Functions in MySQL

**Common Functions in Databases**

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

*Most functions are DBMS specific.*

**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

**String Functions**

- Find substring
  - instr, locate, position
- Extract substring
  - mid, substring, substr, left, right
- Change to upper/lower case
  - upper, lower, ucase, lowercase

**Using Numeric Functions**

- List the prices of the products after 3% discount

**MySQL Functions**

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


  ```
  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;