DATABASE CREATION -

```
mysql> create database problemset02;
Query OK, 1 row affected (0.00 sec)

mysql> use problemset02;
Database changed
```

TABLE CREATION -

```
mysql> CREATE TABLE Location (locationid INT PRIMARY KEY, name
VARCHAR(30), sunlight FLOAT, water FLOAT);
Query OK, 0 rows affected (0.01 sec)

mysql> CREATE TABLE Gardener (gardenerid INT PRIMARY KEY, name
VARCHAR(30), age INT);
Query OK, 0 rows affected (0.01 sec)

mysql> CREATE TABLE Plant (plantid INT PRIMARY KEY, name
VARCHAR(30), sunlight FLOAT, water FLOAT, weight FLOAT);
Query OK, 0 rows affected (0.01 sec)

mysql> CREATE TABLE planted (plantFK INT, gardenerFK INT, locationFK
INT, date1 DATE, seeds INT, FOREIGN KEY(plantFK) REFERENCES
plant(plantid), FOREIGN KEY(gardenerFK) REFERENCES
gardener(gardenerid), FOREIGN KEY(locationFK) REFERENCES
location(locationid));
Query OK, 0 rows affected (0.01 sec)

mysql> CREATE TABLE picked (plantFK INT, gardenerFK INT, locationFK
INT, date1 DATE, amount INT, weight FLOAT, FOREIGN KEY(plantFK)
REFERENCES plant(plantid), FOREIGN KEY(gardenerFK) REFERENCES
gardener(gardenerid), FOREIGN KEY(locationFK) REFERENCES
location(locationid));
Query OK, 0 rows affected (0.01 sec)
```

