

Experiment No:6

Aim: Study various string operations.

Theory:

SQL string functions are used primarily for string manipulation. The following table details the important string functions:

Name	Description
<u>ASCII()</u>	Returns numeric value of left-most character
<u>BIN()</u>	Returns a string representation of the argument
<u>BIT_LENGTH()</u>	Returns length of argument in bits
<u>CHAR_LENGTH()</u>	Returns number of characters in argument
<u>CHAR()</u>	Returns the character for each integer passed
<u>CHARACTER_LENGTH()</u>	A synonym for CHAR_LENGTH()
<u>CONCAT_WS()</u>	Returns concatenate with separator
<u>CONCAT()</u>	Returns concatenated string
<u>CONV()</u>	Converts numbers between different number bases
<u>ELT()</u>	Returns string at index number
<u>FIELD()</u>	Returns the index (position) of the first argument in the subsequent arguments
<u>FIND_IN_SET()</u>	Returns the index position of the first argument within the second argument
<u>HEX()</u>	Returns a string representation of a hex value
<u>INSERT()</u>	Inserts a substring at the specified position up to the specified number of characters
<u>INSTR()</u>	Returns the index of the first occurrence of substring
<u>LCASE()</u>	Synonym for LOWER()
<u>LEFT()</u>	Returns the leftmost number of characters as specified
<u>LENGTH()</u>	Returns the length of a string in bytes
<u>LOAD_FILE()</u>	Loads the named file
<u>LOCATE()</u>	Returns the position of the first occurrence of substring
<u>LOWER()</u>	Returns the argument in lowercase
<u>LPAD()</u>	Returns the string argument, left-padded with the specified string

<u>LTRIM()</u>	Removes leading spaces
<u>MAKE_SET()</u>	Returns a set of comma-separated strings that have the corresponding bit in bits set
<u>MID()</u>	Returns a substring starting from the specified position
<u>OCT()</u>	Returns a string representation of the octal argument
<u>OCTET_LENGTH()</u>	A synonym for LENGTH()
<u>ORD()</u>	If the leftmost character of the argument is a multi-byte character, returns the code for that character
<u>POSITION()</u>	A synonym for LOCATE()
<u>QUOTE()</u>	Escapes the argument for use in an SQL statement
<u>REGEXP</u>	Pattern matching using regular expressions
<u>REPEAT()</u>	Repeats a string the specified number of times
<u>REPLACE()</u>	Replaces occurrences of a specified string
<u>REVERSE()</u>	Reverses the characters in a string
<u>RIGHT()</u>	Returns the specified rightmost number of characters
<u>RPAD()</u>	Appends string the specified number of times
<u>RTRIM()</u>	Removes trailing spaces
<u>SOUNDEX()</u>	Returns a soundex string
<u>SOUNDS LIKE</u>	Compares sounds
<u>SPACE()</u>	Returns a string of the specified number of spaces
<u>STRCMP()</u>	Compares two strings
<u>SUBSTRING_INDEX()</u>	Returns a substring from a string before the specified number of occurrences of the delimiter
<u>SUBSTRING(), SUBSTR()</u>	Returns the substring as specified
<u>TRIM()</u>	Removes leading and trailing spaces
<u>UCASE()</u>	Synonym for UPPER()
<u>UNHEX()</u>	Converts each pair of hexadecimal digits to a character
<u>UPPER()</u>	Converts to uppercase

Code:

```
t151070031@t151070031-VirtualBox:~$ mysql -u root -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 4
```

Server version: 5.7.17-0ubuntu0.16.04.1 (Ubuntu)

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Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

```
mysql> show databases;
```

```
+-----+
| Database          |
+-----+
| information_schema |
| exp2              |
| mysql             |
| performance_schema |
| sys               |
+-----+
5 rows in set (0.35 sec)
```

```
mysql> use exp2
```

Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A

Database changed

```
mysql> show tables;
```

```
+-----+
| Tables_in_exp2    |
+-----+
| CUSTOMERS         |
| ORDERS            |
| Orders           |
| employee          |
| sublist           |
+-----+
5 rows in set (0.00 sec)
```

```
mysql> select ascii('a');
```

```
+-----+
| ascii('a') |
+-----+
|          97 |
+-----+
1 row in set (0.13 sec)
```

```
mysql> select bin(15);
```

```
+-----+
| bin(15) |
```

```
+-----+
| 1111  |
+-----+
1 row in set (0.04 sec)
```

```
mysql> select bit_length('how');
```

```
+-----+
| bit_length('how') |
+-----+
|                24 |
+-----+
1 row in set (0.00 sec)
```

```
mysql> char length("How");
```

```
ERROR 1064 (42000): You have an error in your SQL syntax; check the
manual that corresponds to your MySQL server version for the right
syntax to use near 'char length("How")' at line 1
```

```
mysql> char length('How');
```

```
ERROR 1064 (42000): You have an error in your SQL syntax; check the
manual that corresponds to your MySQL server version for the right
syntax to use near 'char length('How')' at line 1
```

```
mysql> select char length('How');
```

```
+-----+
| char_length('How') |
+-----+
|                3 |
+-----+
1 row in set (0.01 sec)
```

```
mysql> select character length('How');
```

```
+-----+
| character_length('How') |
+-----+
|                        3 |
+-----+
1 row in set (0.00 sec)
```

```
mysql> select concat("How ","are ","you!");
```

```
+-----+
| concat("How ","are ","you!") |
+-----+
| How are you!                  |
+-----+
1 row in set (0.00 sec)
```

```
mysql> select concat ws(" ", "How", "good", "the", "day", "is!");
```

```
+-----+
| concat_ws(" ", "How", "good", "the", "day", "is!") |
+-----+
| How good the day is! |
+-----+
1 row in set (0.01 sec)
```

```
mysql> select conv(5,4,2);
```

```
+-----+
| conv(5,4,2) |
+-----+
| 0           |
+-----+
```

```
1 row in set (0.00 sec)
```

```
mysql> select conv(5,10,2);
```

```
+-----+
| conv(5,10,2) |
+-----+
| 101          |
+-----+
```

```
1 row in set (0.00 sec)
```

```
mysql> select elt(2,"You","I","He");
```

```
+-----+
| elt(2,"You","I","He") |
+-----+
| I                     |
+-----+
```

```
1 row in set (0.00 sec)
```

```
mysql> select field("is","How","good","the","day","is!");
```

```
+-----+
| field("is","How","good","the","day","is!") |
+-----+
|                                           0 |
+-----+
```

```
1 row in set (0.00 sec)
```

```
mysql> select field("How","How","good","the","day","is!");
```

```
+-----+
| field("How","How","good","the","day","is!") |
+-----+
|                                           1 |
+-----+
```

```
1 row in set (0.00 sec)
```

```
mysql> select find_in_set("ab","a,aa,ab,ba,bb,b");
```

```
+-----+
| find_in_set("ab","a,aa,ab,ba,bb,b") |
+-----+
|                                     3 |
+-----+
```

```
1 row in set (0.00 sec)
```

```
mysql> select find_in_set("bc","a,aa,ab,ba,bb,b");
```

```
+-----+
| find_in_set("bc","a,aa,ab,ba,bb,b") |
```

```

+-----+
|                                     0 |
+-----+
1 row in set (0.00 sec)

```

```
mysql> select hex(256)
```

```
-> ;
```

```

+-----+
| hex(256) |
+-----+
| 100      |
+-----+
1 row in set (0.00 sec)

```

```
mysql> select hex(-255);
```

```

+-----+
| hex(-255) |
+-----+
| FFFFFFFF01 |
+-----+
1 row in set (0.01 sec)

```

```
mysql> select insert("maam",3,5,"layal");
```

```

+-----+
| insert("maam",3,5,"layal") |
+-----+
| malayal                    |
+-----+
1 row in set (0.01 sec)

```

```
mysql> select insert("maam",3,7,"layal");
```

```

+-----+
| insert("maam",3,7,"layal") |
+-----+
| malayal                    |
+-----+
1 row in set (0.01 sec)

```

```
mysql> select instr("malayalam","ma");
```

```

+-----+
| instr("malayalam","ma") |
+-----+
| 1 |
+-----+
1 row in set (0.00 sec)

```

```
mysql> select instr("malayalam","la");
```

```

+-----+
| instr("malayalam","la") |
+-----+
| 3 |
+-----+

