

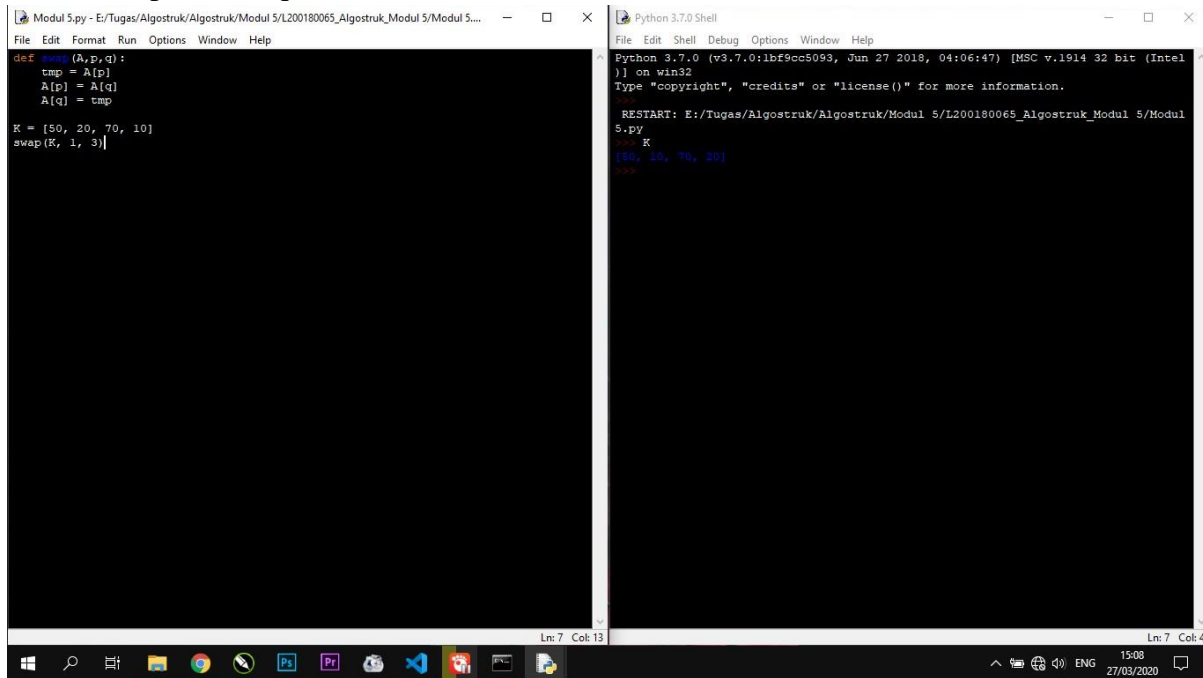
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## MODUL 5

### Routine A[p] dan A[q]



The screenshot shows a Python IDE with two windows. The left window, titled 'Modul 5.py', contains the following code:

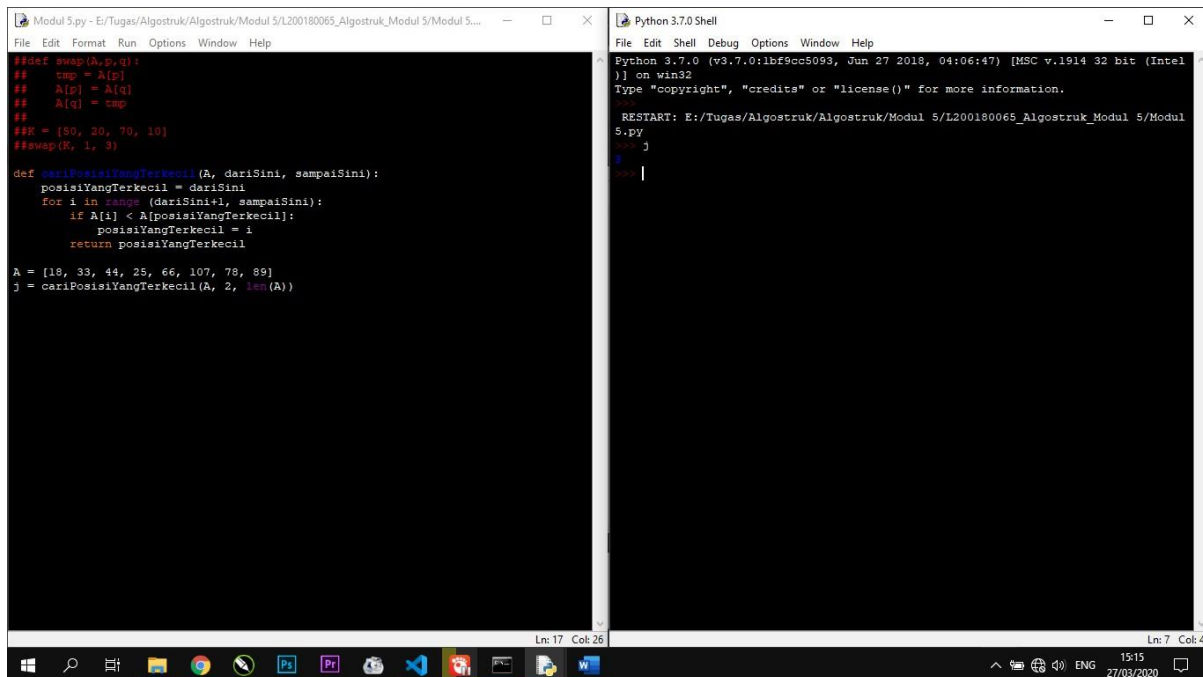
```
def swap(A,p,q):  
    tmp = A[p]  
    A[p] = A[q]  
    A[q] = tmp  
  
K = [50, 20, 70, 10]  
swap(K, 1, 3)
```