VALUE INSERTION -

```
mysql> INSERT INTO location VALUES(0, "East", .28, .80);
Query OK, 1 row affected (0.01 sec)

mysql> INSERT INTO location VALUES(1, "North", .17, .84);
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO location VALUES(2, "West", .38, .48);
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO location VALUES(3, "South", .45, .66);
Query OK, 1 row affected (0.01 sec)
```

```
mysql> INSERT INTO gardener VALUES(0, "Mother", 36);
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO gardener VALUES(1, "Father", 38);
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO gardener VALUES(2, "Tim", 15);
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO gardener VALUES(3, "Erin", 12);
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO plant VALUES(0, "Carrot", .26, .82, .08);
Query OK, 1 row affected (0.01 sec)

mysql> INSERT INTO plant VALUES(1, "Beet", .44, .80, .04);
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO plant VALUES(2, "Corn", .44, .76, .26);
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO plant VALUES(3, "Tomato", .42, .80, .16);
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO plant VALUES(4, "Radish", .28, .84, .02);
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO plant VALUES(5, "Lettuce", .29, .85, .03);
Query OK, 1 row affected (0.01 sec)

mysql> INSERT INTO planted VALUES(0, 0, 0 , "20120418", 28);
Query OK, 1 row affected (0.01 sec)

mysql> INSERT INTO planted VALUES(1, 0, 2, "20120418", 36);
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO planted VALUES(2, 1, 3, "20120414", 20);
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO planted VALUES(3, 3, 3, "20120425", 38);
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO planted VALUES(4, 2, 0, "20120430", 30);
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO planted VALUES(5, 2, 0, "20120415", 30);
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO picked VALUES(0, 2, 0 ,"20120818", 28, 2.32);
Query OK, 1 row affected (0.01 sec)

mysql> INSERT INTO picked VALUES(0, 3, 1 ,"20120816", 12, 1.02);
Query OK, 1 row affected (0.00 sec)
```

```
mysql> INSERT INTO picked VALUES(2, 1, 3 ,"20120822", 52, 12.96);
Query OK, 1 row affected (0.01 sec)

mysql> INSERT INTO picked VALUES(2, 2, 2 ,"20120828", 18, 4.58);
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO picked VALUES(3, 3, 3 ,"20120822", 15, 3.84);
Query OK, 1 row affected (0.00 sec)

mysql> INSERT INTO picked VALUES(4, 2, 0 ,"20120716", 23, 0.52);
Query OK, 1 row affected (0.00 sec)


DISPLAYING TABLE WITH VALUES -

mysql> select * from Location;
+------------+-------+----------+-------+
| locationid | name  | sunlight | water |
+------------+-------+----------+-------+
|          0 | East  |     0.28 |   0.8 |
|          1 | North |     0.17 |  0.84 |
|          2 | West  |     0.38 |  0.48 |
|          3 | South |     0.45 |  0.66 |
+------------+-------+----------+-------+
4 rows in set (0.00 sec)

mysql> select * from Gardener;
+------------+--------+------+
| gardenerid | name   | age  |
+------------+--------+------+
|          0 | Mother |   36 |
|          1 | Father |   38 |
|          2 | Tim    |   15 |
|          3 | Erin   |   12 |
+------------+--------+------+
4 rows in set (0.00 sec)

mysql> select * from Plant;
+---------+---------+----------+-------+--------+
| plantid | name    | sunlight | water | weight |
+---------+---------+----------+-------+--------+
|       0 | Carrot  |     0.26 |  0.82 |   0.08 |
|       1 | Beet    |     0.44 |   0.8 |   0.04 |
|       2 | Corn    |     0.44 |  0.76 |   0.26 |
|       3 | Tomato  |     0.42 |   0.8 |   0.16 |
|       4 | Radish  |     0.28 |  0.84 |   0.02 |
|       5 | Lettuce |     0.29 |  0.85 |   0.03 |
+---------+---------+----------+-------+--------+
6 rows in set (0.00 sec)

mysql> select * from planted;
+---------+------------+------------+------------+-------+
| plantFK | gardenerFK | locationFK | date1      | seeds |
+---------+------------+------------+------------+-------+
```

```
|       0 |          0 |          0 | 2012-04-18 |    28 |
|       1 |          0 |          2 | 2012-04-18 |    36 |
|       2 |          1 |          3 | 2012-04-14 |    20 |
|       3 |          3 |          3 | 2012-04-25 |    38 |
|       4 |          2 |          0 | 2012-04-30 |    30 |
|       5 |          2 |          0 | 2012-04-15 |    30 |
+---------+------------+------------+------------+-------+
6 rows in set (0.00 sec)

mysql> select * from picked;
+---------+------------+------------+------------+--------+--------+
| plantFK | gardenerFK | locationFK | date1      | amount | weight |
+---------+------------+------------+------------+--------+--------+
|       0 |          2 |          0 | 2012-08-18 |     28 |   2.32 |
|       0 |          3 |          1 | 2012-08-16 |     12 |   1.02 |
|       2 |          1 |          3 | 2012-08-22 |     52 |  12.96 |
|       2 |          2 |          2 | 2012-08-28 |     18 |   4.58 |
|       3 |          3 |          3 | 2012-08-22 |     15 |   3.84 |
|       4 |          2 |          0 | 2012-07-16 |     23 |   0.52 |
+---------+------------+------------+------------+--------+--------+
6 rows in set (0.00 sec)


QUERIES -


1.Write a valid SQL statement that calculates the total weight of
all corn cobs that were picked from the garden .

mysql> select sum(picked.weight) from plant , picked where
plant.plantid=picked.plantFK and plant.name='Corn';
+--------------------+
| sum(picked.weight) |
+--------------------+
| 17.539999961853027 |
+--------------------+
1 row in set (0.01 sec)

2. For some reason Erin has change his location for picking the
tomato to North.Write the corresponding query.

mysql> update picked set locationFK =(select locationid from
location where name='North') where gardenerFK =( select gardenerid
from gardener where name='Erin') and plantFK =(select plantid from
plant where name='Tomato') ;
Query OK, 1 row affected (0.01 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> select * from picked;
+---------+------------+------------+------------+--------+--------+
| plantFK | gardenerFK | locationFK | date1      | amount | weight |
+---------+------------+------------+------------+--------+--------+
|       0 |          2 |          0 | 2012-08-18 |     28 |   2.32 |
|       0 |          3 |          1 | 2012-08-16 |     12 |   1.02 |
```

```
|       2 |          1 |          3 | 2012-08-22 |     52 |  12.96 |
|       2 |          2 |          2 | 2012-08-28 |     18 |   4.58 |
|       3 |          3 |          1 | 2012-08-22 |     15 |   3.84 |
|       4 |          2 |          0 | 2012-07-16 |     23 |   0.52 |
+---------+------------+------------+------------+--------+--------+
6 rows in set (0.00 sec)
```

