CHAPTER 15

MySQL Functions

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What is Function?

- Definition:

  A function is a special types of command that performs some operation and returns a single value as a result.

  It is similar to method or function in JAVA, which can be called by giving some argument.

- Types of Functions:
  - Numeric Functions
  - String Functions
  - Date & Time Function
  - Aggregate Functions

Numeric Functions

- **These functions may accept some numeric values and performing required operation, returns numeric values as result.**

Name	Purpose	Example
MOD (M, N)	Returns remainder of M divide by N	Select MOD(11,4) ; → **3**
POWER (M, N) POW (M, N)	Returns M_N	Select POWER(3,2); → **9**
ROUND (N [,M])	Returns a number rounded off up to M place. If M is -1, it rounds nearest 10.	Select ROUND(15.193,1); →**15.2**
SIGN (N)	Returns sign of N. -1 if N<0, 1 if N>0 and 0 if N=0	Select SIGN(-15); → **-1**
SQRT (N)	Returns square root of N	Select SQRT(25); → **5**
TRUNCATE(N,M)	Returns number after truncating M decimal place.	Select TRUNCATE(15.79,1) → **15.7**

String Functions

- **CHAR()**

Returns a character/string made up of the ACII representation of the given number.

CHAR(Num1 [,Num2 , ...]

mysql> **SELECT CHAR(65) FROM DUAL;**

- **A**

mysql> **SELECT CHAR(65,66,67) FROM DUAL;**

- **ABC**

- If given number is fractional value then it is considered/ rounded as integer.

mysql> **SELECT CHAR(66.3) FROM DUAL;** - **B**

- If given number is in string format, it is also treated as number

mysql> **SELECT CHAR('66.3') FROM DUAL;** - **B**

String Functions cont

- **CONCAT()**

Concatenates (Adds) two string.

CONCAT(Str1 , Str2)

mysql> **SELECT CONCAT('ab' , 'cd') FROM DUAL;**

- **abcd**

mysql> **SELECT CONCAT('Mr', Name) FROM Student;**

- Concat() can be nested.

mysql> **SELECT CONCAT(CONCAT(Name,'son of '), Fname)**
FROM Student;

- **LENGTH()**

Returns length of given string.

LENGTH (Str)

mysql> **SELECT LENGTH('abcd') FROM DUAL;**

- **4**

mysql> **SELECT Name, LENGTH(Name) FROM Student;**

String Functions cont

- **LOWER() or LCASE()**

Converts given string in lower case.

LOWER (Str)

mysql> **SELECT LOWER('ABcD') FROM DUAL;**

- **abcd**

mysql> **SELECT LOWER(Name) FROM Student;**

mysql> **SELECT LCASE(Fname) FROM Student;**

- **UPPER() or UCASE()**

Converts given string in upper case.

UPPER (Str)

mysql> **SELECT UPPER('abcD') FROM DUAL;**

- **ABCD**

mysql> **SELECT UPPER(Name) FROM Student;**

mysql> **SELECT UCASE(Fname) FROM Student;**

String Functions cont

- **LTRIM()**

Returns string after removing leading spaces.

LTRIM (Str)

mysql> **SELECT LTRIM(' abcd') FROM DUAL;**

- **abcd**

mysql> **SELECT LTRIM(Name) FROM Student;**

- **RTRIM()**

Returns string after removing trailing spaces.

RTRIM (Str)

mysql> **SELECT RTRIM('abcd ') FROM DUAL;**

- **abcd**

mysql> **SELECT RTRIM(Name) FROM Student;**

String Functions cont

- **TRIM()**

Returns string after removing leading and trailing spaces. It can also work as LTRIM() and RTRIM().

TRIM ([BOTH | LEADING |TRAILING][Char][FROM] Str)

- BOTH is default setting.
- Default Char is space character, if not given.

mysql> **SELECT TRIM(' abcd ') FROM DUAL;**

- **abcd**

mysql> **SELECT TRIM(BOTH ' ' FROM ' abc ');**

- **abc**

mysql> **SELECT TRIM(BOTH '*' FROM '***abc***');**

- **abc**

mysql> **SELECT TRIM(TRAILING '*' FROM '**abc***');**

- ****abc**

String Functions cont

- **SUBSTR()**

Returns a sub string of given length from specified position.

SUBSTR (Str, position [,length])

mysql> **SELECT SUBSTR('MY COMPUTER', 4,3')** → **COM**

- If position is negative then backward position is counted.

mysql> **SELECT SUBSTR('ABCDEFG' , -5, 4) FROM Student;**

→ **CDEF**

- If Length is omitted then up to end of the string is considered.

mysql> **SELECT SUBSTR('ABCDEFG' , 3) FROM Student;**

→ **CDEFG**

- **INSTR()**

Searches a string in to another string and returns its position.

INSTR(Str1, Str2)

mysql> **SELECT INSTR('CORPORATE FLOOR', 'OR');** → **2**

mysql> **SELECT Name, INSTR(Name,'a') FROM Student;**

String Functions cont

- **LEFT()**

Returns leftmost string up to given length.

