

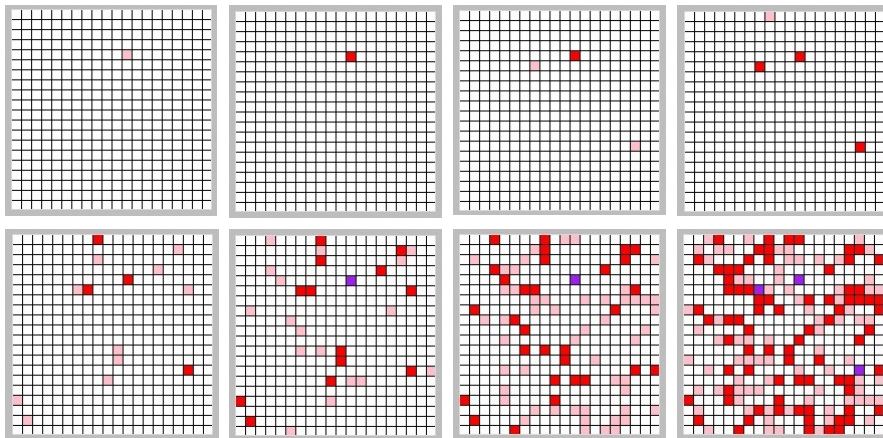
UNIT 12A

Simulation: An Example

15110 Principles of Computing, Carnegie Mellon University - CORTINA

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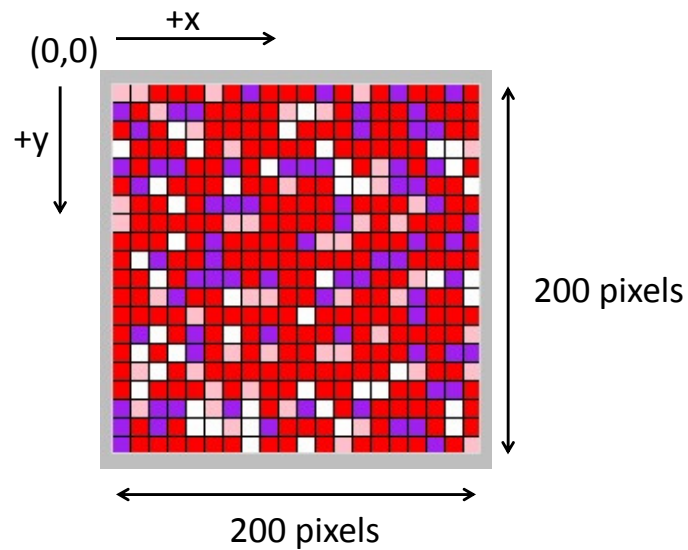
Flu Virus Simulation



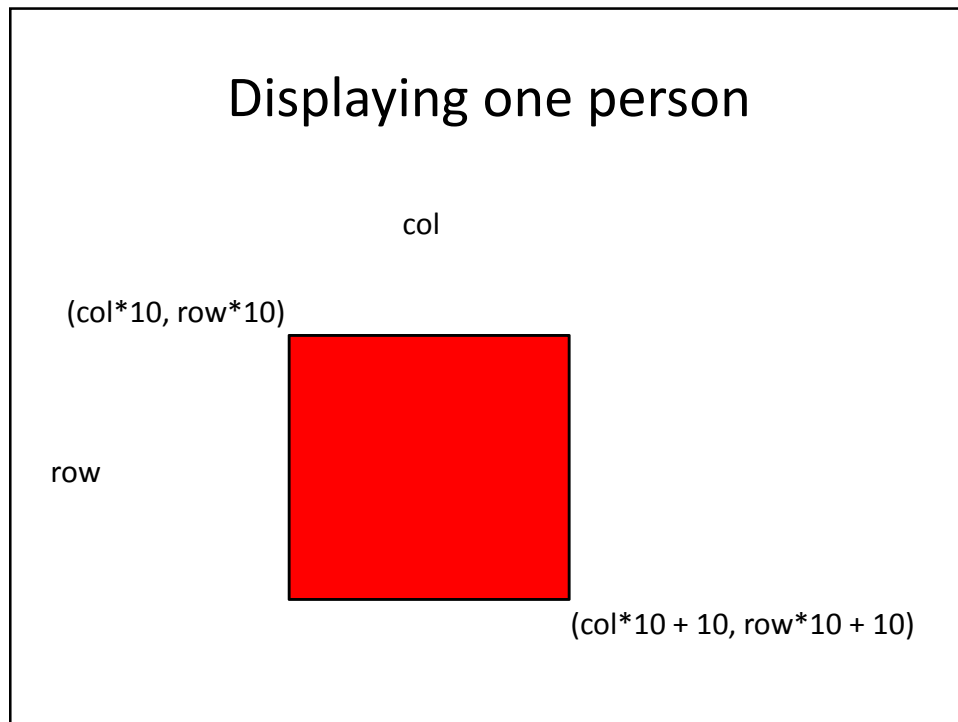
States

0	white	healthy
1	pink	infected
2	red	contagious (day 1)
3	red	contagious (day 2)
4	red	contagious (day 3)
5	red	contagious (day 4)
6	purple	immune (non-contagious)

Display of 400 people



Displaying one person



Events by chance

If a healthy person contacts a contagious person, she gets sick 40% of the time.

```
if contagious?(matrix, rand(20), rand(20))
  and rand(100) < 40 then
    newmatrix[i][j] = 1
  end
```

Neighbors

```
cell = matrix[i][j]
```

```
north = matrix[i-1][j]    NO!
```

```
if i == 0 then           YES!
```

```
    north = nil
```

```
else
```

```
    north = matrix[i-1][j]
```