1. 
$$T(n) = c + \sum_{k=1}^n k = rac{n(n+1)}{2} = O(n^2)$$

2. steps

```
[16, 15, 14, 13, 12, 11, 10, 9, 8, 7, 6, 5, 4,
3, 2, 1]
[1, 15, 14, 13, 12, 11, 10, 9, 8, 7, 6, 5, 4, 3,
2, 16]
[1, 2, 14, 13, 12, 11, 10, 9, 8, 7, 6, 5, 4, 3,
15, 16]
[1, 2, 3, 13, 12, 11, 10, 9, 8, 7, 6, 5, 4, 14,
15, 16]
[1, 2, 3, 4, 12, 11, 10, 9, 8, 7, 6, 5, 13, 14,
15, 16]
[1, 2, 3, 4, 5, 11, 10, 9, 8, 7, 6, 12, 13, 14,
15, 16]
[1, 2, 3, 4, 5, 6, 10, 9, 8, 7, 11, 12, 13, 14,
15, 16]
[1, 2, 3, 4, 5, 6, 7, 9, 8, 10, 11, 12, 13, 14,
15, 16]
[1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14,
15, 16]
[1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14,
15, 16]
```

## 3. implemented in ex4.py

4. Yes, they match the analysis.