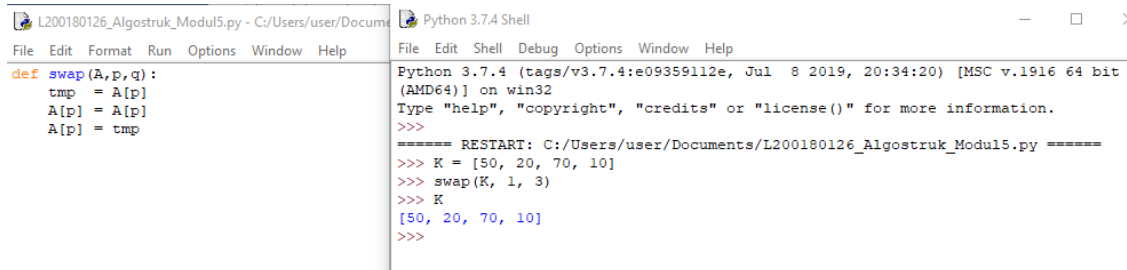


## Modul 5

Nama : Muhammad Rosyad Adi Pratama

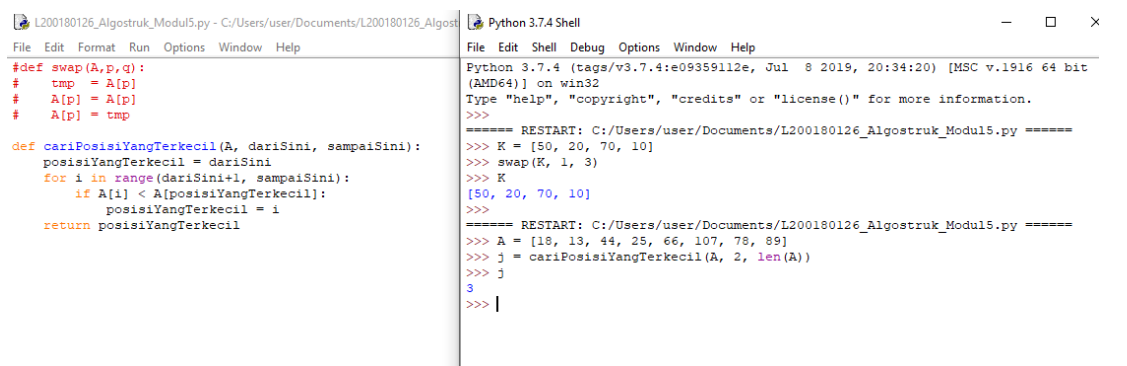
NIM : L200184044/H

### Contoh



```
L200180126_Algostruk_Modul5.py - C:/Users/user/Documents/Python 3.7.4 Shell
File Edit Format Run Options Window Help
def swap(A,p,q):
    tmp = A[p]
    A[p] = A[q]
    A[q] = tmp

Python 3.7.4 (tags/v3.7.4:09359112e, Jul 8 2019, 20:34:20) [MSC v.1916 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:/Users/user/Documents/L200180126_Algostruk_Modul5.py =====
>>> K = [50, 20, 70, 10]
>>> swap(K, 1, 3)
>>> K
[50, 20, 70, 10]
>>>
```

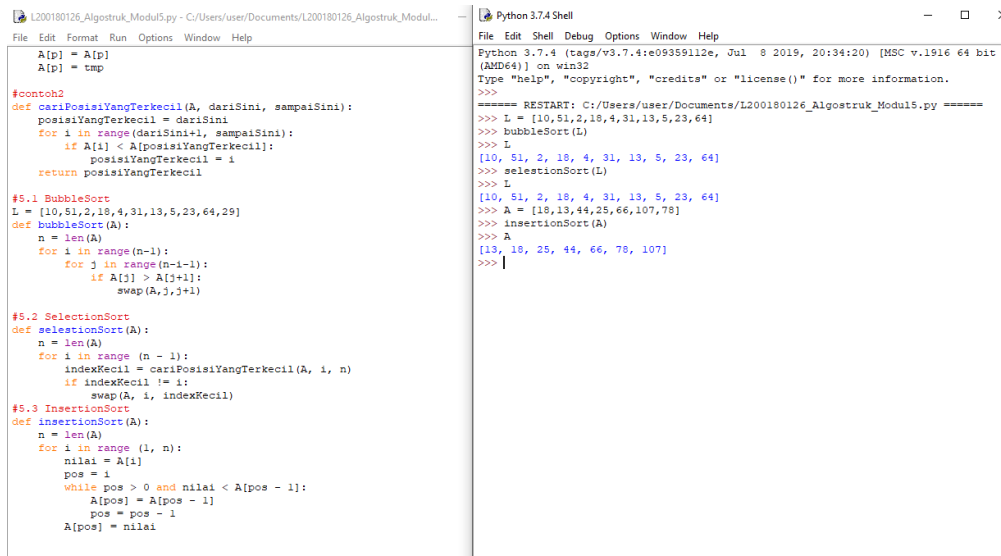


```
L200180126_Algostruk_Modul5.py - C:/Users/user/Documents/L200180126_Algostruk_Modul5.py Python 3.7.4 Shell
File Edit Format Run Options Window Help
def swap(A,p,q):
    tmp = A[p]
    A[p] = A[q]
    A[q] = tmp

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

Python 3.7.4 (tags/v3.7.4:09359112e, Jul 8 2019, 20:34:20) [MSC v.1916 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:/Users/user/Documents/L200180126_Algostruk_Modul5.py =====
>>> K = [50, 20, 70, 10]
>>> swap(K, 1, 3)
>>> K
[50, 20, 70, 10]
>>>
===== RESTART: C:/Users/user/Documents/L200180126_Algostruk_Modul5.py =====
>>> A = [18, 13, 44, 25, 66, 107, 78, 89]
>>> j = cariPosisiYangTerkecil(A, 2, len(A))
>>> j
3
>>> |
```

