Pseudocode for lawnmower

swaps = 0	s.c	- 1
For k = 0 to n/2 do	s.c	- $18n^2 + 18 - 36$
For k = 0 to 2 * n - 2 do	s.c	- (2n - 1) * 16 = 18n - 18
If disks[i] == '0' && disks[i] != disks[i+1] then	s.c.	- 7 + max(11,0) = 18
temp = disks[i]	s.c.	- 2
disks[i] = disks[i+1]	s.c.	- 4 total s.c - 11
disks[i+1] = temp	s.c.	- 3
swaps = swaps + 1	s.c	- 2
For j = 2 * n - 1 to 1 do	s.c.	- (2n - 1) * 16 = 18n - 18
If disks[i] == '0' && disks[i] != disks[i+1] then	s.c.	- 7 + max(11,0) = 16
temp = disks[i]	s.c.	- 2
disks[i] = disks[i+1]	s.c.	- 4 total s.c. - 10
disks[i+1] = temp	s.c.	- 3
swaps = swaps + 1	s.c.	- 2

First Inner loop # of executions = $\dfrac{2n - 2 - 0}{1}$ + 1 = 2n - 1

Second Inner loop # of executions = $\dfrac{1 - 2n - 1}{-1}$ + 1 = 2n - 2 + 1 = 2n - 1

Sum of 2 inner loops = 18n - 18 + 18n - 18 = 36n - 36

Outer loop # of executions = $\dfrac{\frac{n}{2} - 0}{1} + 1 = \frac{n}{2} + 1$

S.C of algorithm = $(\frac{n}{2} + 1) * (36n - 36) + 1 = 18n^2 + 18n - 37$

$18n^2 + 18n - 37 = O(n^2)$
$18n^2 + 18n - 37 <= c * n^2$ For all n >= n_o
Let c = 73

$18n^2 + 18n - 37 <= 73n^2$ For all n >= n_o
$0 <= 73n^2 - 18n^2 + 18n - 37$ For all n >= n_o
$0 <= 55n^2 - 18n - 37$ For all n >= n_o
Let n_o = 1
$0 <= 55(1)^2 - 18(1) - 37$
0 <= 55 - 18 - 37
0 <= 0
Therefore, $18n^2 + 18n - 37 = O(n^2)$