```

1 row in set (0.00 sec)

```
mysql> select lcase("HowDoYouDo");
```

lcase("HowDoYouDo")
howdoyoudo

1 row in set (0.00 sec)

```
mysql> select left("HowDoYouDo",3);
```

left("HowDoYouDo",3)
How

1 row in set (0.00 sec)

```
mysql> select length("howdoyoudo");
```

length("howdoyoudo")
10

1 row in set (0.00 sec)

```
mysql> select locate("ma","malamalamalamalama",3);
```

locate("ma","malamalamalamalama",3)
5

1 row in set (0.00 sec)

```
mysql> select lower("HowDoYouDo");
```

lower("HowDoYouDo")
howdoyoudo

1 row in set (0.00 sec)

```
mysql> select lpad("Tushar",3,"Hi");
```

lpad("Tushar",3,"Hi")
Tus

1 row in set (0.01 sec)

```
mysql> select lpad("Tushar",8,"Hi");
```

lpad("Tushar",8,"Hi")

```
| lpad("Tushar",8,"Hi") |
+-----+
| HiTushar              |
+-----+
1 row in set (0.00 sec)
```

```
mysql> select lpad("Tushar",9,"Hi");
+-----+
| lpad("Tushar",9,"Hi") |
+-----+
| HiHTushar             |
+-----+
1 row in set (0.01 sec)
```

```
mysql> select lpad("Tushar",19,"Hi");
+-----+
| lpad("Tushar",19,"Hi") |
+-----+
| HiHiHiHiHiHiHiHTushar |
+-----+
1 row in set (0.00 sec)
```

```
mysql> select ltrim("  babsak");
+-----+
| ltrim("  babsak") |
+-----+
| babsak            |
+-----+
1 row in set (0.00 sec)
```

```
mysql> select make_set(1212123,'a','b','cd');
+-----+
| make_set(1212123,'a','b','cd') |
+-----+
| a,b                             |
+-----+
1 row in set (0.00 sec)
```

```
mysql> select make_set(12,'a','b','cd');
+-----+
| make_set(12,'a','b','cd') |
+-----+
| cd                         |
+-----+
1 row in set (0.00 sec)
```

```
mysql> select make_set('1.2.3','a','b','cd');
+-----+
| make_set('1.2.3','a','b','cd') |
+-----+
| a                               |
+-----+
```


1 row in set, 1 warning (0.00 sec)

```
mysql> select make_set('1,2,3','a','b','cd');
```

make_set('1,2,3','a','b','cd')
a

1 row in set, 1 warning (0.00 sec)

```
mysql> select oct(a);
```

ERROR 1054 (42S22): Unknown column 'a' in 'field list'

```
mysql> select oct("a");
```

oct("a")
0

1 row in set (0.00 sec)

```
mysql> select oct(5);
```

oct(5)
5

1 row in set (0.00 sec)

```
mysql> select oct(15);
```

oct(15)
17

1 row in set (0.01 sec)

```
mysql> select quote('Do it!!!');
```

quote('Do it!!!')
'Do it!!!'

1 row in set (0.01 sec)

```
mysql> select "123456" regexp "1%3%";
```

"123456" regexp "1%3%"
0

1 row in set (0.00 sec)

```
mysql> select "123456" regexp "1_3%";
```

```
+-----+
| "123456" regexp "1_3%" |
+-----+
|                        0 |
+-----+
```

```
1 row in set (0.01 sec)
```

```
mysql> select "123456" regexp "1%";
```

```
+-----+
| "123456" regexp "1%" |
+-----+
|                        0 |
+-----+
```

```
1 row in set (0.01 sec)
```

```
mysql> select "123456" regexp "1"
```

```
-> ;
```

```
+-----+
| "123456" regexp "1" |
+-----+
|                        1 |
+-----+
```

```
1 row in set (0.00 sec)
```

```
mysql> select "123456" regexp "1 3";
```

```
+-----+
| "123456" regexp "1 3" |
+-----+
|                        0 |
+-----+
```

```
1 row in set (0.01 sec)
```

```
mysql> select "123456" regexp "1*3";
```

```
+-----+
| "123456" regexp "1*3" |
+-----+
|                        1 |
+-----+
```

```
1 row in set (0.00 sec)
```

```
mysql> select "123456" regexp "1_3";
```

```
+-----+
| "123456" regexp "1_3" |
+-----+
|                        0 |
+-----+
```

```
1 row in set (0.00 sec)
```

```
mysql> select repeat("hamma ",3);
```

```
+-----+
| repeat("hamma ",3) |
```

```

+-----+
| hamma hamma hamma |
+-----+
1 row in set (0.00 sec)

