CS122 Using Relational Databases and SQL
Common Functions in MySQL

Chengyu Sun
California State University, Los Angeles

Common Functions in Databases

- ◈ Numeric functions
- ◈ String functions
- ◈ Date and time functions
- ◈ NULL related functions
- ◈ *Aggregation functions*

Most functions are DBMS specific.

MySQL Functions

- ◈ http://dev.mysql.com/doc/refman/5.5/en/functions.html

Numeric Functions

- ◈ Precision functions
  - ceiling, floor, round, truncate
- ◈ Power and square root
  - power, pow, exp, sqrt
- ◈ Logarithmic functions
  - log, log2, log10, ln
- ◈ Angular functions
  - pi, sin, cos, tan, cot, asin, acos, atan
- ◈ Misc.
  - abs, sign, rand

Using Numeric Functions

- ◈ List the prices of the products after 3% discount

String Functions

- ◈ String length
  - length, char_length
- ◈ Concatenation
  - concat, concat_ws
- ◈ Format numbers
  - format
- ◈ Trim white spaces
  - ltrim, rtrim, trim
- ◈ Find substring
  - instr, locate, position
- ◈ Extract substring
  - mid, substring, substr, left, right
- ◈ Change to upper/lower case
  - upper, lower, ucase, lcase

Using String Functions

◆ List the names of the customers in the format of `<First name> <Last name>`, e.g. `John Doe`. Note that the first letter of the first name and last name should be capitalized.
◆ List the cities where the customers live.

Date and Time Types

◆ `date` – YYYY-MM-DD
◆ `time` – HH:MM:SS
◆ `datetime` – YYYY-MM-DD HH:MM:SS
◆ `timestamp` – YYYY-MM-DD HH:MM:SS

Data and Time Functions

◆ Format date/time to string
  - `date_format`
◆ Convert string to date/time
  - `str_to_date`
◆ Current date/time
  - `current_date, current_time, current_timestamp, now`

◆ Extract date/time fields
  - `extract, year, month, day, dayofmonth, dayofweek, hour, minute, second`
◆ Manipulate date/time
  - `date_add, date_sub, addtime, subtime`

Format Date and Time

◆ http://dev.mysql.com/doc/refman/5.5/en/date-and-time-functions.html#function_date-format

  date_format(date_ordered, '%M %d, %Y')

  date_format(date_ordered, '%M/%d/%y')

  str_to_date('Jan 18 1968', '%b %d %Y')

Using Date and Time Functions

◆ List the orders that were placed in the last 10 days
◆ List the orders that were placed in the last month
◆ Find the products sold last year

NULL related functions

◆ `ifnull( arg1, arg2 )`
  - Return `arg1` if `arg1` is not null
  - Return `arg2` if `arg1` is null
◆ Example:

select id, ifnull(date_shipped, 'Not shipped yet') from orders;

`if()` function

- `if( arg1, arg2, arg3 )`
  - Return `arg2` if `arg1` is true
  - Return `arg3` if `arg1` is false
- Example:

```
select id, if( date_shipped is null,
          'Not shipped yet', date_shipped ) from orders;
```