

# lab01

February 1, 2020

```
In [1]: %load_ext sql
In [2]: import json
        with open('/home/shadowleaf/.local/config/mysql_config.json') as f:
            data = json.load(f)
In [3]: import os
        DATABASE_URL = 'mysql+pymysql://{user}:{password}@localhost:3306/students'\
                        .format(data['user'], data['password'])
        os.environ['DATABASE_URL'] = DATABASE_URL
```

## 0.1 Show the databases

```
In [4]: %sql SHOW DATABASES
```

5 rows affected.

```
Out[4]: [('information_schema',),
          ('mysql',),
          ('performance_schema',),
          ('students',),
          ('sys',)]
```

## 0.2 Select a Database

```
In [5]: %sql USE students;
```

```
* mysql+pymysql://shadowleaf:***@localhost:3306/students
0 rows affected.
```

```
Out[5]: []
```

## 0.3 Show Tables

```
In [6]: %sql SHOW TABLES
```

```
* mysql+pymysql://shadowleaf:***@localhost:3306/students
1 rows affected.
```

```
Out[6]: [('student_list',)]
```

## 0.4 Create a Table and Insert Data into it

In [7]: `%%sql`

```
-- if the table already exists then drop it

DROP TABLE IF EXISTS `student_list`;

-- create a table with the attributes

CREATE TABLE `student_list` (
  `student_id` int(11) DEFAULT NULL,
  `student_name` char(20) DEFAULT NULL,
  `student_address` char(50) DEFAULT NULL
) ENGINE=InnoDB DEFAULT CHARSET=latin1;

-- insert data into the table

LOCK TABLES `student_list` WRITE;
INSERT INTO `student_list` VALUES
  (101,'satyajit ghana','bangalore'),
  (102,'shikhar singh','bangalore'),
  (103,'shubham agarwal','haryana'),
  (104,'pritam das','kolkata');
UNLOCK TABLES;

* mysql+pymysql://shadowleaf:***@localhost:3306/students
0 rows affected.
0 rows affected.
0 rows affected.
4 rows affected.
0 rows affected.
```

Out[7]: []

## 0.5 Describe Table

In [8]: `%%sql` DESC `student\_list`

```
* mysql+pymysql://shadowleaf:***@localhost:3306/students
3 rows affected.
```

Out[8]: [('student\_id', 'int(11)', 'YES', '', None, ''),  
 ('student\_name', 'char(20)', 'YES', '', None, ''),  
 ('student\_address', 'char(50)', 'YES', '', None, '')]

## 0.6 View the Data stored in Table

```
In [9]: %sql SELECT * FROM student_list;

* mysql+pymysql://shadowleaf:***@localhost:3306/students
4 rows affected.
```

```
Out[9]: [(101, 'satyajit ghana', 'bangalore'),
          (102, 'shikhar singh', 'bangalore'),
          (103, 'shubham agarwal', 'haryana'),
          (104, 'pritam das', 'kolkata')]
```

## 0.7 Update a row in the table

UPDATE statement that changes the data of one or more records in a table. It is used to update a row of a table. Either all the rows can be updated, or a subset may be chosen using a condition.

```
In [10]: %%sql

UPDATE `student_list` SET student_id=105 WHERE student_id=104;

SELECT * FROM `student_list`;

* mysql+pymysql://shadowleaf:***@localhost:3306/students
1 rows affected.
4 rows affected.
```

```
Out[10]: [(101, 'satyajit ghana', 'bangalore'),
           (102, 'shikhar singh', 'bangalore'),
           (103, 'shubham agarwal', 'haryana'),
           (105, 'pritam das', 'kolkata')]
```

```
In [11]: %%sql

DELETE FROM `student_list` WHERE student_id=105;

SELECT * FROM `student_list`;

* mysql+pymysql://shadowleaf:***@localhost:3306/students
1 rows affected.
3 rows affected.
```

```
Out[11]: [(101, 'satyajit ghana', 'bangalore'),
           (102, 'shikhar singh', 'bangalore'),
           (103, 'shubham agarwal', 'haryana')]
```

