

3. Bubble Sort

Input: array not sorted type int

Output: array sorted

```
function bubbleSort(array){  
    for i = 0 to length of array -1                =>n  
        for j =0 to length of array -i -1          =>(n-1)+(n-2)+...+1  
            if(array at j > array at j+1)  
                swap array at j and array at j+1    =>(n-1)+(n-2)+...+1  
                increment j by 1;  
            increment i by 1;  
        end for;  
    }  
}
```

$$T(n) = n + 2 * ((n-1) + (n-2) + \dots + 1) = n + 2 * (n-1) + (n-1+1)/2 = n + n * (n-1) = n^2 = O(n^2)$$