

Trigger: A trigger is a stored procedure in database which automatically invokes whenever a special event in the database occurs. For example, a trigger can be invoked when a row is inserted into a specified table or when certain table columns are being updated.

Syntax:

```
create trigger [trigger_name]
[before | after]
{insert | update | delete}
on [table_name]
[for each row]
[trigger_body]
```

Explanation of syntax:

1. `create trigger [trigger_name]`: Creates or replaces an existing trigger with the `trigger_name`.
2. `[before | after]`: This specifies when the trigger will be executed.
3. `{insert | update | delete}`: This specifies the DML operation.
4. `on [table_name]`: This specifies the name of the table associated with the trigger.
5. `[for each row]`: This specifies a row-level trigger, i.e., the trigger will be executed for each row being affected.
6. `[trigger_body]`: This provides the operation to be performed as trigger is fired

BEFORE and AFTER of Trigger:

BEFORE triggers run the trigger action before the triggering statement is run.

AFTER triggers run the trigger action after the triggering statement is run.

Example:

Given Student Report Database, in which student marks assessment is recorded. In such schema, create a trigger so that the total and average of specified marks is automatically inserted whenever a record is insert.

Here, as trigger will invoke before record is inserted so, BEFORE Tag can be used.

Suppose the database Schema –

```
mysql> desc Student;
```

Field	Type	Null	Key	Default	Extra
tid	int(4)	NO	PRI	NULL	auto_increment
name	varchar(30)	YES		NULL	
subj1	int(2)	YES		NULL	
subj2	int(2)	YES		NULL	
subj3	int(2)	YES		NULL	
total	int(3)	YES		NULL	
per	int(3)	YES		NULL	

```
7 rows in set (0.00 sec)
```

SQL Trigger to problem statement.

```
create trigger stud_marks
before INSERT
on
Student
for each row
set Student.total = Student.subj1 + Student.subj2 +
Student.subj3, Student.per = Student.total * 60 / 100;
```

Above SQL statement will create a trigger in the student database in which whenever subjects marks are entered, before inserting this data into the database, trigger will compute those two values and insert with the entered values. i.e.,

```
mysql> insert into Student values(0, "ABCDE", 20, 20, 20, 0, 0);
Query OK, 1 row affected (0.09 sec)
```

```
mysql> select * from Student;
```

```
+-----+-----+-----+-----+-----+-----+-----+
```

tid	name	subj1	subj2	subj3	total	per
100	ABCDE	20	20	20	60	36

1 row in set (0.00 sec)

In this way trigger can be creates and executed in the databases.