The right window, titled 'Python 3.7.0 Shell', shows the output of the program:

```
Python 3.7.0 (v3.7.0:1bf9cc5093, Jun 27 2018, 04:06:47) [MSC v.1914 32 bit (Intel  
)] on win32  
Type "copyright", "credits" or "license()" for more information.  
>>>  
RESTART: E:/Tugas/Algostruk/Algostruk/Modul 5/L200180065_Algostruk_Modul 5/Modul  
5.py  
>>> K  
[20, 10, 70, 50]  
>>>
```

The taskbar at the bottom shows the Windows Start button, search icon, task view icon, and several application icons including Chrome, File Explorer, and various development tools. The system clock in the bottom right corner displays 15:08 on 27/03/2020.

### Routine untuk mencari elemen terkecil



The screenshot shows a Python IDE with two windows. The left window, titled 'Modul 5.py', contains the following code:

```
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, 33, 44, 25, 66, 107, 78, 89]  
j = cariPosisiYangTerkecil(A, 2, len(A))
```

The right window, titled 'Python 3.7.0 Shell', shows the output of the program:

```
Python 3.7.0 (v3.7.0:1bf9cc5093, Jun 27 2018, 04:06:47) [MSC v.1914 32 bit (Intel  
)] on win32  
Type "copyright", "credits" or "license()" for more information.  
RESTART: E:/Tugas/Algostruk/Algostruk/Modul 5/L200180065_Algostruk_Modul 5/Modul  
5.py  
>>> j  
3  
>>>
```

The taskbar at the bottom shows the Windows Start button, search icon, task view icon, and several application icons including Chrome, File Explorer, and various development tools. The system clock in the bottom right corner displays 15:15 on 27/03/2020.

## Buble Sort

```
Modul 5.py - E:/Tugas/Algostruk/Algostruk/Modul 5/L200180065_Algostruk_Modul 5/Modul 5...
File Edit Format Run Options Window Help

##Routine A[p] dan A[q]
def swap(A,p,q):
    tmp = A[p]
    A[p] = A[q]
    A[q] = tmp

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

##Routine untuk mencari elemen terkecil
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, 33, 44, 25, 66, 107, 78, 89]
j = cariPosisiYangTerkecil(A, 2, len(A))

##Buble Sort
def bubleSort(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)

bubleSort(A)

Ln: 20 Col: 0
```

```
Python 3.7.0 Shell
File Edit Shell Debug Options Window Help

Python 3.7.0 (v3.7.0:1bf9cc5093, Jun 27 2018, 04:06:47) [MSC v.1914 32 bit (Intel
)] on win32
Type "copyright", "credits" or "license()" for more information.
>>>
RESTART: E:/Tugas/Algostruk/Algostruk/Modul 5/L200180065_Algostruk_Modul 5/Modul
5.py
>>> A
[18, 33, 33, 44, 44, 66, 78, 89, 107]
>>> |

Ln: 7 Col: 4
```

## Insertion Sort

```
Modul 5.py - E:/Tugas/Algostruk/Algostruk/Modul 5/L200180065_Algostruk_Modul 5/Modul 5...
File Edit Format Run Options Window Help

tmp = A[p]
A[p] = A[q]
A[q] = tmp

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

##Routine untuk mencari elemen terkecil
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, 33, 44, 25, 66, 107, 78, 89]
j = cariPosisiYangTerkecil(A, 2, len(A))

##Buble Sort
def bubleSort(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)

##BubleSort(A)

##Insertion Sort
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

insertionSort(A)

Ln: 36 Col: 15
```

```
Python 3.7.0 Shell
File Edit Shell Debug Options Window Help

Python 3.7.0 (v3.7.0:1bf9cc5093, Jun 27 2018, 04:06:47) [MSC v.1914 32 bit (Intel
)] on win32
Type "copyright", "credits" or "license()" for more information.
>>>
RESTART: E:/Tugas/Algostruk/Algostruk/Modul 5/L200180065_Algostruk_Modul 5/Modul
5.py
>>> A
[18, 33, 33, 44, 44, 66, 78, 89, 107]
>>> |

Ln: 7 Col: 4
```