

ASSIGNMENT 5: Understanding Triggers

(In groups of 4-5 students containing B. Tech. 2nd years)

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Due: Before 12:00 NOON on October 7th, 2019

Readings:

- Class notes and slides from week 6
- Activity 6 on Moodle

Objectives:

- Understand how Triggers works

Submission:

Each group will make one single submission.

Please submit as a zipped file, the following content:

1. A doc file containing the code and images of the **result table** (Please use the **limit** clause to only show the first 10 entries of the table)

Assignment:

For this Activity, load the database from the dump file (trigger.sql) given in moodle. The database name is **assignment5**. The database contains 3 tables:

```
mysql> show tables$$
+-----+
| Tables_in_activity6 |
+-----+
| task3                |
| tasks                |
| tasks2               |
+-----+
3 rows in set (0.00 sec)
```

Q1. The trigger will be created for the table **tasks**. (The table schema is displayed below)

Field	Type	Null	Key	Default	Extra
EMPLOYEE_ID	int(11)	NO	PRI	NULL	
FIRSTNAME	varchar(255)	NO		NULL	
LASTNAME	varchar(255)	NO		NULL	
JOBID	varchar(255)	NO		NULL	
EMAIL	varchar(255)	NO		NULL	
SALARY	double	NO		NULL	
COMMISSION_PCT	double	NO		NULL	

Create a trigger that removes the whitespaces from the column **FIRSTNAME**, **LASTNAME** and changes the **JOBID** value to uppercase when a new record is inserted. [HINT: use Mysql Functions like TRIM].

e.g. if the following values are inserted into tasks:

```
mysql> INSERT INTO tasks VALUES (9, 'Andre ', ' Iguodala ', 'sf','AI@gmail.com', 900000.00,0.02);
-> $$
Query OK, 1 row affected (0.00 sec)
```

The output should be something similar to the image below

```
mysql> select * from tasks$
+-----+-----+-----+-----+-----+-----+-----+
| EMPLOYEE_ID | FIRSTNAME | LASTNAME | JOBID | EMAIL | SALARY | COMMISSION_PCT |
+-----+-----+-----+-----+-----+-----+-----+
| 0 | Demarcus | Cousins | C | DC@gmail.com | 1000000 | 0.04 |
| 9 | Andre | Iguodala | SF | AI@gmail.com | 900000 | 0.02 |
| 11 | Klay | Thompson | SG | KT@gmail.com | 1400000 | 0.05 |
| 23 | Draymond | Green | PF | DG@gmail.com | 1300000 | 0.06 |
| 30 | Stephen | Curry | PG | SC@gmail.com | 2400000 | 0.1 |
| 35 | Kevin | Durant | SF | KD@gmail.com | 2100000 | 0.09 |
+-----+-----+-----+-----+-----+-----+-----+
6 rows in set (0.00 sec)
```

The spaces have been removed

d from the **FIRSTNAME**, **LASTNAME** and the **JOBID** is converted from 'sf' to "SF".

Q2. For this question the trigger will be created for the table **task3**. (The table schema is displayed below)

```
mysql> describe task3$
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| STUDENT_ID | int(11) | NO | PRI | NULL |
| NAME | varchar(255) | NO | | NULL |
| SUB1 | double | NO | | NULL |
| SUB2 | double | NO | | NULL |
| SUB3 | double | NO | | NULL |
| SUB4 | double | NO | | NULL |
| SUB5 | double | NO | | NULL |
| TOTAL | double | NO | | NULL |
| PER_MARKS | double | NO | | NULL |
| GRADE | varchar(50) | YES | | NULL |
+-----+-----+-----+-----+-----+-----+
10 rows in set (0.00 sec)
```

The table contains only zero values in the beginning as shown in the image below:

```
mysql> select * from task3$$
```

STUDENT_ID	NAME	SUB1	SUB2	SUB3	SUB4	SUB5	TOTAL	PER_MARKS	GRADE
1	LARRY BIRD	0	0	0	0	0	0	0	NULL
2	KAREEM ABDUL JABBAR	0	0	0	0	0	0	0	NULL
3	WILT CHAMBERLIN	0	0	0	0	0	0	0	NULL
4	JULIUS ERVING	0	0	0	0	0	0	0	NULL

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

Create a trigger such that when we update the marks of a student for each subject (SUB1, SUB2, SUB3, SUB4, SUB5) in the table **task3**, the trigger should automatically calculate the **Total Marks**, **Percentage of Marks**, and **Grade** of the student and update it in the table **task3**. The calculations are given below:

Total Marks (will be stored in TOTAL column): $TOTAL = SUB1 + SUB2 + SUB3 + SUB4 + SUB5$

Percentage of Marks (will be stored in PER_MARKS column) : $PER_MARKS = (TOTAL)/5$

Grade (will be stored GRADE column) :

If $PER_MARKS \geq 90 \rightarrow$ 'EXCELLENT'

If $PER_MARKS \geq 75$ AND $PER_MARKS < 90 \rightarrow$ 'VERY GOOD'

If $PER_MARKS \geq 60$ AND $PER_MARKS < 75 \rightarrow$ 'GOOD'

If $PER_MARKS \geq 40$ AND $PER_MARKS < 60 \rightarrow$ 'AVERAGE'

If $PER_MARKS < 40 \rightarrow$ 'NOT PROMOTED'

```
mysql> UPDATE task3 SET SUB1 = 54, SUB2 = 69, SUB3 = 89, SUB4 = 87, SUB5 = 59 WHERE STUDENT_ID=1$$
Query OK, 1 row affected (0.00 sec)
Rows matched: 1  Changed: 1  Warnings: 0
```

```
mysql> select * from task3$$
```

STUDENT_ID	NAME	SUB1	SUB2	SUB3	SUB4	SUB5	TOTAL	PER_MARKS	GRADE
1	LARRY BIRD	54	69	89	87	59	358	71.6	GOOD
2	KAREEM ABDUL JABBAR	0	0	0	0	0	0	0	NULL
3	WILT CHAMBERLIN	0	0	0	0	0	0	0	NULL
4	JULIUS ERVING	0	0	0	0	0	0	0	NULL

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

When we update the marks of a student the output should be similar to the image below: