

DBMSL Mock Test

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Problem Statement:

7. Triggers:

Consider a Employee database and write row-level triggers for the same. Implement both before & after triggers for the relevant database tables at the time of insertion, update and deletion. Implement using following schema:

EMPLOYEE(Emp_Id, First_Name, Last_Name, Email, Phone_No, Hire_Date, Job_Profile, Salary, HRA)

COMPANY_INFO(Emp_Count, Salary_Expenses)

EMP_LOG(Emp_Id, Old_Salary, New_Salary, Edit_Time, Job_Status)

- **Before insert:** Check the column value of FIRST_NAME, LAST_NAME, JOB_ID for following criteria:
 - If there are any spaces before or after the FIRST_NAME, LAST_NAME, use TRIM() function to remove them.
 - The value of the JOB_PROFILE will be converted to upper cases by UPPER() function.
- **After insert:** Every time an INSERT happens into EMPLOYEE table, insert relevant information into the EMP_LOG table. Also update the COMPANY_INFO table
- **Before update:** Each time the HRA is updated for the EMPLOYEE table, convert it into decimal value (i.e. for 10%, store 0.1)
- **After Update:** Each time the HRA is updated, accordingly update the salary in EMPLOYEE table & keep track of updated salary in EMP_LOG table.
- **Before Delete:** Every time a DELETE happens on EMPLOYEE table, accordingly change the JOB_STATUS in EMP_LOG table from ACTIVE to DELETED & keep track of EDIT_TIME
- **After Delete:** Keep the COMPANY_INFO table updated

Queries:

```
delimiter //
```

```
create trigger t1
```

```
before insert
```

```
on employee for each row
```

```
begin
```

```
set new.first_name = trim(new.first_name);
```

```
set new.last_name = trim(new.last_name);
```

```
set new.job_profile = upper(new.job_profile);
```

```
end;
```

```
//
```

```
delimiter //
```

```
create trigger t2
```

```
after insert
```

```
on employee for each row
```

```
begin
```

```
declare emp_cnt integer;
```

```
declare sal_exp integer;
```

```
declare ifempty integer;
```

```
select count(emp_count) into ifempty from company_info;
```

```
if ifempty != 0 then
```

```
select emp_count, salary_expenses into emp_cnt, sal_exp from company_info where  
emp_count = ifempty;
```

```
insert into company_info values(emp_cnt+1, sal_exp+new.salary);
```

```
else
```

```
insert into company_info values(1, new.salary);
```

```
end if;
```

```
insert into emp_log values(new.emp_id, 0, new.salary, current_time(), 'Active');
```

```
end;
```

```
//
```

```
delimiter //
```

```
create trigger t3
```

```
before update
```

```
on employee for each row
```

```
begin
```

```
declare hhra integer;
```

```
if old.hra > 1 then
```

```
set new.hra = new.hra/100;
```

```
elseif new.hra > 1 then
```

```
set new.hra = new.hra/100;
```

```
end if;
```

```
end;
```

```
//
```

```
delimiter //
```

```
create trigger t4
```

```
after update
```

```
on employee for each row
```

```
begin
```

```
if old.hra != new.hra then
```

```
insert into emp_log values(new.emp_id, old.salary, (old.salary*new.hra)+old.salary,  
current_time(), 'Active');
```

```
end if;
```

```
end;
```

```
//
```

```
delimiter //  
create trigger t5  
before delete  
on employee for each row  
begin  
insert into emp_log values(old.emp_id, old.salary, old.salary, current_time(), 'Deleted');  
end;  
//
```

```
delimiter //  
create trigger t6  
after delete  
on employee for each row  
begin  
declare emp_cnt integer;  
declare sal_exp integer;  
declare maxcount integer;  
select count(emp_count) into maxcount from company_info;  
if ifempty != 0 then  
select emp_count, salary_expenses into emp_cnt, sal_exp from company_info where  
emp_count = maxcount;  
insert into company_info values(emp_cnt-1, sal_exp-old.salary);  
end if;  
end;  
//
```

Insert triggers:

Update triggers:

```

C:\Program Files\MySQL\MySQL Command Prompt\mysql -u root -p
mysql> update employee set hra = 28 where emp_id = 1 or emp_id = 2;
Query OK, 2 rows affected (0.01 sec)
Rows matched: 2 Changed: 2 Warnings: 0

mysql> select * from employee;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| emp_id | first_name | last_name | email | phone | hire_date | job_profile | salary | HRA |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| 1 | ram | gupta | rg@gmail.com | 741258963 | 2018-05-02 | ENGINEER | 50000 | 0.28 |
| 2 | dinesh | sharma | ds@gmail.com | 362145789 | 2018-03-03 | ENGINEER | 42000 | 0.28 |
+-----+-----+-----+-----+-----+-----+-----+-----+
2 rows in set (0.00 sec)

mysql> select * from emp_log;
+-----+-----+-----+-----+-----+-----+
| emp_id | old_salary | new_salary | edit_time | job_status |
+-----+-----+-----+-----+-----+-----+
| 1 | 0 | 50000 | 2020-10-18 12:49:42 | Active |
| 2 | 0 | 42000 | 2020-10-18 12:49:53 | Active |
| 1 | 50000 | 64000 | 2020-10-18 13:03:55 | Active |
| 2 | 42000 | 53760 | 2020-10-18 13:03:55 | Active |
+-----+-----+-----+-----+-----+-----+
4 rows in set (0.00 sec)

mysql>

```

Delete triggers:

```
Command Prompt - mysql -u root -p
4 rows in set (0.00 sec)

mysql> delete from employee where emp_id = 2;
Query OK, 1 row affected (0.01 sec)

mysql> select * from employee;
+----+-----+-----+-----+-----+-----+-----+-----+-----+
| emp_id | first_name | last_name | email | phone | hire_date | job_profile | salary | HRA |
+----+-----+-----+-----+-----+-----+-----+-----+-----+
| 1 | ram | gupta | rg@gmail.com | 741258963 | 2018-05-02 | ENGINEER | 50000 | 0.28 |
+----+-----+-----+-----+-----+-----+-----+-----+
1 row in set (0.00 sec)

mysql> select * from emp_log;
+----+-----+-----+-----+-----+-----+
| emp_id | old_salary | new_salary | edit_time | job_status |
+----+-----+-----+-----+-----+-----+
| 1 | 0 | 50000 | 2020-10-18 12:49:42 | Active |
| 2 | 0 | 42000 | 2020-10-18 12:49:53 | Active |
| 1 | 50000 | 64000 | 2020-10-18 13:03:55 | Active |
| 2 | 42000 | 53760 | 2020-10-18 13:03:55 | Active |
| 2 | 42000 | 42000 | 2020-10-18 13:05:21 | Deleted |
+----+-----+-----+-----+-----+-----+
5 rows in set (0.00 sec)

mysql> select * from company_info;
+-----+-----+
| emp_count | salary_expenses |
+-----+-----+
| 1 | 50000 |
| 2 | 92000 |
| 1 | 50000 |
+-----+-----+
3 rows in set (0.00 sec)

mysql>
```