USA  Tutor

Social Distancing 2

Analysis by David Yang

Statement Summary

N<=1000 cows standing at distinct points along a 1d number line.

At position x<=1e6. s=0 for healthy, s=1 for sick.

At least 1 cow is sick, and all cows that could have been sick are now also sick.

Find minimum number of cows that could have been sick.

What people do

Read in stuff

Sort them by the X<=1e6 coordinate

Find maximum R

Stuck on the “find minimum cows that could have been sick” part

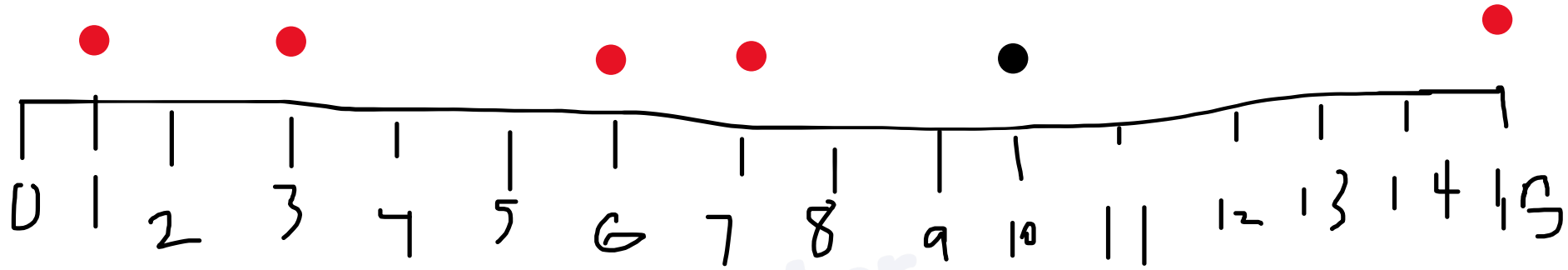
1 1

3 1

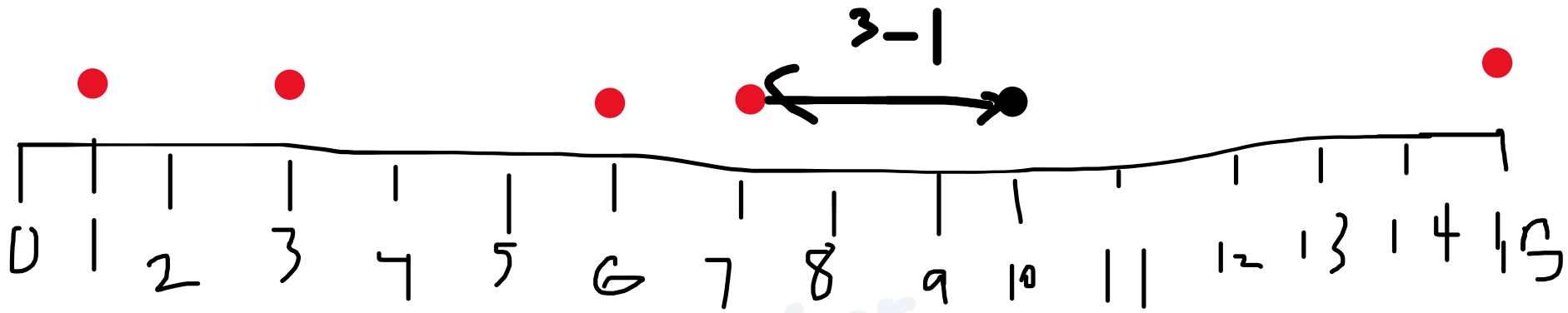
6 1

7 1

15 1



R = 2



1 1

3 1

