UPPER("SQL Tutorial is FUN!") |
+------------------------------+
| SQL TUTORIAL IS FUN!          |
+------------------------------+
1 row in set (0.00 sec)
```

MySQL String Functions

```
mysql> SELECT INSERT("microcollege.com", 1, 9, "Example");
+-----------------------------------------------+
| INSERT("microcollege.com", 1, 9, "Example")   |
+-----------------------------------------------+
| Exampleege.com                                |
+-----------------------------------------------+
1 row in set (0.00 sec)
```

```
mysql> SELECT INSTR("microcollege.com", "l") AS MatchPosition;
+---------------+
| MatchPosition |
+---------------+
|             8 |
+---------------+
1 row in set (0.00 sec)
```

MySQL Numeric Functions

Function	Description
ABS	Returns the absolute value of a number
ACOS	Returns the arc cosine of a number
ASIN	Returns the arc sine of a number
ATAN	Returns the arc tangent of one or two numbers
ATAN2	Returns the arc tangent of two numbers
AVG	Returns the average value of an expression
CEIL	Returns the smallest integer value that is >= to a number
CEILING	Returns the smallest integer value that is >= to a number

MySQL Numeric Functions

Function	Description
COS	Returns the cosine of a number
COT	Returns the cotangent of a number
COUNT	Returns the number of records returned by a select query
DEGREES	Converts a value in radians to degrees
DIV	Used for integer division
EXP	Returns e raised to the power of a specified number
FLOOR	Returns the largest integer value that is <= to a number
GREATEST	Returns the greatest value of the list of arguments
LEAST	Returns the smallest value of the list of arguments

MySQL Numeric Functions

Function	Description
LN	Returns the natural logarithm of a number
LOG	Returns the natural logarithm of a number, or the logarithm of a number to a specified base
LOG10	Returns the natural logarithm of a number to base 10
LOG2	Returns the natural logarithm of a number to base 2
MAX	Returns the maximum value in a set of values
MIN	Returns the minimum value in a set of values
MOD	Returns the remainder of a number divided by another number
PI	Returns the value of PI
POW	Returns the value of a number raised to the power of another number

MySQL Numeric Functions

Function	Description
POWER	Returns the value of a number raised to the power of another number
RADIANS	Converts a degree value into radians
RAND	Returns a random number
ROUND	Rounds a number to a specified number of decimal places
SIGN	Returns the sign of a number
SIN	Returns the sine of a number
SQRT	Returns the square root of a number
SUM	Calculates the sum of a set of values
TAN	Returns the tangent of a number
TRUNCATE	Truncates a number to the specified number of decimal places

MySQL Numeric Functions

```
mysql> SELECT ABS(-243.5);
+-------------+
| ABS(-243.5) |
+-------------+
|       243.5 |
+-------------+
1 row in set (0.01 sec)

mysql> SELECT ACOS(0.25);
+-------------------+
| ACOS(0.25)        |
+-------------------+
| 1.318116071652818 |
+-------------------+
1 row in set (0.03 sec)

mysql> SELECT ASIN(0.25);
+---------------------+
| ASIN(0.25)          |
+---------------------+
| 0.25268025514207865 |
+---------------------+
1 row in set (0.00 sec)
```

```
mysql> SELECT ATAN(2.5);
+-------------------+
| ATAN(2.5)         |
+-------------------+
| 1.1902899496825317 |
+-------------------+
1 row in set (0.00 sec)

mysql> SELECT ATAN2(0.50, 1);
+--------------------+
| ATAN2(0.50, 1)     |
+--------------------+
| 0.4636476090008061 |
+--------------------+
1 row in set (0.00 sec)

mysql> SELECT CEIL(25.75);
+-------------+
| CEIL(25.75) |
+-------------+
|          26 |
+-------------+
1 row in set (0.03 sec)
```

MySQL Numeric Functions

```
mysql> SELECT CEILING(25.75);
+----------------+
| CEILING(25.75) |
+----------------+
|             26 |
+----------------+
1 row in set (0.00 sec)

mysql> SELECT COS(2);
+---------------------+
| COS(2)              |
+---------------------+
| -0.4161468365471424 |
+---------------------+
1 row in set (0.00 sec)

mysql> SELECT COT(6);
+--------------------+
| COT(6)             |
+--------------------+
| -3.43635004180128  |
+--------------------+
1 row in set (0.00 sec)
```

