MAJOR ASSIGNMENT

1.Create a table “Station” to store information about weather observation stations:

ID	Number	Primary key
CITY	CHAR(20)	
STATE	CHAR(2)	
LAT_N	Number	
LONG_W	Number	

```
create database major_assignment;
use major_assignment;

create table Station
(ID int primary key,
CITY char(20),
STATE char(2),
LAT_N numeric,
LONG_W numeric);
```

```
3  use major_assignment;
4  drop table satation;
5  #1
6  create table Station
7  (ID int primary key,
8  CITY char(20),
9  STATE CHAR(2),
10 LAT_N numeric,
11 LONG_W numeric);
12
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Field	Type	Null	Key	Default	Extra
ID	decimal(10,0) unsigned	NO	PRI	NULL	
CITY	char(20)	YES		NULL	
STATE	char(2)	YES		NULL	
LAT_N	decimal(10,0)	YES		NULL	
LONG_W	decimal(10,0)	YES		NULL	

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2. Insert the following records into the table:

ID	CITY	STATE	LAT_N	LONG_W
13	PHOENIX	AZ	33	112
44	DENVER	CO	40	105
66	CARIBOU	ME	47	68

```
insert into Station values(13,'PHONEIX','AZ',33,112),
                          (44,'DENVER','CO',40,105),
                          (66,'CARIBOU','ME',47,68);
```

```
17 •    insert into Station values(13,'PHONEIX','AZ',33,112),
18                                (44,'DENVER','CO',40,105),
19                                (66,'CARIBOU','ME',47,68);
```


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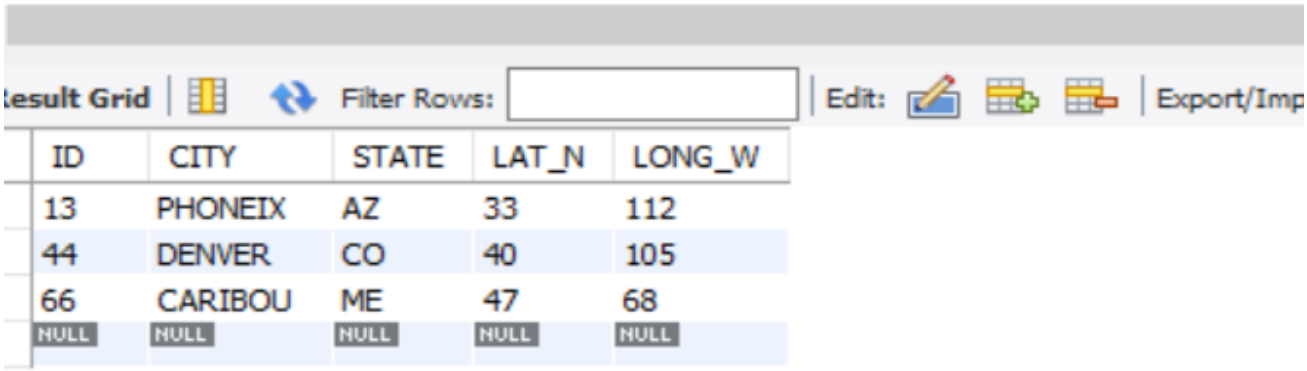
3. Execute a query to look at table STATION in undefined order

```
select *
from station;
```

```
20      #3.........
21 •    SELECT *
22      FROM Station;
23
```



ID	CITY	STATE	LAT_N	LONG_W
13	PHONEIX	AZ	33	112
44	DENVER	CO	40	105
66	CARIBOU	ME	47	68
NULL	NULL	NULL	NULL	NULL

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4. Execute a query to select Northern stations (Northern latitude > 39.7).