LEFT (Str , length)

mysql> **SELECT LEFT('MYSQL', 2)** → **MY**

mysql> **SELECT LEFT(Name, 4) FROM Student;**

- **RIGHT()**

Returns rightmost string up to given length.

RIGHT (Str , length)

mysql> **SELECT RIGHT('MYSQL', 3)** → **SQL**

mysql> **SELECT RIGHT (Name, 4) FROM Student;**

- **MID()**

Returns a substring upto given length from given position.

MID (Str ,Pos, Length)

mysql> **SELECT MID('COMPUTER', 4,3)** → **PUT**

mysql> **SELECT MID (Name, 4,3) FROM Student;**

Date & Time Functions

- **CURDATE() or CURRENT_DATE()**

Returns current date of the system in YYYY-MM-DD format.

mysql> **SELECT CURDATE() FROM DUAL** → **2010-01-30**

mysql> **SELECT CURDATE()+10 ;** → **2010-02-09**

- **SYSDATE()**

Returns current date and time as YYYY-MM-DD HH:MM:SS

mysql> **SELECT SYSDATE() FROM DUAL**

→ **2010-01-30 10:30:20**

- **NOW()**

Returns current date and time as YYYY-MM-DD HH:MM:SS

mysql> **SELECT SYSDATE() FROM DUAL**

→ **2010-01-30 10:30:20**

Difference between SYSDATE() & NOW()

NOW() returns the time when command began to execute and does not change time during execution. Where as SYSDATE() changes its time continuously.

Date & Time Functions cont

- **DATE()**

Returns date part of the given date-time expression.

DATE (Dt)

mysql> **SELECT DATE('2008-12-31 01:02:03') FROM DUAL;**

- **2008-12-32**

mysql> **SELECT DATE(SYSDATE()) FROM DUAL;**

- **YEAR()**

Returns year of the given date expression.

YEAR (Dt)

mysql> **SELECT YEAR('2008-12-31') FROM DUAL;** - **2008**

mysql> **SELECT YAER(DOB) FROM Student;**

- **MONTH()**

Returns month of the given date expression.

MONTH (Dt)

mysql> **SELECT MONTH('2008-12-31') FROM DUAL;** - **12**

mysql> **SELECT MONTH(CURDATE()) FROM DUAL;**

Date & Time Functions cont

DAYOFMONTH()

Returns day of month of the given date expression.

DAYOFMONTH (Dt)

mysql> **SELECT DAYOFMONTH('2008-12-31') FROM DUAL;**

- **31**

mysql> **SELECT DAYOFMONTH(CURDATE()) FROM DUAL;**

mysql> **SELECT DAYOFMONTH(DOB) FROM Student;**

DAYNAME()

Returns the name of Week day of the given date expression.

DAYNAME (Dt)

mysql> **SELECT DAYNAME('2008-12-31') FROM DUAL;**

- **SUNDAY**

mysql> **SELECT DAYNAME(CURDATE()) FROM DUAL;**

mysql> **SELECT DAYNAME(DOB) FROM Student;**

Date & Time Functions cont

DAYOFWEEK()

Returns day of week i.e. 1- Sunday, 2- Tuesday.. etc. of given date.

DAYOFWEEK (Dt)

mysql> **SELECT DAYOFWEEK('2008-12-31') FROM DUAL;**

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mysql> **SELECT DAYOFWEEK(CURDATE()) FROM DUAL;**

DAYOFYEAR()

Returns the day of year of the given date expression.

DAYOFYAER (Dt)

mysql> **SELECT DAYOFYAER('2010-02-05') FROM DUAL;**

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mysql> **SELECT DAYOFYAER(CURDATE()) FROM DUAL;**

mysql> **SELECT DAYOFYEAR(DOB) FROM Student;**

Aggregate Functions

- **SUM()**

Returns sum of given column in the table.

SUM (<Field>)

mysql> **SELECT SUM (Sal) FROM Emp;**

mysql> **SELECT SUM(Sal) FROM Emo WHERE City='Jaipur';**

- **MIN()**

Returns minimum value in the given column of table.

MIN (<Field>)

mysql> **SELECT MIN (Sal) FROM Emp;**

mysql> **SELECT MIN(Sal) FROM Emo WHERE City='Jaipur';**

- **MAX()**

Returns maximum value in the given column of table.

MAX (<Field>)

mysql> **SELECT MAX (Sal) FROM Emp;**

mysql> **SELECT MAX(Sal) FROM Emo WHERE City='Jaipur';**

Aggregate Functions cont..

- **AVG()**

Returns average value of given column in the table.

AVG (<Field>)

mysql> **SELECT AVG (Sal) FROM Emp;**

mysql> **SELECT AVG(Sal) FROM Emo WHERE City='Jaipur';**

- **COUNT()**

Returns number of values in the given column of table. It also reflect the number of record in the table.

COUNT (<Field|*>)

mysql> **SELECT COUNT (Name) FROM Emp;**

mysql> **SELECT COUNT(Name) FROM Emo**
WHERE City='Jaipur';

mysql> **SELECT COUNT (*) FROM Emp;**

- **Number of records in the Emp table**

mysql> **SELECT COUNT(*) FROM Emo**
WHERE City='Jaipur';