3. Insert a new column ‘Exper’ of type Number (30) to the ‘gardener’ table which stores Experience of the person . How will you modify this to varchar(30).

```
mysql> alter table gardener add column Exper int(30);
Query OK, 0 rows affected, 1 warning (0.03 sec)
Records: 0  Duplicates: 0  Warnings: 1

mysql> select * from gardener;
+------------+--------+------+-------+
| gardenerid | name   | age  | Exper |
+------------+--------+------+-------+
|          0 | Mother |   36 |  NULL |
|          1 | Father |   38 |  NULL |
|          2 | Tim    |   15 |  NULL |
|          3 | Erin   |   12 |  NULL |
+------------+--------+------+-------+
4 rows in set (0.00 sec)

mysql> alter table gardener modify column Exper varchar(30);
Query OK, 4 rows affected (0.05 sec)
Records: 4  Duplicates: 0  Warnings: 0

mysql> select * from gardener;
+------------+--------+------+-------+
| gardenerid | name   | age  | Exper |
+------------+--------+------+-------+
|          0 | Mother |   36 | NULL  |
|          1 | Father |   38 | NULL  |
|          2 | Tim    |   15 | NULL  |
|          3 | Erin   |   12 | NULL  |
+------------+--------+------+-------+
4 rows in set (0.00 sec)
```

4. Write a query to find the plant name which required seed less than 20 which plant on 14-apr.

```
mysql> select name from plant where plantid= ( select plantFK from
planted where date1=20120414 and seeds<20);
+--------+
| name   |
+--------+
| Carrot |
+--------+
1 row in set (0.00 sec)
```

5. List the amount of sunlight and water to all plants with names

that start with letter ‘c’ or letter ‘r’.

```
mysql> select name , sunlight , water  from plant where name like
'C%' or name like 'R%';
+--------+----------+-------+
| name   | sunlight | water |
+--------+----------+-------+
| Carrot |     0.26 |  0.82 |
| Corn   |     0.44 |  0.76 |
| Radish |     0.28 |  0.84 |
+--------+----------+-------+
3 rows in set (0.00 sec)
```

6. Write a valid SQL statement that displays the plant name and total amount of seed required for each plant that were plant in the garden . The output should be in descending order of plant name .

```
mysql> select name , sum(seeds) from plant join planted on
plant.plantid=planted.plantFK group by name order by name desc;
+---------+------------+
| name    | sum(seeds) |
+---------+------------+
| Tomato  |         38 |
| Radish  |         30 |
| Lettuce |         30 |
| Corn    |         32 |
| Carrot  |         42 |
| Beet    |         36 |
+---------+------------+
6 rows in set (0.00 sec)
```

7. Write a valid SQL statement that calculates the average number of items produced per seed planted for each plant type :( Average Number of Items  = Total Amount Picked / Total seeds planted).

```
mysql> select amount/seeds as AvgItemsProduced , name from plant ,
planted , picked where plant.plantid=picked.plantFK and
plant.plantid=planted.plantFK group by name;
+------------------+--------+
| AvgItemsProduced | name   |
+------------------+--------+
|           1.0000 | Carrot |
|           2.6000 | Corn   |
|           0.3947 | Tomato |
|           0.7667 | Radish |
+------------------+--------+
4 rows in set (0.00 sec)
```

8. Write a valid SQL statement that would produce a result set like the following :

```
mysql> select gardener.name, plant.name  , picked.date1 ,
picked.amount from gardener join picked on
gardener.gardenerid=picked.gardenerFK join plant on
```

```
plant.plantid=picked.plantFK where gardener.name='Tim' and
picked.locationFK=0;
+------+--------+------------+--------+
| name | name   | date1      | amount |
+------+--------+------------+--------+
| Tim  | Carrot | 2012-08-18 |     28 |
| Tim  | Radish | 2012-07-16 |     23 |
+------+--------+------------+--------+
2 rows in set (0.00 sec)
```

9. Find out persons who picked from the same location as he/she planted.

```
mysql> select name from gardener where gardenerid in (select
gardenerFK from planted where gardenerFK in (select gardenerFK from
picked));
+--------+
| name   |
+--------+
| Father |
| Tim    |
| Erin   |
+--------+
3 rows in set (0.00 sec)
```

10. Create a view that lists all the plant names picked from all locations except ‘West’ in the month of August.

```
mysql> create view Non_WestPlants as select plant.name from plant
join picked on plant.plantid=picked.plantFK join location on
location.locationid=picked.locationFK where location.name not in
('West') and month(picked.date1)=08 ;
Query OK, 0 rows affected (0.01 sec)

mysql> select * from Non_WestPlants;
+--------+
| name   |
+--------+
| Carrot |
| Carrot |
| Tomato |
| Corn   |
+--------+
4 rows in set (0.00 sec)
```