DBMS ASSIGNMENT-2

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1. Create two tables for right angle triangles.

a). First table stores values of base, perpendicular, hypotenuse and angles. You know only the values of base, perpendicular, hypotenuse. Add new rows to the table.

```
mysql> show databases;
+--------------------+
| Database           |
+--------------------+
| akash              |
| assign             |
| information_schema |
| mysql              |
| performance_schema |
| sys                |
+--------------------+
6 rows in set (0.04 sec)
```

```
mysql> use assign;
Database changed
mysql> create table right_angle_triangle1(S_No int primary key,base double(20,3),perpendicular double(20,3),hypotenuse dou
se_to_hypo_angle double(20,3),perp_to_hypo_angle double(20,3));
Query OK, 0 rows affected, 5 warnings (0.03 sec)
```

```
mysql> describe right_angle_triangle1;
+--------------------+---------------+------+-----+---------+-------+
| Field              | Type          | Null | Key | Default | Extra |
+--------------------+---------------+------+-----+---------+-------+
| S_No               | int           | NO   | PRI | NULL    |       |
| base               | double(20,3)  | YES  |     | NULL    |       |
| perpendicular      | double(20,3)  | YES  |     | NULL    |       |
| hypotenuse         | double(20,3)  | YES  |     | NULL    |       |
| base_to_hypo_angle | double(20,3)  | YES  |     | NULL    |       |
| perp_to_hypo_angle | double(20,3)  | YES  |     | NULL    |       |
+--------------------+---------------+------+-----+---------+-------+
6 rows in set (0.01 sec)
```

```
mysql> insert into right_angle_triangle1(S_No,base,perpendicular,hypotenuse) values(1,15,8,17);
Query OK, 1 row affected (0.02 sec)

mysql> insert into right_angle_triangle1(S_No,base,perpendicular,hypotenuse) values(2,12,5,13);
Query OK, 1 row affected (0.01 sec)

mysql> insert into right_angle_triangle1(S_No,base,perpendicular,hypotenuse) values(3,18,24,30);
Query OK, 1 row affected (0.02 sec)

mysql> insert into right_angle_triangle1(S_No,base,perpendicular,hypotenuse) values(4,12,9,15);
Query OK, 1 row affected (0.01 sec)
```

```
 syntax to use near 'select * from right_angle_triangle1' at line 2
mysql> select * from right_angle_triangle1;
+------+--------+---------------+------------+-----------------+-----------------+
| S_No | base   | perpendicular | hypotenuse | base_to_hypo_angle | perp_to_hypo_angle |
+------+--------+---------------+------------+-----------------+-----------------+
|    1 | 15.000 |         8.000 |     17.000 |            NULL |            NULL |
|    2 | 12.000 |         5.000 |     13.000 |            NULL |            NULL |
|    3 | 18.000 |        24.000 |     30.000 |            NULL |            NULL |
|    4 | 12.000 |         9.000 |     15.000 |            NULL |            NULL |
+------+--------+---------------+------------+-----------------+-----------------+
4 rows in set (0.02 sec)
```

```
mysql> update right_angle_triangle1 set base_to_hypo_angle=acos(base/hypotenuse);
Query OK, 4 rows affected (0.01 sec)
Rows matched: 4  Changed: 4  Warnings: 0

mysql> update right_angle_triangle1 set perp_to_hypo_angle=acos(perpendicular/hypotenuse);
Query OK, 4 rows affected (0.01 sec)
Rows matched: 4  Changed: 4  Warnings: 0

mysql> select * from right_angle_triangle1;
+------+--------+---------------+------------+-----------------+-----------------+
| S_No | base   | perpendicular | hypotenuse | base_to_hypo_angle | perp_to_hypo_angle |
+------+--------+---------------+------------+-----------------+-----------------+
|    1 | 15.000 |         8.000 |     17.000 |           0.490 |           1.081 |
|    2 | 12.000 |         5.000 |     13.000 |           0.395 |           1.176 |
|    3 | 18.000 |        24.000 |     30.000 |           0.927 |           0.644 |
|    4 | 12.000 |         9.000 |     15.000 |           0.644 |           0.927 |
+------+--------+---------------+------------+-----------------+-----------------+
4 rows in set (0.00 sec)
```

```
mysql> update right_angle_triangle1 set base_to_hypo_angle=degrees(base_to_hypo_angle);
Query OK, 4 rows affected (0.02 sec)
Rows matched: 4  Changed: 4  Warnings: 0

mysql> update right_angle_triangle1 set perp_to_hypo_angle=degrees(perp_to_hypo_angle);
Query OK, 4 rows affected (0.02 sec)
Rows matched: 4  Changed: 4  Warnings: 0

mysql> select *from right_angle_triangle1;
+------+--------+---------------+------------+-----------------+-----------------+
| S_No | base   | perpendicular | hypotenuse | base_to_hypo_angle | perp_to_hypo_angle |
+------+--------+---------------+------------+-----------------+-----------------+
|    1 | 15.000 |         8.000 |     17.000 |          28.075 |          61.937 |
|    2 | 12.000 |         5.000 |     13.000 |          22.632 |          67.380 |
|    3 | 18.000 |        24.000 |     30.000 |          53.113 |          36.898 |
|    4 | 12.000 |         9.000 |     15.000 |          36.898 |          53.113 |
+------+--------+---------------+------------+-----------------+-----------------+
4 rows in set (0.00 sec)
```

