DB HW2 Rubrics Spring 2020

Question 1:

A. Sample Solution

```
CREATE TABLE ProjectRoomBookings
(roomNum INTEGER NOT NULL,
occTime INTEGER NOT NULL,
groupName CHAR(10) NOT NULL,
PRIMARY KEY (roomNum, occTime));
```

Insert statement

```
Insert into ProjectRoomBookings (roomNum, occTime, groupName) values
(1, 10, 'A'),
(1, 11, 'A'),
(1, 12, 'A'),
(1, 13, 'A')
```

Note: Each insertion in the table is for a one hour slot.

B. Rubric

Note: 1. There are many solutions to the problem.
2. We need not look for accuracy of the solution.
3. Both textual explanations and/or SQL statements are accepted.

Total - 1 mark

Two Approaches

1) **Textual Explanation**
   0.5 - Problem 1 - End time must be after Start Time
   (0.25 - Clarity and feasibility of the explanation, 0.25 - Correctness of the explanation)

   0.5 - Problem 2 - New Entry doesn't occupy already occupied room
   (0.25 - Clarity and feasibility of the explanation, 0.25 - Correctness of the explanation)

2) **SQL Commands**
   0.5 - Problem 1 - End time must be after Start Time

(0.25 - for the right design and idea, 0.25 - execute and check the command)

0.5 - Problem 2 - New Entry doesn’t occupy already occupied room
(0.25 - for the right design and idea, 0.25 - execute and check the command)

Question 2:

```
CREATE TABLE Classes(
SID   integer NOT NULL,
ClassName varchar NOT NULL,
Grade varchar NOT NULL );

insert into Classes(SID,ClassName,Grade)
VALUES
(123,'Processing',' A'),
(123,'Python','B'),
(123,'Scratch','B'),
(662,'Java','B'),
(662,'Python','A'),
(662,'JavaScript','A'),
(662,'Scratch','B'),
(345,'Scratch','A'),
(345,'JavaScript','B'),
(345,'Python','A'),
(555,'Python','B'),
(555,'JavaScript','B');
```

Ans:

```
select ClassName,count(*) as Total from Classes group by ClassName order by Total desc;
```

Total mark = 1
-0.25 if incorrect total but correct list
-0.25 if incorrect order (order should be from most to least) but correct list and correct total
-1 totally incorrect answer

Question 3:

A. Sample Solution

```
CREATE TABLE Projects(
        ProjectID varchar NOT NULL,
        Step integer NOT NULL,
        Status varchar NOT NULL );

INSERT INTO Projects(ProjectID,Step,Status)
VALUES
        ('P100',0,'C'),
        ('P100',1,'W'),
        ('P100',2,'W'),
        ('P201',0,'C'),
        ('P201',1,'C'),
        ('P333',0,'W'),
        ('P333',1,'W'),
        ('P333',2,'W'),
        ('P333',3,'W');
```

ANS:

SELECT ProjectID from Projects where Step=0 and Status='C' and ProjectID IN (select ProjectID from Projects where Step=1 and Status='W') ;

B. Rubric

Total - 1 mark

Deduction

-0.25 - Incorrect table
-0.25 - Query is incorrect but result is correct (‘P100’)
-1 - totally incorrect answer

Question 4:

Sample Solution

```
CREATE TABLE Family(
Name  varchar NOT NULL,
 Address varchar NOT NULL,
 ID integer NOT NULL,
SameFam integer );

INSERT INTO Family(Name,Address,ID,SameFam)
VALUES
('Alice'  , 'A'  ,    10,  NULL),
('Bob'    , 'B'  ,    15,  NULL),
('Carmen' , 'C'  ,    22,  NULL),
('Diego'  , 'A'  ,    9 ,  10),
('Ella'   ,'B'   ,  3  , 15),
('Farkhad' ,'D'  ,   11 , NULL);
```

Answer -

```
DELETE  from Family  where ID IN(Select SameFam from Family  where SameFam is NOT NULL) and SameFam is NULL  ;
select * from Family;
```

Rubric:

Total mark = 1

Deductions -

0.25 - from table incorrect
0.5 - nested query incorrect(any part is incorrect)
0.25 - SameFam is not taken as null

Question 5:

```
CREATE TABLE Instructors(
Instructor varchar NOT NULL,
Subject varchar(100) NOT NULL);

INSERT INTO Instructors(Instructor,Subject)
VALUES
('Aleph',  'Scratch'),
('Aleph',  'Java'),
('Aleph' , 'Processing'),
('Bit' ,   'Python'),
('Bit' ,   'JavaScript'),
('Bit' ,   'Java'),
('CRC' ,   'Python'),
('CRC' ,   'JavaScript'),
('Dat' ,   'Scratch'),
('Dat' ,   'Python'),
('Dat' ,   'JavaScript'),
('Emscr' , 'Scratch'),
('Emscr' , 'Processing'),
('Emscr' , 'JavaScript'),
('Emscr' , 'Python');
```

Solution #1:

```
select Instructor from Instructors where Subject ='JavaScript'
INTERSECT select Instructor from Instructors where Subject='Scratch'
INTERSECT select Instructor from Instructors where Subject ='Python';
```

Solution #2:

```
select Instructor from Instructors
where Subject IN ('JavaScript','Scratch' ,'Python')
group by Instructor having count(*) =3;
```

Solution #3:

```
select distinct(Instructor) from Instructors i
where
  exists (select 1 from Instructors i2 where i2.Instructor = i.Instructor and  Subject='JavaScript')
  and exists (select 1 from Instructors i2 where i2.Instructor = i.Instructor and  Subject='Scratch')
  and exists (select 1 from Instructors i2 where i2.Instructor = i.Instructor and  Subject='Python');
```

Solution #4:

```
Select d1.Instructor
From Instructors d1
Inner Join Instructors d2 On (d2.Instructor=d1.Instructor And d2.Subject="JavaScript")
Inner Join Instructors d3 On (d3.Instructor=d1.Instructor And d3.Subject="Scratch")
Where d1.Subject='Python';
```

Rubrics:

Total Marks - 1

Deductions:

-1: Incorrect result
-0.5: No explanation is provided
-0.25: Incorrect table
-0.25: If the query does not work for different set of 3 subjects

Note:

1. No deductions for incorrect bonus solutions
2. Award points to bonus solutions ONLY if query is 100% correct