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Prof. VB

CS457L

10/14/2022

HW#2B

1.

```
MariaDB [19610dm]> create table number_data_types(  
    -> numeric_column numeric(20,5),  
    -> real_column real,  
    -> double_column double precision);  
Query OK, 0 rows affected (0.011 sec)
```

2. (below)

3. (below)

4. (below)

```
MariaDB [19610dm]> insert into number_data_types values (0.7, 0.7, 0.7);  
insert into number_data_types values (2.13579, 2.13579, 2.13579);  
insert into number_data_types values (2.1357987654, 2.1357987654, 2.1357987654);  
insert into number_data_types values (5.238, 5.238, 5.238);  
insert into number_data_types values (0.00458, 0.00458, 0.00458);  
insert into number_data_types values (3.23984, 3.23984, 3.23984);  
insert into number_data_types values (0.248694, 0.248694, 0.248694);  
insert into number_data_types values (1.0251, 1.0251, 1.0251);  
insert into number_data_types values (2.2458, 2.2458, 2.2458);  
insert into number_data_types values (4.5215, 4.5215, 4.5215);  
Query OK, 1 row affected (0.003 sec)
```

```
MariaDB [19610dm]> insert into number_data_types values (2.13579, 2.13579, 2.13579);  
Query OK, 1 row affected (0.003 sec)
```

```
MariaDB [19610dm]> insert into number_data_types values (2.1357987654, 2.1357987654, 2.1357987654);  
Query OK, 1 row affected, 1 warning (0.002 sec)
```

```
MariaDB [19610dm]> insert into number_data_types values (5.238, 5.238, 5.238);  
Query OK, 1 row affected (0.002 sec)
```

```

MariaDB [19610dm]> insert into number_data_types values (0.00458, 0.00458, 0.00458);
Query OK, 1 row affected (0.002 sec)

MariaDB [19610dm]> insert into number_data_types values (3.23984, 3.23984, 3.23984);
Query OK, 1 row affected (0.002 sec)

MariaDB [19610dm]> insert into number_data_types values (0.248694, 0.248694, 0.248694);
Query OK, 1 row affected, 1 warning (0.002 sec)

MariaDB [19610dm]> insert into number_data_types values (1.0251, 1.0251, 1.0251);
Query OK, 1 row affected (0.002 sec)

MariaDB [19610dm]> insert into number_data_types values (2.2458, 2.2458, 2.2458);
Query OK, 1 row affected (0.003 sec)

MariaDB [19610dm]> insert into number_data_types values (4.5215, 4.5215, 4.5215);
Query OK, 1 row affected (0.002 sec)

```

5.

```

MariaDB [19610dm]> select * from number_data_types;
+-----+-----+-----+
| numeric_column | real_column | double_column |
+-----+-----+-----+
| 0.70000 | 0.7 | 0.7 |
| 2.13579 | 2.13579 | 2.13579 |
| 2.13580 | 2.1357987654 | 2.1357987654 |
| 5.23800 | 5.238 | 5.238 |
| 0.00458 | 0.00458 | 0.00458 |
| 3.23984 | 3.23984 | 3.23984 |
| 0.24869 | 0.248694 | 0.248694 |
| 1.02510 | 1.0251 | 1.0251 |
| 2.24580 | 2.2458 | 2.2458 |
| 4.52150 | 4.5215 | 4.5215 |
+-----+-----+-----+
10 rows in set (0.000 sec)

```

6.

```

MariaDB [19610dm]> select numeric_column * 10000000 as "fixed",
-> real_column * 10000000 as "float"
-> from number_data_types
-> where numeric_column = 0.7;
+-----+-----+
| fixed          | float    |
+-----+-----+
| 7000000.00000  | 7000000  |
+-----+-----+
1 row in set (0.000 sec)

```

7.

```

MariaDB [19610dm]> create table percent_change(
-> department varchar(20),
-> spend_2014 numeric(10,2),
-> spend_2017 numeric(10,2));
Query OK, 0 rows affected (0.014 sec)

```

8. (below)

9. (below)

10. (below)

11. (below)

12. (below)

13. (below)

```

MariaDB [19610dm]> insert into percent_change values('Building', 250000, 289000);
insert into percent_change values('Library', 87777, 90001);
insert into percent_change values('Clerk', 451980, 650000);
insert into percent_change values('Police', 250000, 223000);
insert into percent_change values('Recreation', 199000, 195000);
insert into percent_change values('Administration', 185900, 256000);
insert into percent_change values('Stadium', 123000, 321000);
insert into percent_change values('Factory', 459000, 245687);
insert into percent_change values('Office', 165000, 432100);Query OK, 1 row affected (0.003 sec)