2.Second table stores coordinates of the points (three co-ordinate tuples) and two angles.
You know only the coordinates of base, perpendicular, hypotenuse. Add new

```
mysql> create table right_angle_triangle2(S_No int primary key,x1 double(20,3),y1 double(20,3),x2 double(20,3),y2 double(2
le(20,3),y3 double(20,3),base_to_hypo_angle double(20,3),perp_to_hypo_angle double(20,3));
Query OK, 0 rows affected, 8 warnings (0.02 sec)

mysql> describe right_angle_triangle2;
+--------------------+---------------+------+-----+---------+-------+
| Field              | Type          | Null | Key | Default | Extra |
+--------------------+---------------+------+-----+---------+-------+
| S_No               | int           | NO   | PRI | NULL    |       |
| x1                 | double(20,3)  | YES  |     | NULL    |       |
| y1                 | double(20,3)  | YES  |     | NULL    |       |
| x2                 | double(20,3)  | YES  |     | NULL    |       |
| y2                 | double(20,3)  | YES  |     | NULL    |       |
| x3                 | double(20,3)  | YES  |     | NULL    |       |
| y3                 | double(20,3)  | YES  |     | NULL    |       |
| base_to_hypo_angle | double(20,3)  | YES  |     | NULL    |       |
| perp_to_hypo_angle | double(20,3)  | YES  |     | NULL    |       |
+--------------------+---------------+------+-----+---------+-------+
```

```
mysql> insert into right_angle_triangle2(S_No,x1,y1,x2,y2,x3,y3) values(1,3,4,5,6,2,3);
Query OK, 1 row affected (0.01 sec)

mysql> insert into right_angle_triangle2(S_No,x1,y1,x2,y2,x3,y3) values(2,3,7,5,6,8,3);
Query OK, 1 row affected (0.02 sec)

mysql> insert into right_angle_triangle2(S_No,x1,y1,x2,y2,x3,y3) values(3,6,2,5,6,8,3);
Query OK, 1 row affected (0.01 sec)

mysql> insert into right_angle_triangle2(S_No,x1,y1,x2,y2,x3,y3) values(3,4,1,5,6,8,3);
ERROR 1062 (23000): Duplicate entry '3' for key 'right_angle_triangle2.PRIMARY'
mysql> insert into right_angle_triangle2(S_No,x1,y1,x2,y2,x3,y3) values(4,4,1,5,6,8,3);
Query OK, 1 row affected (0.01 sec)
```

```
mysql> select * from right_angle_triangle2;
+------+-------+-------+-------+-------+-------+-------+-------------------+-------------------+
| S_No | x1    | y1    | x2    | y2    | x3    | y3    | base_to_hypo_angle | perp_to_hypo_angle |
+------+-------+-------+-------+-------+-------+-------+-------------------+-------------------+
|    1 | 3.000 | 4.000 | 5.000 | 6.000 | 2.000 | 3.000 |              NULL |              NULL |
|    2 | 3.000 | 7.000 | 5.000 | 6.000 | 8.000 | 3.000 |              NULL |              NULL |
|    3 | 6.000 | 2.000 | 5.000 | 6.000 | 8.000 | 3.000 |              NULL |              NULL |
|    4 | 4.000 | 1.000 | 5.000 | 6.000 | 8.000 | 3.000 |              NULL |              NULL |
+------+-------+-------+-------+-------+-------+-------+-------------------+-------------------+
4 rows in set (0.00 sec)
```

```
mysql> update right_angle_triangle2 set base_to_hypo_angle = acos((sqrt(power(x2-x1,2)+power(y2-y1,2)))/(sqrt(power(x2-x3
y3,2))));
Query OK, 3 rows affected (0.01 sec)
Rows matched: 4  Changed: 3  Warnings: 0

mysql> update right_angle_triangle2 set perp_to_hypo_angle = acos((sqrt(power(x1-x3,2)+power(y1-y3,2)))/(sqrt(power(x2-x3
y3,2))));
Query OK, 2 rows affected (0.01 sec)
Rows matched: 4  Changed: 2  Warnings: 0
```

```
mysql> update right_angle_triangle2 set perp_to_hypo_angle = degrees(perp_to_hypo_angle);
Query OK, 2 rows affected (0.01 sec)
Rows matched: 4  Changed: 2  Warnings: 0

mysql> update right_angle_triangle2 set base_to_hypo_angle = degrees(base_to_hypo_angle);
Query OK, 3 rows affected (0.02 sec)
Rows matched: 4  Changed: 3  Warnings: 0

mysql> select * from  right_angle_triangle2;
+------+-------+-------+-------+-------+-------+-------+--------------------+--------------------+
| S_No | x1    | y1    | x2    | y2    | x3    | y3    | base_to_hypo_angle | perp_to_hypo_angle |
+------+-------+-------+-------+-------+-------+-------+--------------------+--------------------+
|    1 | 3.000 | 4.000 | 5.000 | 6.000 | 2.000 | 3.000 |             48.186 |             70.531 |
|    2 | 3.000 | 7.000 | 5.000 | 6.000 | 8.000 | 3.000 |             58.213 |               NULL |
|    3 | 6.000 | 2.000 | 5.000 | 6.000 | 8.000 | 3.000 |             13.636 |             58.213 |
|    4 | 4.000 | 1.000 | 5.000 | 6.000 | 8.000 | 3.000 |               NULL |               NULL |
+------+-------+-------+-------+-------+-------+-------+--------------------+--------------------+
4 rows in set (0.00 sec)
```

```
mysql> create table Employee(employee_id int primary key,first_name varchar(20),last_name varchar(20),salary int);
Query OK, 0 rows affected (0.05 sec)

mysql> describe Employee;
+-------------+-------------+------+-----+---------+-------+
| Field       | Type        | Null | Key | Default | Extra |
+-------------+-------------+------+-----+---------+-------+
| employee_id | int         | NO   | PRI | NULL    |       |
| first_name  | varchar(20) | YES  |     | NULL    |       |
| last_name   | varchar(20) | YES  |     | NULL    |       |
| salary      | int         | YES  |     | NULL    |       |
+-------------+-------------+------+-----+---------+-------+
4 rows in set (0.02 sec)
```

