

Geographic Databases

(Section 13.3)

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The MLPQ System

“Management of Linear Programming Queries”

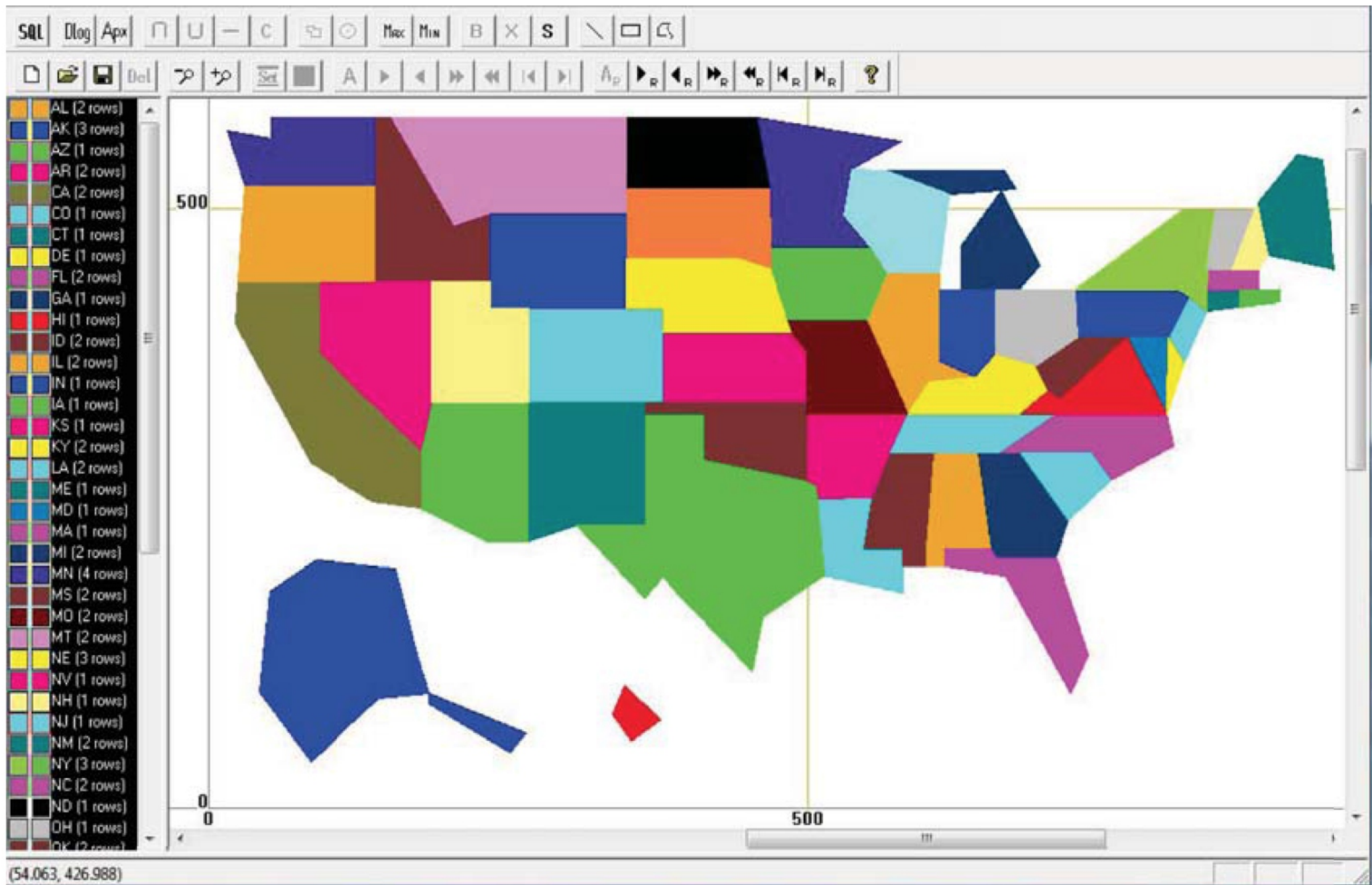
Free download from:

<http://cse.unl.edu/~revesz/MLPQ/mlpq.htm>

Developed at UNL.

1. Relational Database
2. Constraint Database
3. Geographic Database
4. Moving Objects Database
5. Color Change Visualization

Displaying a Map



Representing a Triangulated Irregular Network (TIN) in MLPQ

```
begin%MLPQ%
tin(id,x,y,z) :- id=1, y>=0, -3x-y>=-15, 2x-y>=0, 600x-307.5y-z= -9915.
tin(id,x,y,z) :- id=2, -y>=-6, 3x+y>=15, -6x+5y>=-30, 390x-377.5y-z=-10965.
tin(id,x,y,z) :- id=3, y>=0, -3x-5y>=-60, 6x-5y>=30, 51x-95y-z=-12660.
tin(id,x,y,z) :- id=4, x>=0, -2x+y>=0, -4x-3y>=-30, -132x+58y-z=- 9915.
tin(id,x,y,z) :- id=5, y>=6, -2x-5y>=-50, 4x+3y>=30, 390x+450y-z= -6000.
tin(id,x,y,z) :- id=6, 3x+5y>=60, -3x-y>=-60, x-y>=4, 45x-105y-z=-12780.
tin(id,x,y,z) :- id=7, 2x+5y>=50, 7x+5y<=100, 3x-5y>=-50, 378x+420y-z= -6300.
tin(id,x,y,z) :- id=8, 7x+5y>=100, -7x+y>=-64, x-y>=-8, -259x-35y-z=-15400.
tin(id,x,y,z) :- id=9, -x+y>=-4, -2x-y>=-44, 7x-y>=64, 14x-74y-z=-12904.
tin(id,x,y,z) :- id=10, x>=0, -3x+5y>=50, -7x-5y>=-100, 567x+105y-z= -9450.
tin(id,x,y,z) :- id=11, -y>=-20, 7x+5y>=100, -x+y>=8, 3.5x-297.5y-z=-17500.
tin(id,x,y,z) :- id=12, -y>=-20, -2x+y>=-20, 2x+y>=44, 6x-78y-z=-13080.
tin(id,x,y,z) :- id=13, x>=-20, 2x-y>=20, 3x+y>=60, 54x-102y-z=-12600.
end%MLPQ%
```

Creating a Contour Map

Use SQL queries to create relations that represent elevation ranges:

blue	9000 – 10000 mm
yellow	10000 – 11000 mm
green	11000 – 12000 mm
brown	12000 – 13000 mm
gray	13000 – 14000 mm

```
VIEW NAME  from9000to10000
SELECT     tin.id, tin.x, tin.y
FROM       tin
WHERE      tin.z >= 9000, tin.z <= 10000
```

Displaying a Contour Map

