

$$|n| = A.length$$

the body of the inner loop.

1 unit of time, in the worst case
time to execute the inner loop, given value
of i :

$$\sum_{j=0}^{i-1} 1 = \underbrace{1+1+\dots+1}_{i \text{ times}} = i$$

The body of the outer loop:

$$i + 3$$

Time to execute the outer loop:

$$\sum_{i=1}^{n-1} (i+3) = \sum_{i=1}^{n-1} i + \sum_{i=1}^{n-1} 3 =$$

$$= (1+2+3+\dots+(n-1)) + \underbrace{3+3+\dots+3}_{n-1 \text{ times}} =$$

$$= \frac{n \cdot (n-1)}{2} + 3(n-1) = \frac{n^2}{2} - \frac{n}{2} + 3n - 3 =$$

$$= \frac{1}{2} n^2 + 2.5n - 3$$