1) SELECT * FROM (SELECT empno,name,job,boss_name,hiredate,grade,comm,dept_name, role_name,location,exp ,description FROM (SELECT (CASE WHEN (T7.days <365) THEN 'noob' ELSE 'pro' END) AS exp,T7.*
from (SELECT T6.*,DATEDIFF(T6.end_date,T6.start_date) as days FROM (SELECT SALARYGRADE.grade,T5.* FROM SALARYGRADE,(SELECT DEPARTMENT.name as dept_name,DEPARTMENT.location,T4.empno,T4.name,T4.boss_name,T4.job,T4.hiredate,T4.salary,T4.comm,T4.role_name,T4.start_date,T4.end_date,T4.description FROM DEPARTMENT, (SELECT T3.empno,T3.name,EMPLOYEE.name as boss_name,T3.job,T3.hiredate,T3.salary,T3.comm,T3.deptno,T3.role_name,T3.start_date,T3.end_date,T3.description FROM EMPLOYEE,(SELECT T2.empno,name,boss,job,hiredate,salary,comm,deptno,ROLE.description as role_name,start_date,end_date,T2.description FROM ROLE, (SELECT EMPLOYEE.empno,name,boss,job,hiredate,salary,comm,deptno,role_id,start_date, end_date, description FROM EMPLOYEE,(SELECT PROJECT.projectno,PROJECT_PARTICIPATION.start_date,PROJECT_PARTICIPATION.end_date,description,role_id,empno FROM PROJECT,PROJECT_PARTICIPATION WHERE PROJECT.projectno = PROJECT_PARTICIPATION.projectno && description!="High capacity optical network")AS T1 WHERE EMPLOYEE.empno = T1.empno) AS T2 WHERE ROLE.role_id = T2.role_id) AS T3 WHERE EMPLOYEE.empno = T3.boss) AS T4 WHERE T4.deptno = DEPARTMENT.deptno) AS T5 WHERE T5.salary<=SALARYGRADE.hisal AND T5.salary>=SALARYGRADE.losal) as T6) as T7) AS T8) AS T9 ORDER BY grade;

+-------+--------+---------+-----------+------------+-------+------+------------+-----------------+----------+------+---+
| empno | name | job | boss_name | hiredate | grade | comm | dept_name | role_name | location | exp | description |
+-------+--------+---------+-----------+------------+-------+------+------------+-----------------+----------+------+---+
| 7876 | ADAMS | CLERK | SCOTT | 1983-01-12 | 1 | NULL | RESEARCH | Project manager | DALLAS | noob | Research on thermofluid dynamics in Microdroplets |

| 7900 | JAMES | CLERK | BLAKE | 1981-12-03 | 1 | NULL | SALES | Researcher | CHICAGO | noob | Foundation of Quantum Technology |

| 7369 | SMITH | CLERK | FORD | 1980-12-17 | 1 | NULL | RESEARCH | Developer | DALLAS | pro | Development of Novel Magnetic Suspension System |

| 7934 | MILLER | CLERK | CLARK | 1982-01-23 | 2 | NULL | ACCOUNTING | Researcher | NEW YORK | noob | Research on thermofluid dynamics in Microdroplets |

| 7782 | CLARK | MANAGER | KING | 1981-06-09 | 4 | NULL | ACCOUNTING | Researcher | NEW YORK | noob | Research on thermofluid dynamics in Microdroplets |

| 7788 | SCOTT | ANALYST | JONES | 1982-12-09 | 4 | NULL | RESEARCH | Developer | DALLAS | noob | Development of Novel Magnetic Suspension System |

| 7902 | FORD | ANALYST | JONES | 1981-12-03 | 4 | NULL | RESEARCH | Project manager | DALLAS | noob | Development of Novel Magnetic Suspension System |
| 7566 | JONES | MANAGER | KING | 1981-04-02 | 4 | NULL | RESEARCH | Project manager | DALLAS | pro | Foundation of Quantum Technology |
+-------+--------+---------+-----------+------------+-------+------+------------+-----------------+----------+------+---+

8 rows in set (0.01 sec)