```
select city, state, lat_n
from station
where lat_n >39.7;
```

```
24      #4
25 •    SELECT CITY, STATE, LAT_N
26      FROM Station
27      where LAT_N >39.7;
28
```

Result Grid | Filter Rows: | Exp

CITY	STATE	LAT_N
DENVER	CO	40
CARIBOU	ME	47

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5. Create another table, ‘STATS’, to store normalized temperature and

```
CREATE TABLE STATS
(ID numeric references station(ID),
MONTH SMALLINT NOT NULL CHECK(MONTH >= 1  AND MONTH <= 12),
TEMP_F real(4,2) CHECK(TEMP_F>=-80 AND TEMP_F<=150),
RAIN_I real(4,2) CHECK (RAIN_I>=0 AND RAIN_I<=100),
PRIMARY KEY (ID, MONTH));

describe STATS;
```

```
31 •   CREATE TABLE STATS
32     (ID numeric references station(ID),
33     MONTH SMALLINT NOT NULL CHECK(MONTH >= 1  AND MONTH <= 12),
34     TEMP_F real(4,2) CHECK(TEMP_F>=-80 AND TEMP_F<=150),
35     RAIN_I real(4,2) CHECK (RAIN_I>=0 AND RAIN_I<=100),
36     PRIMARY KEY (ID, MONTH));
37
38 •   describe STATS;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Field	Type	Null	Key	Default	Extra
ID	decimal(10,0)	NO	PRI	NULL	
MONTH	smallint(6)	NO	PRI	NULL	
TEMP_F	double(4,2)	YES		NULL	
RAIN_I	double(4,2)	YES		NULL	

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6. Populate the table STATS with some statistics for January and July:

```
insert into stats values(13,1,57.4,.31),
                        (13,7,91.7,5.15),
                        (44,1,27.3,.18),
                         (44,7,74.8,2.11),
                          (66,1,6.7,2.1),
                          (66,7,65.8,4.52);
```

```
41 •  INSERT INTO STATS VALUES(13,1,57.4,.31),
42                             (13,7,91.7,5.15),
43                             (44,1,27.3,.18),
44                             (44,7,74.8,2.11),
45                             (66,1,6.7,2.1),
46                             (66,7,65.8,4.52);
47
48
```

```
SELECT *
FROM STATS;
```

```
49 •  SELECT *
50    FROM STATS;
```

Result Grid | Filter Rows:

ID	MONTH	TEMP_F	RAIN_I
13	1	57.4	0.31
13	7	91.7	5.15
44	1	27.3	0.18
44	7	74.8	2.11
66	1	6.7	2.1
66	7	65.8	4.52
NULL	NULL	NULL	NULL

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7. Execute a query to display temperature stats (from STATS table) for each city (from Station table).

```
select i.city,i.state, s.temp_f
from station i
inner join
stats s
on i.id = s.id;
```

```
52      #7
53 •    select I.CITY,I.STATE, S.TEMP_F
54      from STATION I
55      inner join
56      stats S
57      ON I.ID = S.ID;
58
```

Result Grid | Filter Rows: | Export: | Wra

CITY	STATE	TEMP_F
PHONEIX	AZ	57.40
PHONEIX	AZ	91.70
DENVER	CO	27.30
DENVER	CO	74.80
CARIBOU	ME	6.70
CARIBOU	ME	65.80

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8. Execute a query to look at the table STATS, ordered by month and greatest rainfall, with columns rearranged. It should also show the corresponding cities.

```
select i.city,i.state,s.month, s.rain_i
from station i
inner join stats s
on i.id = s.id
order by s.month , s.rain_i desc;
```

```
60 •    select I.CITY,I.STATE,S.MONTH, S.RAIN_I
61      from STATION I
62      inner join stats S
63      ON I.ID = S.ID
64      ORDER BY S.MONTH , S.RAIN_I DESC;
65
```

Result Grid | Filter Rows: | Export: | Wrap Ce

CITY	STATE	MONTH	RAIN_I
CARIBOU	ME	1	2.1
PHONEIX	AZ	1	0.31
DENVER	CO	1	0.18
PHONEIX	AZ	7	5.15
CARIBOU	ME	7	4.52
DENVER	CO	7	2.11

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9. Execute a query to look at temperatures for July from table STATS, lowest temperatures first, picking up city name and latitude.

```
select  i.city,i.state, lat_n,s.temp_f,month
from station i
inner join
stats s
on i.id = s.id
where month = 7
order by temp_f asc;
```

```
68      #9
69 •    select  I.CITY,I.STATE, LAT_N,S.TEMP_F,MONTH
70      from STATION I
71      inner join
72      stats S
73      ON I.ID = S.ID
74      WHERE MONTH = 7
75      ORDER BY TEMP_f ASC;
76
```

