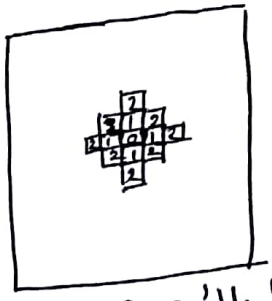
C Virus

n	total
0 →	1
1 →	5
2 →	13
- - -	.
- - -	.



92312'th time

So, total value for n-th time,

$$1 + 4 + 8 + 12 + 16 + \ldots + 4n$$

$$= 1 + 4(1 + 2 + 3 + \ldots + n)$$

$$= 1 + 4\left\{\frac{n^2+n}{2}\right\}$$

$$= 1 + 2n^2 + 2n$$

∴ at 92312th time,

$$1 + (2 \times 92312)^2 + 2 \times (92312)$$

$$= 1.704 \times 10^{10}$$

D Complexity analysis for deletion operation in an array

C++ Code

```
for(int i = k; i<n; i++){        <-- (n-k)
    a[i] = a[i+1];               <-- (n-k-1)
}
```

∴ Complexity is,

$$f(n) = C_1(n-k) + C_2(n-k-1)$$

$$= C_1 n - C_1 k + C_2 n - C_2 k - C_2$$

$$= (C_1 + C_2)n - (C_1 + C_2)k - C_2$$

$$= C_3 n - C_4 k - C_k$$

$$f(n) \propto n$$