Moving Objects Databases
(Section 13.4)

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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

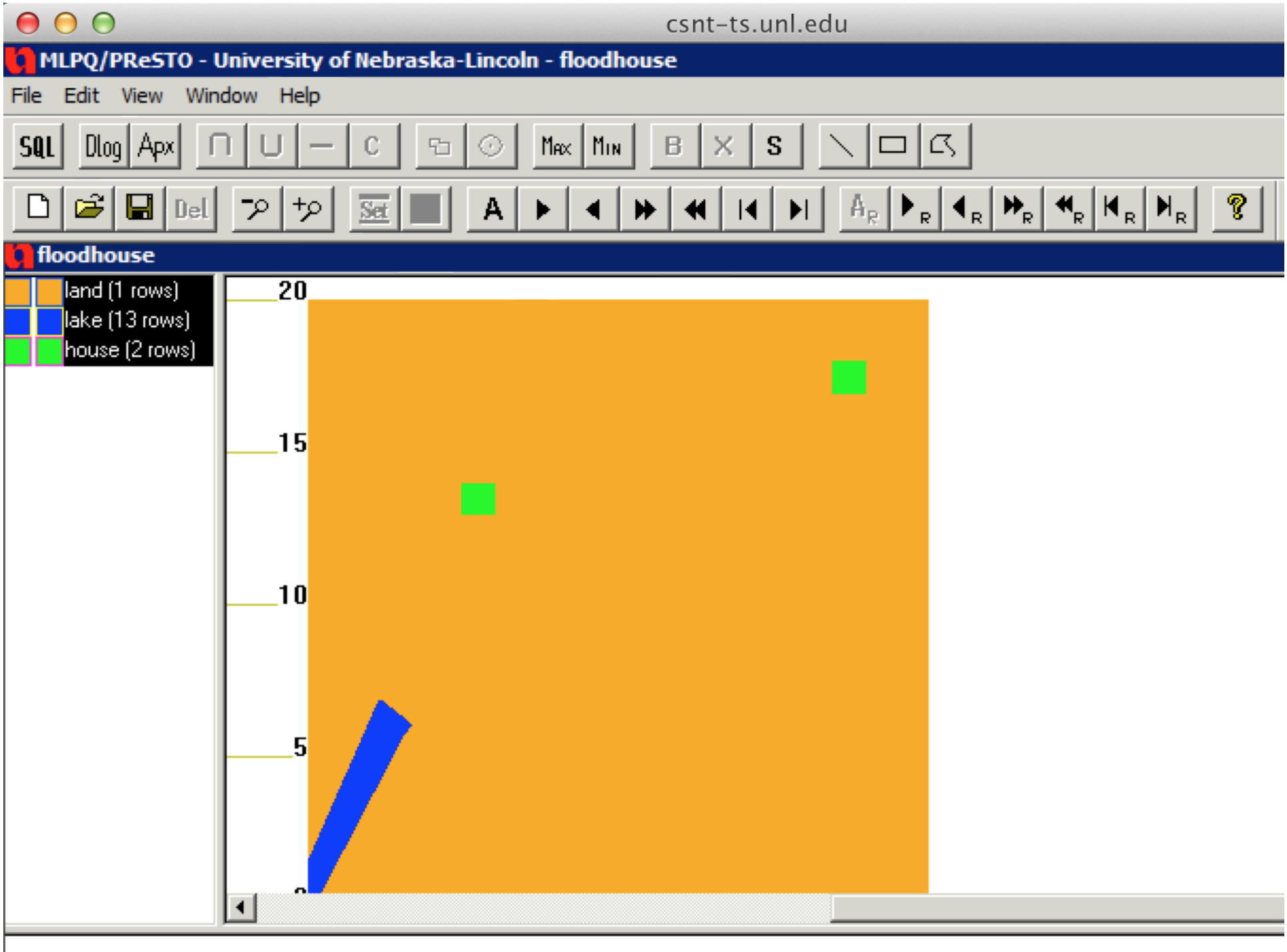
2. Constraint Database

3. Geographic Database

4. Moving Objects Database

5. Color Change Visualization

Two houses on a sandy beach near a lake

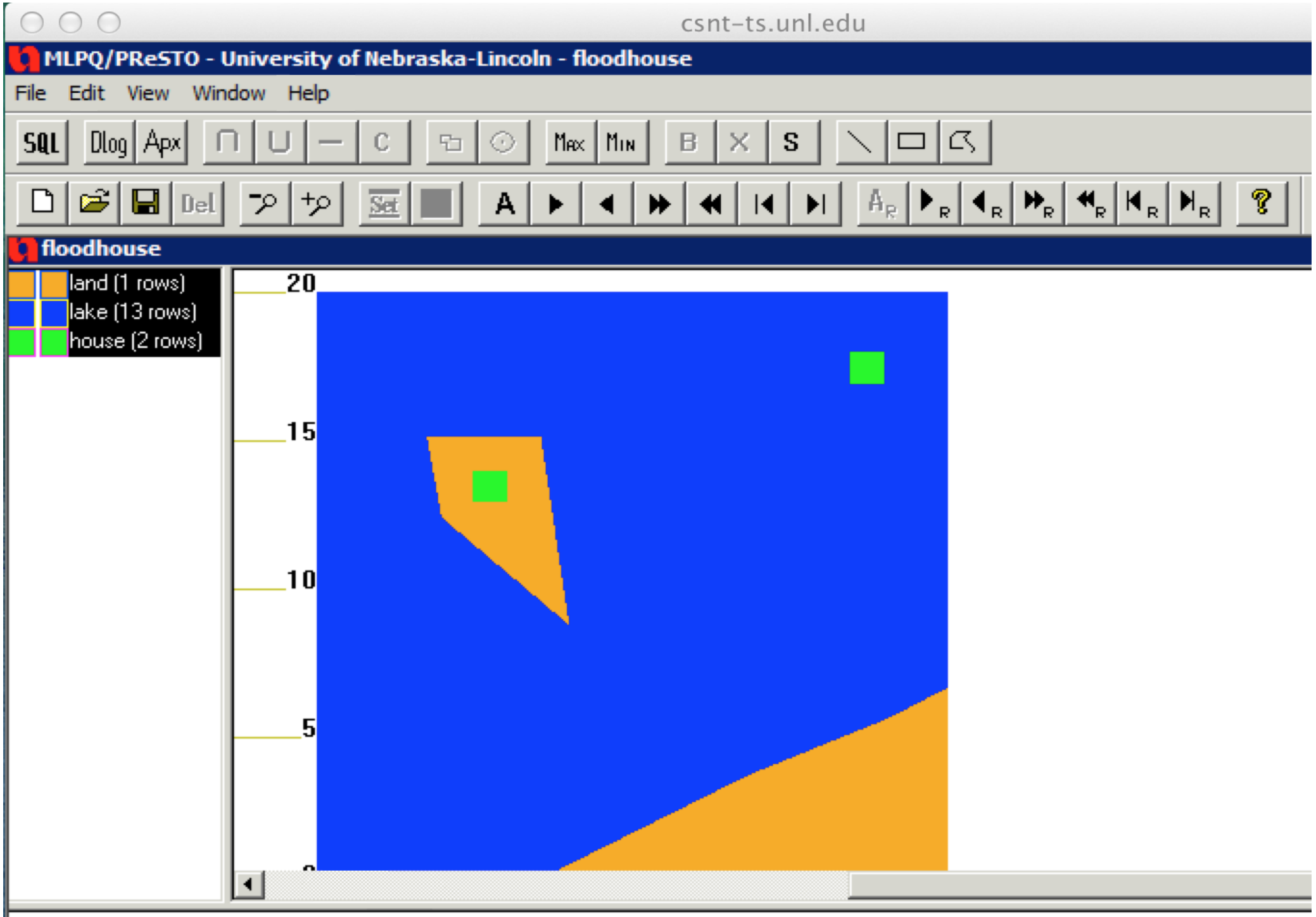


```
begin%MLPQ%
land(id,x,y)  :-id=0, x>=0, x<=20, y>=0, y<=20.

lake(id,x,y,t):-id=1, y>=0, -3x-y>=-15, 2x-y>=0,       600x-307.5y-t<= -9915,
                                                        t>=10000, t<= 12000.

lake(id,x,y,t):-id=2, -y>=-6, 3x+y>=15, -6x+5y>=-30,   390x-377.5y-t<=-10965,
                                                        t>=10000, t<= 12000.

lake(id,x,y,t):-id=3, y>=0, -3x-5y>=-60, 6x-5y>=30,      51x-95y-t<=-12660,
                                                        t>=10000, t<= 12000.

lake(id,x,y,t):-id=4, x>=0, -2x+y>=0, -4x-3y>=-30,       -132x+58y-t<=- 9915,
                                                        t>=10000, t<= 12000.

lake(id,x,y,t):-id=5, y>=6, -2x-5y>=-50, 4x+3y>=30,      390x+450y-t<= -6000,
                                                        t>=10000, t<= 12000.

lake(id,x,y,t):-id=6, 3x+5y>=60, -3x-y>=-60, x-y>=4,      45x-105y-t<=-12780,
                                                        t>=10000, t<= 12000.

lake(id,x,y,t):-id=7, 2x+5y>=50, 7x+5y<=100, 3x-5y>=-50, 378x+420y-t<= -6300,
                                                        t>=10000, t<= 12000.

lake(id,x,y,t):-id=8, 7x+5y>=100, -7x+y>=-64, x-y>=-8,   -259x-35y-t<=-15400,
                                                        t>=10000, t<= 12000.

lake(id,x,y,t):-id=9, -x+y>=-4, -2x-y>=-44, 7x-y>=64,      14x-74y-t<=-12904,
                                                        t>=10000, t<= 12000.

lake(id,x,y,t):-id=10, x>=0, -3x+5y>=50, -7x-5y>=-100,   567x+105y-t<= -9450,
                                                        t>=10000, t<= 12000.

lake(id,x,y,t):-id=11, -y>=-20, 7x+5y>=100, -x+y>=8,   3.5x-297.5y-t<=-17500,
                                                        t>=10000, t<= 12000.

lake(id,x,y,t):-id=12, -y>=-20, -2x+y>=-20, 2x+y>=44,      6x-78y-t<=-13080,
                                                        t>=10000, t<= 12000.

lake(id,x,y,t):-id=13, x>=-20,  2x-y>=20, 3x+y>=60,       54x-102y-t<=-12600,
                                                        t>=10000, t<= 12000.

house(id,x,y) :-id=1, x>=17, x<=18, y>=17, y<=18.
house(id,x,y) :-id=2, x>= 5, x<= 6, y>=13, y<=14.
end%MLPQ%
```

