

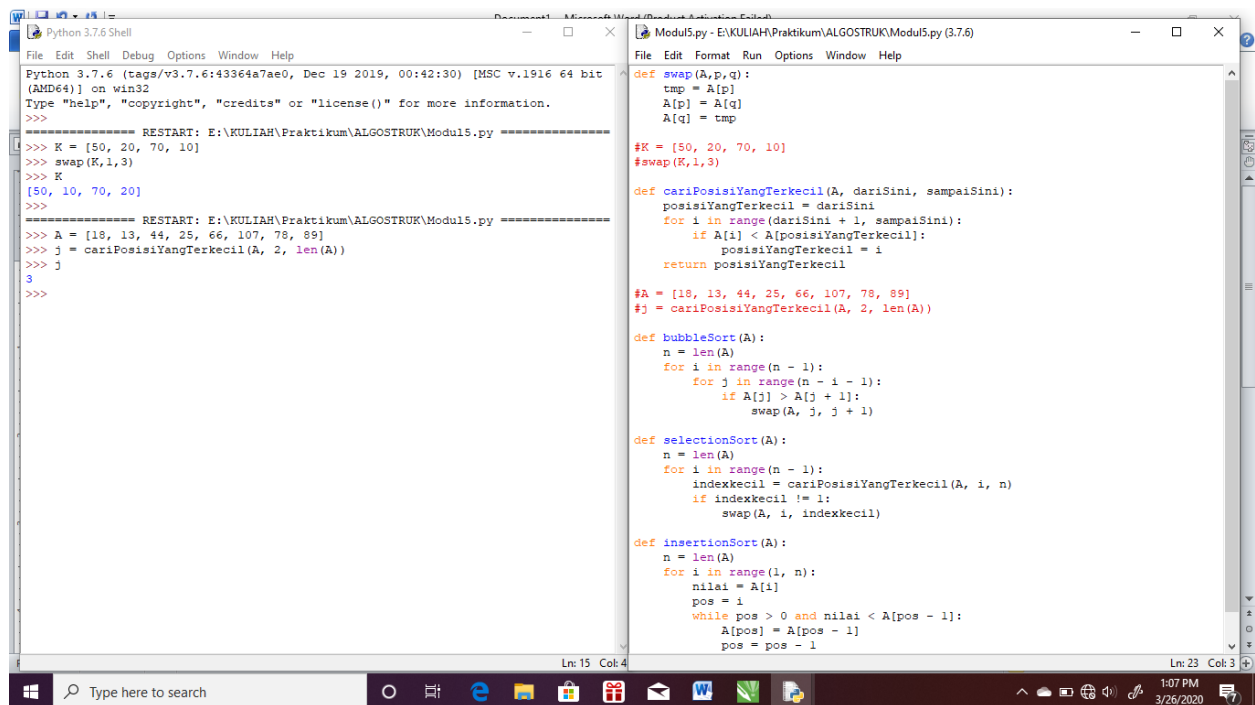
## Modul 5

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The image shows a screenshot of a computer screen with two windows. The left window is a Python 3.7.6 Shell, and the right window is a Python script editor for 'Modul5.py'.

**Python 3.7.6 Shell (Left Window):**

```
Python 3.7.6 (tags/v3.7.6:43364a7ae0, Dec 19 2019, 00:42:30) [MSC v.1916 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: E:\KULIAH\Praktikum\ALGOSTRUK\Modul5.py =====
>>> K = [50, 20, 70, 10]
>>> swap(K,1,3)
>>> K
[50, 10, 70, 20]
>>>
===== RESTART: E:\KULIAH\Praktikum\ALGOSTRUK\Modul5.py =====
>>> A = [18, 13, 44, 25, 66, 107, 78, 89]
>>> j = cariPosisiYangTerkecil(A, 2, len(A))
>>> j
3
>>>
```