1. Create and employee table

```
mysql> insert Employee(employee_id,first_name,last_name,salary) values(1234,'john','mishra',23000);
Query OK, 1 row affected (0.02 sec)

mysql> insert Employee(employee_id,first_name,last_name,salary) values(1474,'john','sinha',12000);
Query OK, 1 row affected (0.02 sec)

mysql> insert Employee(employee_id,first_name,last_name,salary) values(1474,'ram','raj',32000);
ERROR 1062 (23000): Duplicate entry '1474' for key 'employee.PRIMARY'
mysql> insert Employee(employee_id,first_name,last_name,salary) values(1494,'ram','raj',32000);
Query OK, 1 row affected (0.02 sec)

mysql> insert Employee(employee_id,first_name,last_name,salary) values(2494,'ram','raj',15600);
Query OK, 1 row affected (0.02 sec)

mysql> insert Employee(employee_id,first_name,last_name,salary) values(3494,'laxman','kumar',1600);
Query OK, 1 row affected (0.02 sec)
```

```
mysql> select * from Employee;
+-------------+------------+-----------+--------+
| employee_id | first_name | last_name | salary |
+-------------+------------+-----------+--------+
|        1234 | john       | mishra    |  23000 |
|        1474 | john       | sinha     |  12000 |
|        1494 | ram        | raj       |  32000 |
|        2494 | ram        | raj       |  15600 |
|        3494 | laxman     | kumar     |   1600 |
+-------------+------------+-----------+--------+
5 rows in set (0.00 sec)
```

a). Employees who have similar first names.

```
mysql> select *,count(first_name) from Employee group by first_name having count(first_name) > 1;
+-------------+------------+-----------+--------+-------------------+
| employee_id | first_name | last_name | salary | count(first_name) |
+-------------+------------+-----------+--------+-------------------+
|        1234 | john       | mishra    |  23000 |                 2 |
|        1494 | ram        | raj       |  32000 |                 2 |
+-------------+------------+-----------+--------+-------------------+
```

b). How many employees have the same first name.

```
mysql> select first_name,count(first_name) as similar_first_name_count from Employee group by first_name having count(firs
t_name)>1;
+------------+--------------------------+
| first_name | similar_first_name_count |
+------------+--------------------------+
| john       |                        2 |
| ram        |                        2 |
+------------+--------------------------+
2 rows in set (0.00 sec)
```

c) What is the average salary of all the employees whose name is "Jhon".

```
mysql> select avg(salary) as Average_Salary from Employee where first_name = 'john';
+----------------+
| Average_Salary |
+----------------+
|     17500.0000 |
+----------------+
1 row in set (0.02 sec)
```

d)What the highest salary of the empl oyees.

```
mysql> select first_name, salary from Employee where salary in(select max(salary) from Employee);
+------------+--------+
| first_name | salary |
+------------+--------+
| ram        |  32000 |
+------------+--------+
1 row in set (0.00 sec)
```