2) “thequickbrownfoxjumpsoverthelittlelazydog” gives

“vjgswkemdtqyphqzlworuqxgtvjgnkvvngncbafqi” for k=2 and d=1

AND

“oczlpdxfwmjriajsephknjqzmoczgdoogzgvutyjb” for k=5 and d=0

3)

```
Create table Audit(empno int(11) primary key, name varchar(10), job
varchar(9),boss int(11),hiredate varchar(12), salary decimal(7,2),comm
decimal(7,2), deptno int(11),action varchar(50));
Delimiter $$
create trigger Emp_Audit
before insert on employee
for each row
begin
set action="insert”,
empno = old.empno,
name = old.name,
job = old.job,
boss = old.boss,
hiredate = old.hiredate,
salary = old.salary,
comm = old.comm,
deptno = old.deptno,
end$$

create trigger Emp_Audit2
before update on employee for each row begin set action="update”,empno =
old.empno, name = old.name,job = old.job,boss = old.boss,hiredate =
old.hiredate,salary = old.salary,comm = old.comm, deptno = old.deptno,
end$$

create trigger Emp_Audit3
before delete on employee for each row begin set action="delete”,empno =
old.empno, name = old.name,job = old.job,boss = old.boss,hiredate =
old.hiredate,salary = old.salary,comm = old.comm, deptno = old.deptno,
end$$

insert into employee values(8000,”Ramesh”,”Salesman”,7782,’2012-10-
15’,1200,200,30);
Update employee set job=”Salesman” and salary=1300 and deptno=30 where
empno=7777;

Delete from employee where empno=8000;
```

Similarly for others.

```
Create table grader(empno int(11) primary key,salary decimal(7,2),comm
decimal(7,2),net_salary decimal(7,2),grade int(11));
create trigger gradeTri
before update on grader for each row begin set new.net_salary = new.salary –
new.comm;
IF new.net_salary >= 700 and new.net_salary <=1200 THEN
SET new.grade=1;
ELSEIF new.net_salary >= 1201 and new.net_salary <=1400 THEN
SET new.grade=2;
ELSEIF new.net_salary >= 1401 and new.net_salary <=2000 THEN
SET new.grade=3;
ELSEIF new.net_salary >= 2001 and new.net_salary <=3000 THEN
SET new.grade=4;
ELSEIF new.net_salary >= 3001 and new.net_salary <=9999 THEN
SET new.grade=5;
ELSE SET new.grade=0;
END IF;
END$$
```

4) ----------SOLUTION STARTS----------

```
DELIMITER//
CREATE TRIGGER DBC AFTER DELETE ON AUCTION FOR EACH ROW BEGIN
DECLARE C INT;
SET C = (SELECT COUNT(*) FROM AUCTION A WHERE A.ISBN = OLD.ISBN); IF C <= 0
THEN UPDATE BOOK B SET B.STOCK = 'FALSE' WHERE B.ISBN = OLD.ISBN; END IF;
END;//
```

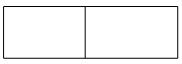
----------SOLUTION ENDS----------

-------- TEST 1------- TO BE INSERTED BY THE INVIGILATOR ----------

```
DELETE FROM AUCTION WHERE A_NO LIKE 'A3';//
SELECT * FROM BOOK;//
```

-------- TEST 1---------- RESULT STARTS----------

```
+------+-------+
| ISBN | STOCK |
+------+-------+
| B1 | 2
| B2| 2
|B3| 1
|| B4| FALSE |
| B51
```

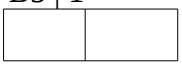


-------- TEST 1---------- RESULT ENDS----------
-------- TEST 2------- TO BE INSERTED BY THE INVIGILATOR ----------

DELETE FROM AUCTION WHERE A_NO LIKE 'A4' AND ISBN LIKE 'B1';//
SELECT * FROM BOOK;//

-------- TEST 2---------- RESULT STARTS----------

+------+-------+
| ISBN | STOCK |
+------+-------+
| B1| 2
|B2| 2
| B3 1
|B4 | FALSE |
| B5 | 1



-------- TEST 2---------- RESULT ENDS---------- TEST 3------- TO BE INSERTED BY THE INVIGILATOR ----------

DELETE FROM AUCTION WHERE A_NO LIKE 'A1' AND ISBN LIKE 'B1';//
SELECT * FROM BOOK;//

-------- TEST 3---------- RESULT STARTS----------
+------+-------+
| ISBN | STOCK |
+------+-------+
| B1 | FALSE |
| B2 | 2
| B3 | 1|
| B4 | FALSE |
| B5 | 1
+------+-------+
-------- TEST 3---------- RESULT ENDS----------