Result Grid | Filter Rows: | Export: | Wrap Cell Conte

CITY	STATE	LAT_N	TEMP_F	MONTH
CARIBOU	ME	47	65.8	7
DENVER	CO	40	74.8	7
PHONEIX	AZ	33	91.7	7

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10. Execute a query to show MAX and MIN temperatures as well as average rainfall for each city.

```
select i.city,
max(s.temp_f) as max_temp_f,
min(s.temp_f) as min_temp_f ,
round(avg(s.rain_i),2) as avg_rain_i
from station i
inner join
stats s
on i.id = s.id
group by city;
```

```
80 •    select I.CITY,
81      max(S.TEMP_F) AS MAX_TEMP_F,
82      MIN(s.TEMP_F) AS MIN_TEMP_F ,
83      ROUND(AVG(s.RAIN_I),2) AS AVG_RAIN_I
84      from STATION I
85      inner join
86      stats S
87      ON I.ID = S.ID
88      GROUP BY CITY;
89
```

Result Grid | Filter Rows: | Export: | Wra

CITY	MAX_TEMP_F	MIN_TEMP_F	AVG_RAIN_I
CARIBOU	65.8	6.7	3.31
DENVER	74.8	27.3	1.14
PHONEIX	91.7	57.4	2.73

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11. Execute a query to display each city's monthly temperature in Celcius and rainfall in Centimeter.

```
select i.city,s.month,
temp_f, round(((temp_f-32)*5)/9,2) as temp_c,
 rain_i , round(rain_i * 2.54,2) as rain_cm
from station i
inner join
stats s
on i.id = s.id;
```

```
94      #11 a
95 •    select I.CITY,S.MONTH,
96      TEMP_F, ROUND(((TEMP_F-32)*5)/9,2) AS TEMP_C,
97       RAIN_I , round(RAIN_I * 2.54,2) AS RAIN_cm
98      from STATION I
99      inner join
100     stats S
101     ON I.ID = S.ID;
102
```

Result Grid | Filter Rows: | Export: | Wrap Cell Co

CITY	MONTH	TEMP_F	TEMP_C	RAIN_I	RAIN_cm
PHONEIX	1	57.4	14.11	0.31	0.79
PHONEIX	7	91.7	33.17	5.15	13.08
DENVER	1	27.3	-2.61	0.18	0.46
DENVER	7	74.8	23.78	2.11	5.36
CARIBOU	1	6.7	-14.06	2.1	5.33
CARIBOU	7	65.8	18.78	4.52	11.48

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12. Update all rows of table STATS to compensate for faulty rain gauges known to read 0.01 inches low.

```
update stats set rain_i = rain_i+0.01;
select *
from stats;
```

```
106     #11
107 •   UPDATE stats set rain_i = rain_i+0.01;
108 •   SELECT *
109     FROM STATS;
110
```

Result Grid | Filter Rows: | Edit: | Export

ID	MONTH	TEMP_F	RAIN_I
13	1	57.40	0.32
13	7	91.70	5.16
44	1	27.30	0.19
44	7	74.80	2.12
66	1	6.70	2.11
66	7	65.80	4.53
NULL	NULL	NULL	NULL

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13. Update Denver's July temperature reading as 74.9

```
select i.city,i.state,s.month, s.temp_f,s.rain_i
from station i
inner join
stats s
on i.id = s.id
having s.month = 7 and i.city = 'denver';
```

```
112 •   UPDATE STATS SET TEMP_F = 74.9
113     WHERE MONTH = 7 AND ID =44;
114
115 •   select I.CITY,I.STATE,S.MONTH, S.TEMP_F,S.RAIN_I
116     from STATION I
117     inner join
118     stats S
119     ON I.ID = S.ID
120     HAVING S.MONTH = 7 AND I.CITY = 'DENVER';
121
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

CITY	STATE	MONTH	TEMP_F	RAIN_I
DENVER	CO	7	74.90	2.12

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