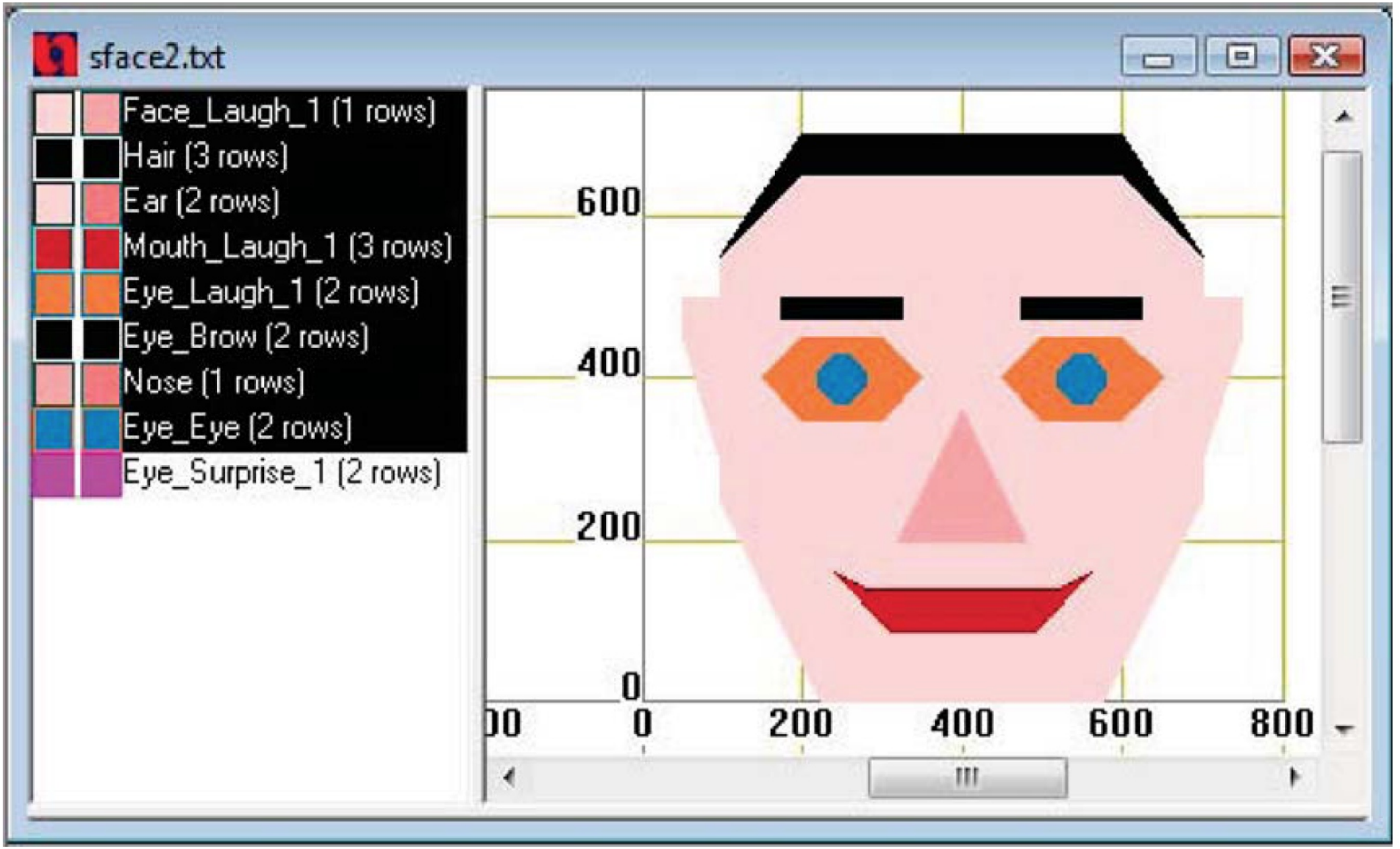
Representation of the data including the land surface of the beach.

If there is a flood, which house will be flooded?

A Snapshot of the Flood Animation



Color Change During Animation



Color Change During Animation