**Modul5.py (Right Window):**

```
def swap(A,p,q):
    tmp = A[p]
    A[p] = A[q]
    A[q] = tmp

#K = [50, 20, 70, 10]
#swap(K,1,3)

def cariPosisiYangTerkecil(A, dariSini, sampaiSini):
    posisiYangTerkecil = dariSini
    for i in range(dariSini + 1, sampaiSini):
        if A[i] < A[posisiYangTerkecil]:
            posisiYangTerkecil = i
    return posisiYangTerkecil

#A = [18, 13, 44, 25, 66, 107, 78, 89]
#j = cariPosisiYangTerkecil(A, 2, len(A))

def bubbleSort(A):
    n = len(A)
    for i in range(n - 1):
        for j in range(n - i - 1):
            if A[j] > A[j + 1]:
                swap(A, j, j + 1)

def selectionSort(A):
    n = len(A)
    for i in range(n - 1):
        indexKecil = cariPosisiYangTerkecil(A, i, n)
        if indexKecil != i:
            swap(A, i, indexKecil)

def insertionSort(A):
    n = len(A)
    for i in range(1, n):
        nilai = A[i]
        pos = i
        while pos > 0 and nilai < A[pos - 1]:
            A[pos] = A[pos - 1]
            pos = pos - 1
```

```
Python 3.7.6 Shell
File Edit Shell Debug Options Window Help
Python 3.7.6 (tags/v3.7.6:43364a7ae0, Dec 19 2019, 00:42:30) [MSC v.1916 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: E:\KULIAH\Praktikum\ALGOSTRUK\Modul5.py =====
>>> A = [18, 13, 44, 25, 66, 107, 78, 89]
>>> bubbleSort(A)
>>> A
[13, 18, 25, 44, 66, 78, 89, 107]
>>> B = [10, 51, 2, 18, 4, 31, 13, 5, 23, 64, 29]
>>> bubbleSort(B)
>>> B
[2, 4, 5, 10, 13, 18, 23, 29, 31, 51, 64]
>>> selectionSort(A)
>>> A
[13, 18, 25, 44, 66, 78, 89, 107]
>>> selectionSort(B)
>>> B
[2, 4, 5, 10, 13, 18, 23, 29, 31, 51, 64]
>>> C = [7, 10, 51, 2, 18, 4, 31, 13, 1, 5, 23, 64, 29]
>>> selectionSort(C)
>>> C
[1, 2, 4, 5, 7, 10, 13, 18, 23, 29, 31, 51, 64]
>>> insertionSort(A)
>>> A
[13, 18, 25, 44, 66, 78, 89, 107]
>>> D = [5, 1, 9, 7, 10, 2]
>>> insertionSort(D)
>>> D
[1, 2, 5, 7, 9, 10]
>>>

Modul5.py - E:\KULIAH\Praktikum\ALGOSTRUK\Modul5.py (3.7.6)
File Edit Format Run Options Window Help
swap(daftar, j, j + 1)

K = [50, 20, 70, 10]
#swap(K,1,3)

def cariPosisiYangTerkecil(A, dariSini, sampaiSini):
    posisiYangTerkecil = dariSini
    for i in range(dariSini + 1, sampaiSini):
        if A[i] < A[posisiYangTerkecil]:
            posisiYangTerkecil = i
    return posisiYangTerkecil

#A = [18, 13, 44, 25, 66, 107, 78, 89]
#j = cariPosisiYangTerkecil(A, 2, len(A))

def bubbleSort(A):
    n = len(A)
    for i in range(n - 1):
        for j in range(n - i - 1):
            if A[j] > A[j + 1]:
                swap(A, j, j + 1)

def selectionSort(A):
    n = len(A)
    for i in range(n - 1):
        indexKecil = cariPosisiYangTerkecil(A, i, n)
        if indexKecil != i:
            swap(A, i, indexKecil)

def insertionSort(A):
    n = len(A)
    for i in range(1, n):
        nilai = A[i]
        pos = i
        while pos > 0 and nilai < A[pos - 1]:
            A[pos] = A[pos - 1]
            pos = pos - 1
        A[pos] = nilai
```