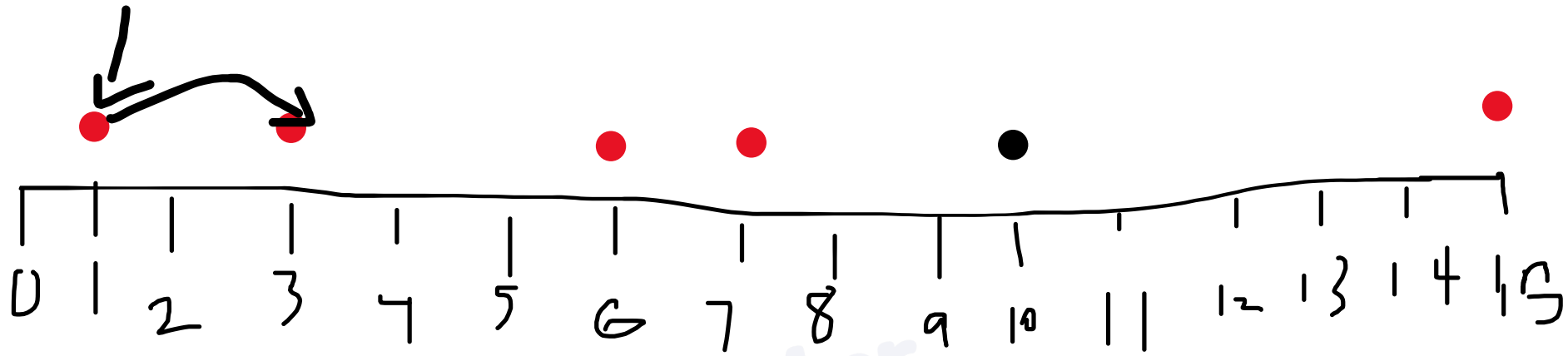
6 1

7 1

15 1

C = 1

R = 2



1 1

3 1

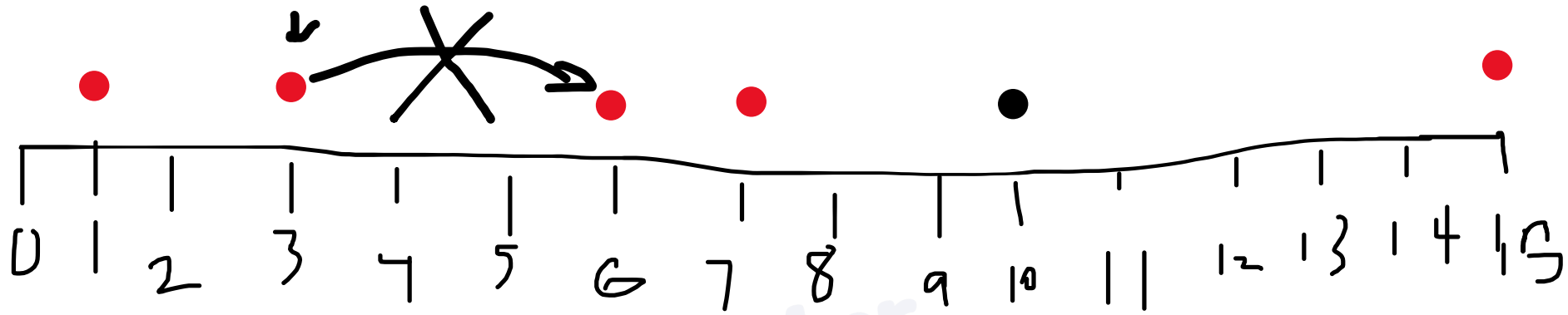
6 1

7 1

15 1

C = 1

R = 2



1 1

3 1

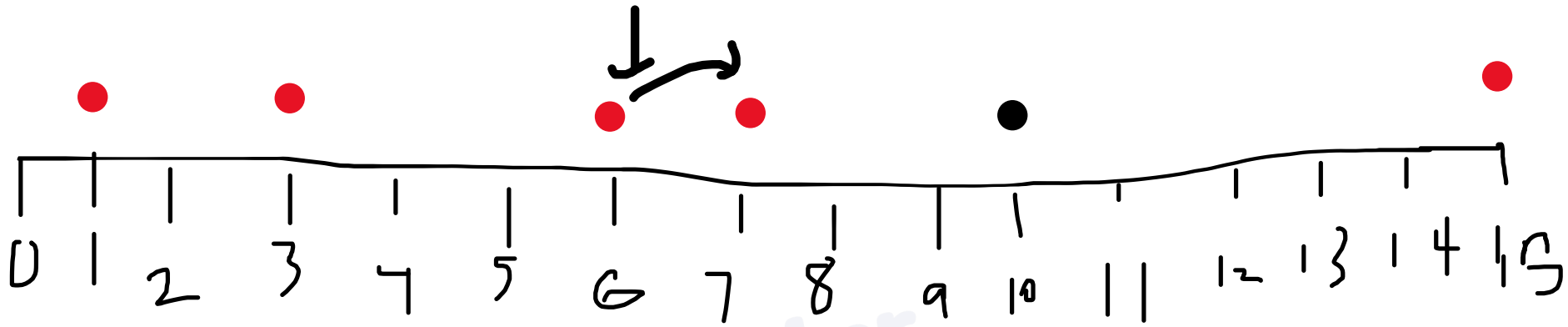
6 1

7 1

15 1

C=2

R=2



1 1

3 1

6 1

7 1

15 1

C=2

R=2

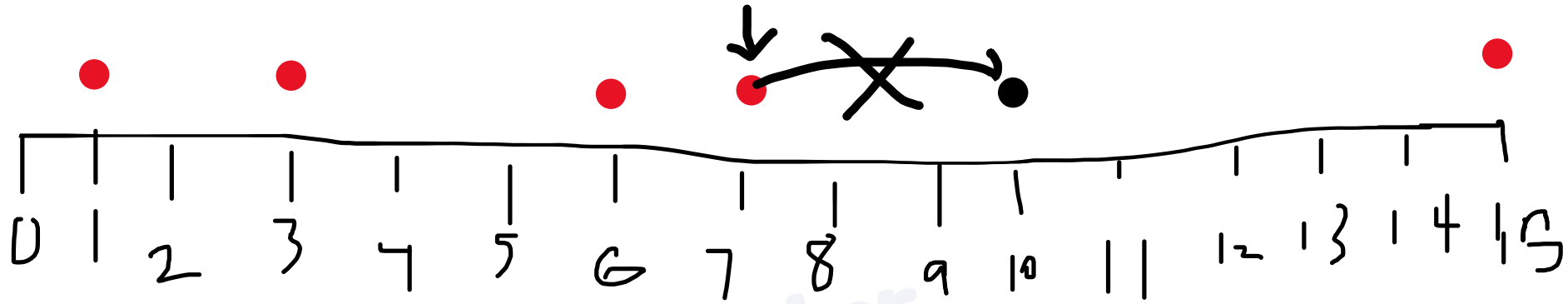
1 1

3 1

6 1

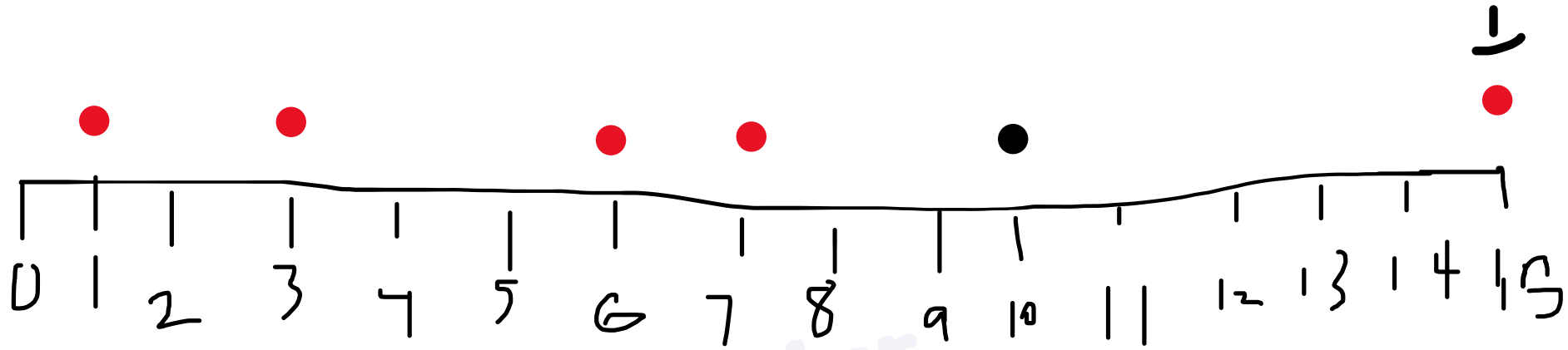
7 1

15 1



C = 3

R = 2



1 1

3 1

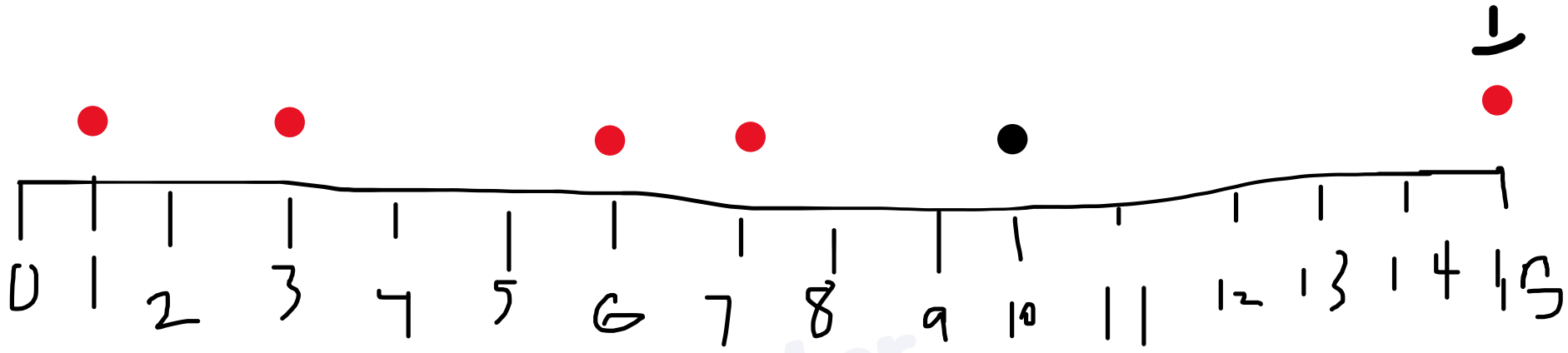
6 1

7 1

15 1

C = 3

R = 2



1 1

3 1

6 1

7 1

15 1

done

print(c)

How to code?

Similar to Angry Cows Bronze

I would process the left infected cows first, continue with that spree, and then be done…

Then process the right infected cows

Then go to the next infected cow that we have not yet visited, and do count++.

Intuition…

This problem can be rephrased as a greedy problem

“Find the minimum number of cows”

Is equivalent to

“Infect as many cows as possible”

We do this with our left and right sweep

My Psuedocode

```
while(i<N){
        if(arr[i] == 1) {
                visited[i] = true;
                //process left direction
                int j=i;
                while(j>=0)…
                //process right direction
                j=i;
                while(j<N)…
        }

}
```