```
mysql> SELECT DEGREES(1.5);
+---------------------+
| DEGREES(1.5)        |
+---------------------+
| 85.94366926962348   |
+---------------------+
1 row in set (0.00 sec)

mysql> SELECT 10 DIV 5;
+----------+
| 10 DIV 5 |
+----------+
|        2 |
+----------+
1 row in set (0.00 sec)

mysql> SELECT EXP(1);
+---------------------+
| EXP(1)              |
+---------------------+
| 2.718281828459045   |
+---------------------+
1 row in set (0.00 sec)
```

MySQL Numeric Functions

```
mysql> SELECT FLOOR(25.75);
+--------------+
| FLOOR(25.75) |
+--------------+
|           25 |
+--------------+
1 row in set (0.00 sec)

mysql> SELECT GREATEST(3, 12, 34, 8, 25);
+----------------------------+
| GREATEST(3, 12, 34, 8, 25) |
+----------------------------+
|                         34 |
+----------------------------+
1 row in set (0.00 sec)

mysql> SELECT LEAST(3, 12, 34, 8, 25);
+-------------------------+
| LEAST(3, 12, 34, 8, 25) |
+-------------------------+
|                       3 |
+-------------------------+
1 row in set (0.00 sec)
```

```
mysql> SELECT LN(2);
+--------------------+
| LN(2)              |
+--------------------+
| 0.6931471805599453 |
+--------------------+
1 row in set (0.00 sec)

mysql> SELECT LOG(2);
+--------------------+
| LOG(2)             |
+--------------------+
| 0.6931471805599453 |
+--------------------+
1 row in set (0.00 sec)

mysql> SELECT LOG10(2);
+--------------------+
| LOG10(2)           |
+--------------------+
| 0.3010299956639812 |
+--------------------+
1 row in set (0.00 sec)
```

MySQL Numeric Functions

```
mysql> SELECT MOD(18, 4);
+------------+
| MOD(18, 4) |
+------------+
|          2 |
+------------+
1 row in set (0.00 sec)

mysql> SELECT PI();
+----------+
| PI()     |
+----------+
| 3.141593 |
+----------+
1 row in set (0.05 sec)

mysql> SELECT POW(4, 2);
+-----------+
| POW(4, 2) |
+-----------+
|        16 |
+-----------+
1 row in set (0.00 sec)
```
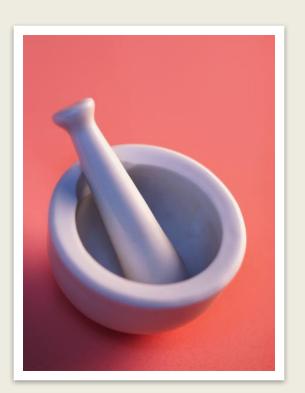
```
mysql> SELECT POWER(4, 2);
+-------------+
| POWER(4, 2) |
+-------------+
|          16 |
+-------------+
1 row in set (0.03 sec)

mysql> SELECT RADIANS(180);
+--------------------+
| RADIANS(180)       |
+--------------------+
| 3.141592653589793  |
+--------------------+
1 row in set (0.00 sec)

mysql> SELECT RAND();
+--------------------+
| RAND()             |
+--------------------+
| 0.43697861250208564|
+--------------------+
1 row in set (0.03 sec)
```

MySQL Numeric Functions

```
mysql> SELECT ROUND(135.375, 2);
+-------------------+
| ROUND(135.375, 2) |
+-------------------+
|            135.38 |
+-------------------+
1 row in set (0.00 sec)

mysql> SELECT SIGN(255.5);
+-------------+
| SIGN(255.5) |
+-------------+
|           1 |
+-------------+
1 row in set (0.00 sec)

mysql> SELECT SIN(2);
+--------------------+
| SIN(2)             |
+--------------------+
| 0.9092974268256817 |
+--------------------+
1 row in set (0.00 sec)
```

```
mysql> SELECT SQRT(64);
+----------+
| SQRT(64) |
+----------+
|        8 |
+----------+
1 row in set (0.00 sec)

mysql> SELECT TAN(1.75);
+-------------------+
| TAN(1.75)         |
+-------------------+
| -5.52037992250933 |
+-------------------+
1 row in set (0.00 sec)

mysql> SELECT TRUNCATE(135.375, 2);
+----------------------+
| TRUNCATE(135.375, 2) |
+----------------------+
|               135.37 |
+----------------------+
1 row in set (0.00 sec)
```

Thank You