```

```

MariaDB [19610dm]> insert into percent_change values('Assessor', 178556, 179500);
Query OK, 1 row affected (0.002 sec)

MariaDB [19610dm]> insert into percent_change values('Library', 87777, 90001);
Query OK, 1 row affected (0.002 sec)

MariaDB [19610dm]> insert into percent_change values('Clerk', 451980, 650000);
Query OK, 1 row affected (0.002 sec)

MariaDB [19610dm]> insert into percent_change values('Police', 250000, 223000);
Query OK, 1 row affected (0.002 sec)

MariaDB [19610dm]> insert into percent_change values('Recreation', 199000, 195000);
Query OK, 1 row affected (0.002 sec)

MariaDB [19610dm]> insert into percent_change values('Administration', 185900, 256000);
Query OK, 1 row affected (0.002 sec)

MariaDB [19610dm]> insert into percent_change values('Stadium', 123000, 321000);
Query OK, 1 row affected (0.003 sec)

MariaDB [19610dm]> insert into percent_change values('Factory', 459000, 245687);
Query OK, 1 row affected (0.002 sec)

MariaDB [19610dm]> insert into percent_change values('Office', 165000, 432100);
Query OK, 1 row affected (0.003 sec)

```

14.

```

MariaDB [19610dm]> select department, spend_2014, spend_2017,
-> round((spend_2017 - spend_2014)/spend_2014 * 100,1) as "pct_change"
-> from percent_change;

```

department	spend_2014	spend_2017	pct_change
Building	250000.00	289000.00	15.6
Assessor	178556.00	179500.00	0.5
Library	87777.00	90001.00	2.5
Clerk	451980.00	650000.00	43.8
Police	250000.00	223000.00	-10.8
Recreation	199000.00	195000.00	-2.0
Administration	185900.00	256000.00	37.7
Stadium	123000.00	321000.00	161.0
Factory	459000.00	245687.00	-46.5
Office	165000.00	432100.00	161.9

10 rows in set (0.000 sec)

15.

```
MariaDB [19610dm]> select sum(spend_2014) as "total_spend_2014",
    -> round(avg(spend_2017),0) as "approx_spend_2017"
    -> from percent_change;
+-----+-----+
| total_spend_2014 | approx_spend_2017 |
+-----+-----+
|          2350213.00 |          288129 |
+-----+-----+
1 row in set (0.000 sec)
```

16.

```
MariaDB [19610dm]> create table departments(
    -> dept_id integer,
    -> dept varchar(100),
    -> city varchar(100),
    -> constraint dept_key primary key(dept_id),
    -> constraint dept_city_unique unique (dept,city));
Query OK, 0 rows affected, 1 warning (0.015 sec)
```

17.

```
MariaDB [19610dm]> create table employees(
    -> emp_id integer,
    -> first_name varchar(100),
    -> last_name varchar(100),
    -> salary integer,
    -> dept_id integer references departments(dept_id),
    -> constraint emp_key primary key(emp_id),
    -> constraint emp_dept_unique unique(emp_id, dept_id));
Query OK, 0 rows affected, 1 warning (0.014 sec)
```

18. (below)

19. (below)

20. (below)

21. (below)

22. (below)

23. (below)

```
MariaDB [19610dm]> insert into departments values(1, 'Tax', 'Atlanta');  
Query OK, 1 row affected (0.006 sec)
```

```
MariaDB [19610dm]> insert into departments values(2, 'IT', 'Boston');  
Query OK, 1 row affected (0.004 sec)
```

```
MariaDB [19610dm]> insert into employees values(1, 'Nancy', 'Jones', 62500, 1);  
Query OK, 1 row affected (0.004 sec)
```

```
MariaDB [19610dm]> insert into employees values(2, 'Lee', 'Smith', 59300, 1);  
Query OK, 1 row affected (0.012 sec)
```

```
MariaDB [19610dm]> insert into employees values(3, 'Soo', 'Nguyen', 83000, 2);  
Query OK, 1 row affected (0.010 sec)
```

```
MariaDB [19610dm]> insert into employees values(4, 'Janet', 'King', 95000, 2);  
Query OK, 1 row affected (0.005 sec)
```

```
MariaDB [19610dm]> insert into employees values(5, 'Tom', 'Cruise', 54500, 1);  
Query OK, 1 row affected (0.005 sec)
```

```
MariaDB [19610dm]> insert into employees values(6, 'Joseph', 'Brandon', 48200, 2);  
Query OK, 1 row affected (0.004 sec)
```

```
MariaDB [19610dm]> insert into employees values(7, 'Luis', 'Suarez', 68700, 1);  
Query OK, 1 row affected (0.004 sec)
```

```
MariaDB [19610dm]> insert into employees values(8, 'Bob', 'Bang', 32400, 1);  
Query OK, 1 row affected (0.008 sec)
```

```
MariaDB [19610dm]> insert into employees values(9, 'Edward', 'Charles', 24900, 2);  
Query OK, 1 row affected (0.008 sec)
```

```
MariaDB [19610dm]> insert into employees values(10, 'Walter', 'Fernandez', 68100, 1);  
Query OK, 1 row affected (0.003 sec)
```

24.

```
MariaDB [19610dm]> select * from departments;
```

dept_id	dept	city
2	IT	Boston
1	Tax	Atlanta

2 rows in set (0.000 sec)

25.

```
MariaDB [19610dm]> select * from employees;
```

emp_id	first_name	last_name	salary	dept_id
1	Nancy	Jones	62500	1
2	Lee	Smith	59300	1
3	Soo	Nguyen	83000	2
4	Janet	King	95000	2
5	Tom	Cruise	54500	1
6	Joseph	Brandon	48200	2
7	Luis	Suarez	68700	1
8	Bob	Bang	32400	1
9	Edward	Charles	24900	2
10	Walter	Fernandez	68100	1

10 rows in set (0.000 sec)