



SEPTEMBER 3, 2024

LAB HOMEWORK 1 A

CS 457 LAB B

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Note: In MariaDB (Provided by University) the **REAL** data type is displayed as **DOUBLE** or **DECIMAL**. The columns are intended to use the **REAL** data type.

1. Focus on the table "station". Make a total of 10 rows. Make sure all id values are distinct. Add acceptable data into those rows so that they satisfy the nature of the data types.



```
1 INSERT INTO station (id, city, state, lat_n, long_w) VALUES
2 (13, 'Phoenix', 'AZ', 33.0, 112),
3 (44, 'Denver', 'CO', 40.0, 105),
4 (66, 'Caribou', 'ME', 47.0, 68),
5 (77, 'Los Angeles', 'CA', 34, 118),
6 (88, 'New York', 'NY', 40, 74),
7 (99, 'Chicago', 'IL', 41, 87),
8 (100, 'Miami', 'FL', 25, 80),
9 (101, 'Seattle', 'WA', 47, 122),
10 (102, 'Houston', 'TX', 29, 95),
11 (103, 'San Francisco', 'CA', 37, 122);
```

* id int(11)	city char(20)	state char(2)	lat_n double	long_w double
13	Phoenix	AZ	33	112
44	Denver	CO	40	105
66	Caribou	ME	47	68
77	Los Angeles	CA	34	118
88	New York	NY	40	74
99	Chicago	IL	41	87
100	Miami	FL	25	80
101	Seattle	WA	47	122
102	Houston	TX	29	95
103	San Francisco	CA	37	122

2. Make use of all these relational operators like >, <, >=, <=, =, <> and apply them for the attributes lat_n, long_w. Check all these relational operators in 6 different SQL commands.

a. SELECT * FROM station WHERE lat_n > 40;

* id int(11)	city char(20)	state char(2)	lat_n double	long_w double
66	Caribou	ME	47	68
99	Chicago	IL	41	87
101	Seattle	WA	47	122

b. SELECT * FROM station WHERE long_w < 100;

* id int(11)	city char(20)	state char(2)	lat_n double	long_w double
66	Caribou	ME	47	68
88	New York	NY	40	74
99	Chicago	IL	41	87
100	Miami	FL	25	80
102	Houston	TX	29	95

c. SELECT * FROM station WHERE lat_n >= 33;

* id int(11)	city char(20)	state char(2)	lat_n double	long_w double
13	Phoenix	AZ	33	112
44	Denver	CO	40	105
66	Caribou	ME	47	68
77	Los Angeles	CA	34	118
88	New York	NY	40	74
99	Chicago	IL	41	87
101	Seattle	WA	47	122
103	San Francisco	CA	37	122

d. SELECT * FROM station WHERE long_w <= 80;

* id int(11)	city char(20)	state char(2)	lat_n double	long_w double
66	Caribou	ME	47	68
88	New York	NY	40	74
100	Miami	FL	25	80

e. SELECT * FROM station WHERE lat_n = 40;

* id int(11)	city char(20)	state char(2)	lat_n double	long_w double
44	Denver	CO	40	105
88	New York	NY	40	74

f. SELECT * FROM station WHERE long_w <> 105;

* id int(11)	city char(20)	state char(2)	lat_n double	long_w double
13	Phoenix	AZ	33	112
66	Caribou	ME	47	68
77	Los Angeles	CA	34	118
88	New York	NY	40	74
99	Chicago	IL	41	87
100	Miami	FL	25	80
101	Seattle	WA	47	122
102	Houston	TX	29	95
103	San Francisco	CA	37	122

3. Make use of all these logical operators and, or, not and apply this to multiple conditions for checking their outputs with and without paranthesis enclosing those conditions (as discussed in the Lab today). Try 3 different SQL commands.

a. AND

- i. SELECT * FROM station WHERE lat_n > 30 AND long_w < 110;

* id int(11)	city char(20)	state char(2)	lat_n double	long_w double
44	Denver	CO	40	105
66	Caribou	ME	47	68
88	New York	NY	40	74
99	Chicago	IL	41	87

b. OR

- i. SELECT * FROM station WHERE (lat_n > 30) OR (long_w < 110);

* id int(11)	city char(20)	state char(2)	lat_n double	long_w double
13	Phoenix	AZ	33	112
44	Denver	CO	40	105
66	Caribou	ME	47	68
77	Los Angeles	CA	34	118
88	New York	NY	40	74
99	Chicago	IL	41	87
100	Miami	FL	25	80
101	Seattle	WA	47	122
102	Houston	TX	29	95
103	San Francisco	CA	37	122

c. NOT

i. SELECT * FROM station WHERE NOT (lat_n > 30 AND long_w < 110);

* id int(11)	city char(20)	state char(2)	lat_n double	long_w double
13	Phoenix	AZ	33	112
77	Los Angeles	CA	34	118
100	Miami	FL	25	80
101	Seattle	WA	47	122
102	Houston	TX	29	95
103	San Francisco	CA	37	122

4. On page 4, first table under Week 1 lab notes, write a SQL command to show the id column occurring only once.

a. SELECT * FROM station JOIN stats USING (id);


id int	city string	state string	lat_n double	long_w double	month int	temp_f newdecimal	rain_i newdecimal
13	Phoenix	AZ	33	112	1	57.40	0.31
13	Phoenix	AZ	33	112	7	91.70	5.15
44	Denver	CO	40	105	1	30.20	0.35
44	Denver	CO	40	105	7	73.40	2.16
66	Caribou	ME	47	68	1	8.40	1.20
66	Caribou	ME	47	68	7	69.30	3.74
77	Los Angeles	CA	34	118	1	58.30	0.12
77	Los Angeles	CA	34	118	7	75.40	0.01
88	New York	NY	40	74	1	32.60	3.45
88	New York	NY	40	74	7	78.10	4.39

5. On page 8 of Week 1 class notes, show the select command and output which will do the rollback on rainfall in inches.

a. SELECT * FROM stats;

*  id int(11)	* month int(11)	temp_f decimal(5,2)	rain_i decimal(5,2)
13	1	57.40	0.31
13	7	91.70	5.15
44	1	30.20	0.35
44	7	74.90	2.16


b. UPDATE stats SET RAIN_I = 4.50 WHERE ID = 44;

*  id int(11)	* month int(11)	temp_f decimal(5,2)	rain_i decimal(5,2)
13	1	57.40	0.31
13	7	91.70	5.15
44	1	30.20	4.50
44	7	74.90	4.50

c. COMMIT WORK;

d. ROLLBACK WORK;

e. SELECT * FROM stats;

*  id int(11)	* month int(11)	temp_f decimal(5,2)	rain_i decimal(5,2)
13	1	57.40	0.31
13	7	91.70	5.15
44	1	30.20	0.35
44	7	74.90	2.16