```

```

mysql> select reverse("Voila");
+-----+
| reverse("Voila") |
+-----+
| alioV            |
+-----+
1 row in set (0.00 sec)

```

```

mysql> select right("sdaggfuligalfgdguilfhufhow",3);
+-----+
| right("sdaggfuligalfgdguilfhufhow",3) |
+-----+
| how                                     |
+-----+
1 row in set (0.00 sec)

```

```

mysql> select rpad("Tushar",3,"Hi");
+-----+
| rpad("Tushar",3,"Hi") |
+-----+
| Tus                    |
+-----+
1 row in set (0.01 sec)

```

```

mysql> select rpad("Tushar",9,"Hi");
+-----+
| rpad("Tushar",9,"Hi") |
+-----+
| TusharHiH             |
+-----+
1 row in set (0.01 sec)

```

```

mysql> select rpad("Tushar",8,"Hi");
+-----+
| rpad("Tushar",8,"Hi") |
+-----+
| TusharHi              |
+-----+
1 row in set (0.01 sec)

```

```

mysql> select rtrim(" babsak ");
+-----+
| rtrim(" babsak ") |
+-----+
| babsak            |
+-----+
1 row in set (0.01 sec)

```

```
mysql> select trim("  babsak  ");
+-----+
| trim("  babsak  ") |
+-----+
| babsak              |
+-----+
1 row in set (0.00 sec)
```

```
mysql> select soundex("how");
+-----+
| soundex("how") |
+-----+
| H000           |
+-----+
1 row in set (0.00 sec)
```

```
mysql> select soundex("How");
+-----+
| soundex("How") |
+-----+
| H000           |
+-----+
1 row in set (0.01 sec)
```

```
mysql> select soundex("wow");
+-----+
| soundex("wow") |
+-----+
| W000           |
+-----+
1 row in set (0.01 sec)
```

```
mysql> select soundex("know");
+-----+
| soundex("know") |
+-----+
| K500           |
+-----+
1 row in set (0.00 sec)
```

```
mysql> select soundex("no");
+-----+
| soundex("no") |
+-----+
| N000           |
+-----+
1 row in set (0.00 sec)
```

```
mysql> select space(5);
+-----+
| space(5) |
```

```
+-----+
|       |
+-----+
1 row in set (0.00 sec)
```

```
mysql> select strcmp("Maths","maths");
+-----+
| strcmp("Maths","maths") |
+-----+
|                          0 |
+-----+
1 row in set (0.00 sec)
```

```
mysql> select substring_index("172:18:59:61:1234:456:",":",4);
+-----+
| substring_index("172:18:59:61:1234:456:",":",4) |
+-----+
| 172:18:59:61                                     |
+-----+
1 row in set (0.00 sec)
```

```
mysql> select trim(leading "in" from "inappropriate");
+-----+
| trim(leading "in" from "inappropriate") |
+-----+
| appropriate                             |
+-----+
1 row in set (0.01 sec)
```

```
mysql> select ucase("How are you???");
+-----+
| ucase("How are you???") |
+-----+
| HOW ARE YOU???          |
+-----+
1 row in set (0.00 sec)
```

```
mysql> select unhex("adfad");
+-----+
| unhex("adfad") |
+-----+
|                |
+-----+
```

```
mysql> select unhex("4D7953514C");
+-----+
| unhex("4D7953514C") |
+-----+
| MySQL               |
+-----+
1 row in set (0.00 sec)
```

```
mysql> select upper("How are you???");
+-----+
| upper("How are you???") |
+-----+
| HOW ARE YOU???          |
+-----+
1 row in set (0.01 sec)
```

```
mysql> exit
Bye
151070031@ltsp137:~$
```

Conclusion:

Thus,

1. The string operations supported by SQL were studied.
2. Various string operations were implemented in MySQL.
3. True potential of MySQL over traditional file system was understood through the variety of string operations incorporated in MySQL.