Complexity Space Assignment

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Find the space complexity

```
Alg test (n):
  if (n>0){
  print n
  test (n-1)
  test (n-1)
}
```

Solution

. The algorithm makes recursive calls decreasing n by 1 at each step $n, n-1, n-2, \ldots, 1, 0$.

. Each function call stores only the integer variable n and a return address. Hence the memory per frame = $O(1)$

space = (Max Depth) × (Memory per frame)

space = $n \times O(1)$

Space Complexity = $O(n)$

Answer = $O(n)$