## 0.8 Aggregate Functions

```
In [12]: %%sql
        SELECT
            COUNT(*),
            AVG(student_id),
            SUM(student_id),
            MIN(student_id),
            MAX(student_id) FROM `student_list`

* mysql+pymysql://shadowleaf:***@localhost:3306/students
1 rows affected.

Out[12]: [(3, Decimal('102.0000'), Decimal('306'), 101, 103)]
```

## 1 Lab01

1. Display the details of all the students

```
In [13]: %%sql SELECT * FROM `student_list`

* mysql+pymysql://shadowleaf:***@localhost:3306/students
3 rows affected.

Out[13]: [(101, 'satyajit ghana', 'bangalore'),
          (102, 'shikhar singh', 'bangalore'),
          (103, 'shubham agarwal', 'haryana')]
```

2. Display the name and address of the student with id = 101

```
In [14]: %%sql SELECT student_name, student_address FROM `student_list`

* mysql+pymysql://shadowleaf:***@localhost:3306/students
3 rows affected.

Out[14]: [('satyajit ghana', 'bangalore'),
          ('shikhar singh', 'bangalore'),
          ('shubham agarwal', 'haryana')]
```

3. Insert a new student <105, John, Bangalore>

```
In [15]: %%sql

        INSERT INTO student_list VALUES(105, 'John', 'Bangalore');

        SELECT * FROM `student_list`;
```

```
* mysql+pymysql://shadowleaf:***@localhost:3306/students
1 rows affected.
4 rows affected.
```

```
Out[15]: [(101, 'satyajit ghana', 'bangalore'),
          (102, 'shikhar singh', 'bangalore'),
          (103, 'shubham agarwal', 'haryana'),
          (105, 'John', 'Bangalore')]
```

4. Change the address of the student John to Delhi

```
In [16]: %%sql
```

```
UPDATE `student_list`
SET student_address='Delhi'
WHERE student_id=105;
```

```
SELECT * FROM `student_list`;
```

```
* mysql+pymysql://shadowleaf:***@localhost:3306/students
1 rows affected.
4 rows affected.
```

```
Out[16]: [(101, 'satyajit ghana', 'bangalore'),
          (102, 'shikhar singh', 'bangalore'),
          (103, 'shubham agarwal', 'haryana'),
          (105, 'John', 'Delhi')]
```

5. Delete the details of a student with student id=105

```
In [17]: %%sql
```

```
DELETE FROM `student_list` WHERE student_id=105;
```

```
SELECT * FROM `student_list`;
```

```
* mysql+pymysql://shadowleaf:***@localhost:3306/students
1 rows affected.
3 rows affected.
```

```
Out[17]: [(101, 'satyajit ghana', 'bangalore'),
          (102, 'shikhar singh', 'bangalore'),
          (103, 'shubham agarwal', 'haryana')]
```

6. Add a column to the schema Student with appropriate data type

```
In [18]: %%sql
```

```
ALTER TABLE `student_list` ADD marks int(11);
```

```
DESC `student_list`;
```

```
* mysql+pymysql://shadowleaf:***@localhost:3306/students
0 rows affected.
4 rows affected.
```

```
Out[18]: [('student_id', 'int(11)', 'YES', '', None, ''),
          ('student_name', 'char(20)', 'YES', '', None, ''),
          ('student_address', 'char(50)', 'YES', '', None, ''),
          ('marks', 'int(11)', 'YES', '', None, '')]
```

```
In [19]: %sql SELECT * FROM `student_list`;
```

```
* mysql+pymysql://shadowleaf:***@localhost:3306/students
3 rows affected.
```

```
Out[19]: [(101, 'satyajit ghana', 'bangalore', None),
          (102, 'shikhar singh', 'bangalore', None),
          (103, 'shubham agarwal', 'haryana', None)]
```

```
In [ ]:
```