

1. Write a update, delete trigger on clientmstr table. The System should keep track of the records that ARE BEING updated or deleted. The old value of updated or deleted records should be added in audit\_trade table. (separate implementation using both row and statement triggers)

**trigger:**

create or replace trigger t1 after update or delete on client\_mstr

for each row

begin

insert into audit\_trade values (:old.id,:old.first\_name,:old.last\_name);

end;

**output:**

```
SQL> select * from client_mstr;

   ID FIRST_NAME LAST_NAME
-----
    1  Cacilie   McMichan
    2  Hallsy    Chafer
    3   Una      Haimes
    4   Cori     Giorgielli
    5  Gladi     Hawken
```

```
SQL> update client_mstr set first_name = 'Ritish',last_name = 'Shelke' where id = 1;

1 row updated.

SQL> select * from client_mstr;

   ID FIRST_NAME LAST_NAME
-----
    1  Ritish     Shelke
    2  Hallsy     Chafer
    3   Una      Haimes
    4   Cori     Giorgielli
    5  Gladi     Hawken

SQL> select * from audit_trade;

   ID F_NAME  L_NAME
-----
    1  Cacilie  McMichan
```

```
SQL> delete from client_mstr where id = 1;

1 row deleted.

SQL> select * from audit_trade;

   ID F_NAME  L_NAME
-----
    1  Cacilie  McMichan
    1  Ritish   Shelke
```

2. Write a before trigger for Insert, update event considering following requirement:

Emp(e\_no, e\_name, salary)

I) Trigger action should be initiated when salary is tried to be inserted is less than Rs. 50,000/-

II) Trigger action should be initiated when salary is tried to be updated for value less than Rs. 50,000/-

Action should be rejection of update or Insert operation by displaying appropriate error message. Also the new values expected to be inserted will be stored in new table Tracking(e\_no, salary).

**Trigger:**

```
create or replace trigger t2 before insert or update on emp_tr
for each row
declare
less_sal exception;
pragma exception_init(less_sal,-20111);
begin
if :new.salary<50000 then
    raise_application_error(-20111,'Salary is less than 50000');
else
    insert into tracking values (:new.e_no,:new.salary);
end if;
end;
```

**output:**

```
SQL> insert into emp_tr values (1,'aditya',40000);
insert into emp_tr values (1,'aditya',40000)
*
ERROR at line 1:
ORA-20111: Salary is less than 50000
```

3. Write a Database trigger for following requirements:

Employee salary of last three month is stored in the emp\_sal table.

emp\_sal(emp\_no, sal1,sal2,sal3)

before inserting salary into emp\_sal table, if salary of employee in any of the last three month is greater than Rs. 50,000/- then entry of average salary along with emp\_no needs to be inserted into new table emp\_new(emp\_no, avg\_sal).

**Trigger:**

```
CREATE OR REPLACE TRIGGER check_salary_trigger
BEFORE INSERT ON emp_sal
FOR EACH ROW
DECLARE
avg_salary float;
BEGIN
    avg_salary := (:NEW.sal1 + :NEW.sal2 + :NEW.sal3) / 3;
    IF :NEW.sal1 > 50000 OR :NEW.sal2 > 50000 OR :NEW.sal3 > 50000 THEN
        INSERT INTO emp_new (emp_no, avg_sal) VALUES (:NEW.emp_no, avg_salary);
    END IF;
END;
```

**Output:**

```
SQL> select * from emp_sal;

  EMP_NO    SAL1    SAL2    SAL3
-----
      1     10000     20000     30000
      2     40000     20000     30000
      3     40000     20000     60000

SQL> select * from emp_new;

  EMP_NO  AVG_SAL
-----
      3     40000

SQL> insert into emp_sal values(4,60000,30000,70000);
1 row created.

SQL> select * from emp_new;

  EMP_NO  AVG_SAL
-----
      3     40000
      4 53333.3333
```