Chris Grimes
CS 33007
HW 4

1. Write a SQL function that takes course ID and a letter grade (‘A’, ‘B’, ‘C’ etc) as parameters and returns the number of students who received that grade in the given course. [20 points]

```
DELIMITER //

create function grade_count (course_id varchar(20), grade varchar(2))
        returns integer
        begin
        declare g_count  integer;
            select count (grade ) into g_count
            from takes
            where takes.course_id=course_id and takes.grade=grade;
        return g_count;
    end//

DELIMITER ;
```

2. Suppose you have a table in the university database called gradesummary which is created as follows [30 points]

a. create the table: create table gradesummary(LetterGrade varchar(2), gradecount int);

b. Insert summary records: insert into gradesummary SELECT grade, COUNT(*) from takes group by grade;

If you observe the table, you will see that the table stores the number of records for each grade category. Now create a trigger on the update of takes table that will detect the change of grade column of takes table (say B is changed to A, or NULL is changed to B) and modify the gradesummary table accordingly.

```
DELIMITTER //

CREATE TRIGGER gradecheck AFTER UPDATE OF takes on (grade)

referencing new row as newr

referencing old row as oldr

FOR EACH ROW

when newr.grade = ‘F’ and oldr.grade<>’F’

begin atomic

update gradesummary

set gradecount= gradecount+1

where newr.grade=summary.grade;
```

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```
set gradecount= gradecount-1
where oldr.grade=summary.grade;
end;
when newr.grade = ‘D’ and oldr.grade<>’D’
begin atomic
update gradesummary
set gradecount= gradecount+1
where newr.grade=summary.grade;
set gradecount= gradecount-1
where oldr.grade=summary.grade;
end;
when newr.grade = ‘C’ and oldr.grade<>’C’
begin atomic
update gradesummary
set gradecount= gradecount+1
where newr.grade=summary.grade;
set gradecount= gradecount-1
where oldr.grade=summary.grade;
end;
when newr.grade = ‘B’ and oldr.grade<>’B’
begin atomic
update gradesummary
set gradecount= gradecount+1
where newr.grade=summary.grade;
set gradecount= gradecount-1
where oldr.grade=summary.grade;
end;
when newr.grade = ‘A’ and oldr.grade<>’A’
```

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```
begin atomic

update gradesummary

set gradecount= gradecount+1

where newr.grade=summary.grade;

set gradecount= gradecount-1

where oldr.grade=summary.grade;

end;
```

3. Write a SQL query to show the instructors by ascending order of their ranking over the salary. (Please show ID, name and the ranking) [10 points]

```
select ID, name, rank() over(order by salary) sal_rank from instructor;
```

4. Complete and submit the file “Homework4.py”. [40 points]