### BubbleSort, SelectionSort, dan InsertionSort



```
L200180126_Algostruk_Modul5.py - C:/Users/user/Documents/L200180126_Algostruk_Modul5.py Python 3.7.4 Shell
File Edit Format Run Options Window Help
A[p] = A[q]
A[q] = tmp

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

#5.1 BubbleSort
L = [10,51,2,18,4,31,13,5,23,64,29]
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)

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

#5.3 InsertionSort
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

Python 3.7.4 (tags/v3.7.4:09359112e, Jul 8 2019, 20:34:20) [MSC v.1916 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:/Users/user/Documents/L200180126_Algostruk_Modul5.py =====
>>> L = [10,51,2,18,4,31,13,5,23,64]
>>> bubbleSort(L)
>>> L
[10, 51, 2, 18, 4, 31, 13, 5, 23, 64]
>>> selectionSort(L)
>>> L
[10, 51, 2, 18, 4, 31, 13, 5, 23, 64]
>>> A = [18,13,44,25,66,107,78]
>>> insertionSort(A)
>>> A
[13, 18, 25, 44, 66, 78, 107]
>>> |
```

## Tugas

File Edit Format Run Options Window Help	File Edit Shell Debug Options Window Help
<pre>class MhsTIF(object):     def __init__(self, nama, NIM, kota, us):         self.nama = nama         self.NIM = NIM         self.kotaTinggal = kota         self.uangSaku = us     def ambilNama(self):         return self.nama     def ambilNIM(self):         return self.NIM     def ambilKota(self):         return self.kota     def ambilUangSaku(self):         return self.uangSaku  c0 = MhsTIF('Abi', 19, 'Solo', 250000) c1 = MhsTIF('Baba', 20, 'Klaten', 275000) c2 = MhsTIF('Caca', 23, 'Boyolali', 200000) c3 = MhsTIF('Dina', 24, 'Yogyakarta', 220000) c4 = MhsTIF('Eka', 25, 'Jakarta', 240000) c5 = MhsTIF('Farah', 18, 'Cilacap', 255000) c6 = MhsTIF('Gani', 19, 'Banten', 265000) c7 = MhsTIF('Haris', 17, 'Lampung', 235000) c8 = MhsTIF('Indah', 19, 'Lombok', 245000) c9 = MhsTIF('Joko', 19, 'Palembang', 260000) c10 = MhsTIF('Kunto', 21, 'Riau', 265000)  Daftar = [c0, c1, c2, c3, c4, c5, c6, c7, c8, c9, c10]  def swap(A, p, q):     tmp = A[p]     A[p] = A[q]     A[q] = tmp  def nim(daftar):     for i in daftar:         print(i.NIM)  def bubblesort(daftar):     n = len(daftar)</pre>	<pre>RESTART: C:\Users\User\Documents\Modul5\L200180126_Algostruk_Modul5_Tugas.py &gt;&gt;&gt; swap(Daftar, 1, 4) &gt;&gt;&gt; Daftar [&lt;__main__.MhsTIF object at 0x0000023A43CAB908&gt;, &lt;__main__.MhsTIF object at 0x0000023A43CF5E88&gt;, &lt;__main__.MhsTIF object at 0x0000023A43CC67C8&gt;, &lt;__main__.MhsTIF object at 0x0000023A43CF5F48&gt;, &lt;__main__.MhsTIF object at 0x0000023A43CAB808&gt;, &lt;__main__.MhsTIF object at 0x0000023A43CF5EC8&gt;, &lt;__main__.MhsTIF object at 0x0000023A43CF5F08&gt;, &lt;__main__.MhsTIF object at 0x0000023A43CF5F48&gt;, &lt;__main__.MhsTIF object at 0x0000023A43CF5F88&gt;, &lt;__main__.MhsTIF object at 0x0000023A43CF2048&gt;] &gt;&gt;&gt; nim(Daftar) 19 25 23 24 20 18 19 17 19 19 21 &gt;&gt;&gt; bubblesort(Daftar) &gt;&gt;&gt; Daftar [&lt;__main__.MhsTIF object at 0x0000023A43CF5F48&gt;, &lt;__main__.MhsTIF object at 0x0000023A43CF5EC8&gt;, &lt;__main__.MhsTIF