

## Procedures

A procedure (often called a stored procedure) is a collection of pre-compiled SQL statements stored inside the database.

A procedure always contains a name, parameter lists, and SQL statements.

### Syntax

1. DELIMITER \$\$
2. **CREATE PROCEDURE** procedure\_name [[IN | **OUT** | INOUT] parameter\_name datatype [, parameter datatype] ]
3. BEGIN
4. Declaration\_section
5. Executable\_section
6. END \$\$
7. DELIMITER ;

#### Parameter Name

procedure\_name

parameter

Declaration\_section

Executable\_section

#### Descriptions

It represents the name of the stored procedure.

It represents the number of parameters. It can be one or more than one.

It represents the declarations of all variables.

It represents the code for the function execution

### MySQL procedure parameter has one of three modes:

#### IN parameter

It is the default mode. It takes a parameter as input, such as an attribute. When we define it, the calling program has to pass an argument to the stored procedure. This parameter's value is always protected.

#### OUT parameters

It is used to pass a parameter as output. Its value can be changed inside the stored procedure, and the changed (new) value is passed back to the calling program. It is noted that a procedure cannot access the OUT parameter's initial value when it starts.

#### INOUT parameters

It is a combination of IN and OUT parameters. It means the calling program can pass the argument, and the procedure can modify the INOUT parameter, and then passes the new value back to the calling program.

```
MySQL 8.0 Command Line Client
mysql> SELECT * FROM student_info;
```

stud_id	stud_code	stud_name	subject	marks	phone
1	101	Mark	English	68	34545693537
2	102	Joseph	Physics	70	98765435659
3	103	John	Maths	70	97653269756
4	104	Barack	Maths	90	87698753256
5	105	Rinky	Maths	85	67531579757
6	106	Adam	Science	92	79642256864
7	107	Andrew	Science	83	56742437579
8	108	Brayan	Science	85	75234165670
10	110	Alexandar	Biology	67	2347346438

## Procedure without Parameter

```
MySQL 8.0 Command Line Client
mysql> DELIMITER &&
mysql> CREATE PROCEDURE get_merit_student ()
-> BEGIN
-> SELECT * FROM student_info WHERE marks > 70;
-> SELECT COUNT(stud_code) AS Total_Student FROM student_info;
-> END &&
Query OK, 0 rows affected (0.18 sec)
```

```
MySQL 8.0 Command Line Client
mysql> CALL get_merit_student();
```

stud_id	stud_code	stud_name	subject	marks	phone
4	104	Barack	Maths	90	87698753256
5	105	Rinky	Maths	85	67531579757
6	106	Adam	Science	92	79642256864
7	107	Andrew	Science	83	56742437579
8	108	Brayan	Science	85	75234165670

5 rows in set (0.00 sec)

Total_Student
9

1 row in set (0.03 sec)

## Procedures with IN Parameter

1. DELIMITER \$\$
2. **CREATE PROCEDURE** get\_student (IN var1 **INT**)
3. BEGIN
4. **SELECT** \* **FROM** student\_info LIMIT var1;
5. **SELECT** COUNT(stud\_code) **AS** Total\_Student **FROM** student\_info;
6. END \$\$
7. DELIMITER ;

```
MySQL 8.0 Command Line Client
mysql> CALL get_student(4);
+-----+-----+-----+-----+-----+-----+
| stud_id | stud_code | stud_name | subject | marks | phone |
+-----+-----+-----+-----+-----+-----+
| 1 | 101 | Mark | English | 68 | 34545693537 |
| 2 | 102 | Joseph | Physics | 70 | 98765435659 |
| 3 | 103 | John | Maths | 70 | 97653269756 |
| 4 | 104 | Barack | Maths | 90 | 87698753256 |
+-----+-----+-----+-----+-----+-----+
4 rows in set (0.00 sec)

+-----+
| Total_Student |
+-----+
| 9 |
+-----+
```

## Procedures with OUT Parameter

1. DELIMITER \$\$
2. **CREATE PROCEDURE** display\_max\_mark (**OUT** highestmark **INT**)
3. BEGIN
4. **SELECT** MAX(marks) **INTO** highestmark **FROM** student\_info;
5. END \$\$
6. DELIMITER ;

```
MySQL 8.0 Command Line Client
mysql> CALL display_max_mark(@M);
Query OK, 1 row affected (0.14 sec)

mysql> SELECT @M;
+-----+
| @M    |
+-----+
| 92    |
+-----+
1 row in set (0.00 sec)
```

## Procedures with INOUT Parameter

1. DELIMITER \$\$
2. **CREATE PROCEDURE** display\_marks (INOUT var1 **INT**)
3. BEGIN
4. **SELECT** marks **INTO** var1 **FROM** student\_info **WHERE** stud\_id = var1;
5. END \$\$
6. DELIMITER ;

```
MySQL 8.0 Command Line Client
mysql> SET @M = '3';
Query OK, 0 rows affected (0.00 sec)

mysql> CALL display_marks(@M);
Query OK, 1 row affected (0.13 sec)

mysql> SELECT @M;
+-----+
| @M    |
+-----+
| 70    |
+-----+
1 row in set (0.00 sec)
```