object at 0x0000023A43CAB908&gt;, &lt;__main__.MhsTIF object at 0x0000023A43CF5F08&gt;, &lt;__main__.MhsTIF object at 0x0000023A43CF5F88&gt;, &lt;__main__.MhsTIF object at 0x0000023A43CF5FC8&gt;, &lt;__main__.MhsTIF object at 0x0000023A43CF2048&gt;, &lt;__main__.MhsTIF object at 0x0000023A43CC67C8&gt;, &lt;__main__.MhsTIF object at 0x0000023A43CF5E48&gt;, &lt;__main__.MhsTIF object at 0x0000023A43CF5E88&gt;] &gt;&gt;&gt; urut(C) &gt;&gt;&gt; C [1, 3, 6, 7, 8, 9, 10, 11, 12, 13, 20, 100] &gt;&gt;&gt; swap(NIM, 1, 5) Traceback (most recent call last):   File "&lt;pyshell#7&gt;", line 1, in &lt;module&gt;     swap(NIM, 1, 5) NameError: name 'NIM' is not defined &gt;&gt;&gt;</pre>
File Edit Format Run Options Window Help	File Edit Shell Debug Options Window Help
<pre>#Nomor 2 X = [1, 3, 6, 10, 11, 20] Y = [7, 8, 9, 12, 13, 100] C = X + Y  def urut(a):     n = len(a)     for i in range(n-1):         for j in range(n-i-1):             if a[j] &gt; a[j+1]:                 swap(a, j, j+1)  #Nomor 3 def swap(A, p, q):     tmp = A[p]     A[p] = A[q]     A[q] = tmp  def cariPosisiYangTerkecil(A, dariSini, sampaiSini):     posisiTerkecil = dariSini     for i in range(dariSini+1, sampaiSini):         if A[i] &lt; A[posisiTerkecil]:             posisiTerkecil = i     return posisiTerkecil  def bubbleSort(A):     n = len(A)     for i in range(n-1):         for j in range(n-i-1):             if A[j] &gt; 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):</pre>	<pre>RESTART: C:\Users\User\Documents\Modul5\L200180126_Algostruk_Modul5_Tugas.py &gt;&gt;&gt; swap(Daftar, 1, 4) &gt;&gt;&gt; Daftar [&lt;__main__.MhsTIF object at 0x0000023A43CAB908&gt;, &lt;__main__.MhsTIF object at 0x0000023A43CF5E88&gt;, &lt;__main__.MhsTIF object at 0x0000023A43CC67C8&gt;, &lt;__main__.MhsTIF object at 0x0000023A43CF5F48&gt;, &lt;__main__.MhsTIF object at 0x0000023A43CAB808&gt;, &lt;__main__.MhsTIF object at 0x0000023A43CF5EC8&gt;, &lt;__main__.MhsTIF object at 0x0000023A43CF5F08&gt;, &lt;__main__.MhsTIF object at 0x0000023A43CF5F48&gt;, &lt;__main__.MhsTIF object at 0x0000023A43CF5F88&gt;, &lt;__main__.MhsTIF object at 0x0000023A43CF2048&gt;] &gt;&gt;&gt; nim(Daftar) 19 25 23 24 20 18 19 17 19 19 21 &gt;&gt;&gt; bubblesort(Daftar) &gt;&gt;&gt; Daftar [&lt;__main__.MhsTIF object at 0x0000023A43CF5F48&gt;, &lt;__main__.MhsTIF object at 0x0000023A43CF5EC8&gt;, &lt;__main__.MhsTIF object at 0x0000023A43CAB908&gt;, &lt;__main__.MhsTIF object at 0x0000023A43CF5F08&gt;, &lt;__main__.MhsTIF object at 0x0000023A43CF5F88&gt;, &lt;__main__.MhsTIF object at 0x0000023A43CF5FC8&gt;, &lt;__main__.MhsTIF object at 0x0000023A43CF2048&gt;, &lt;__main__.MhsTIF object at 0x0000023A43CC67C8&gt;, &lt;__main__.MhsTIF object at 0x0000023A43CF5E48&gt;, &lt;__main__.MhsTIF object at 0x0000023A43CF5E88&gt;] &gt;&gt;&gt; urut(C) &gt;&gt;&gt; C [1, 3, 6, 7, 8, 9, 10, 11, 12, 13, 20, 100] &gt;&gt;&gt; swap(NIM, 1, 5) Traceback (most recent call last):   File "&lt;pyshell#7&gt;", line 1, in &lt;module&gt;     swap(NIM, 1, 5) NameError: name 'NIM' is not defined &gt;&gt;&gt;</pre>