

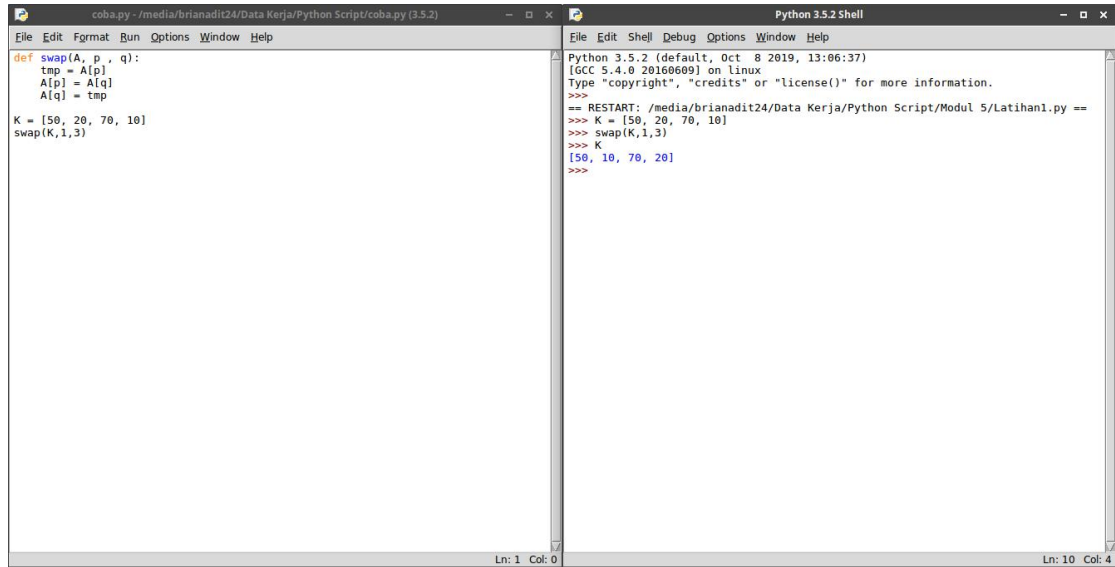
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Kelas : E

Latihan

Swap

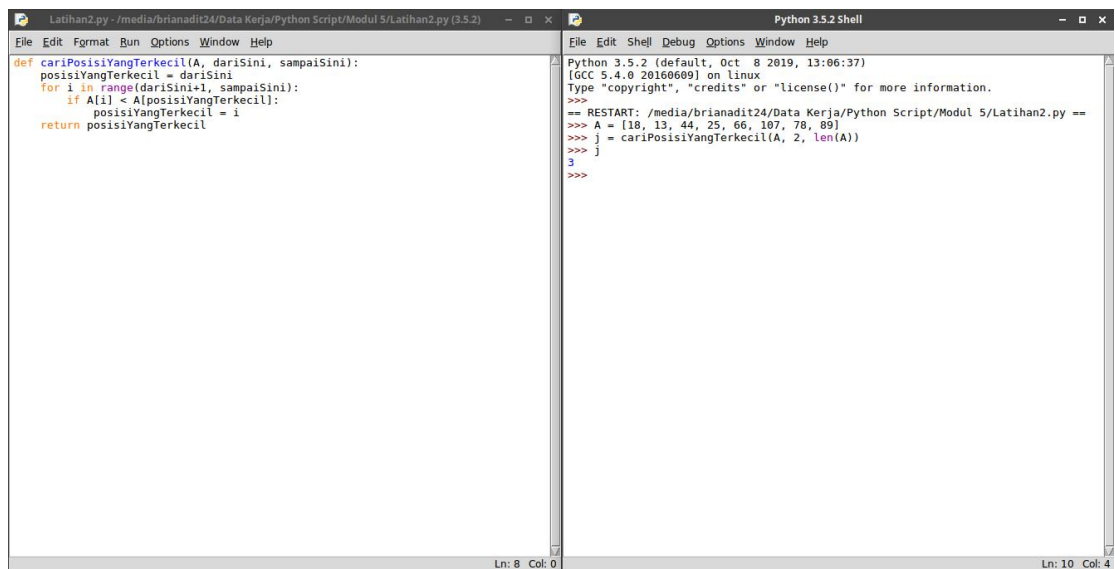


The screenshot shows a Python 3.5.2 IDE with two windows. The left window, titled 'coba.py', contains a function definition for 'swap' and a list 'K'. The right window, titled 'Python 3.5.2 Shell', shows the execution of the code.

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

```
Python 3.5.2 (default, Oct 8 2019, 13:06:37)  
[GCC 5.4.0 20160609] on linux  
Type "copyright", "credits" or "license()" for more information.  
>>>  
== RESTART: /media/brianadit24/Data Kerja/Python Script/Modul 5/Latihan1.py ==  
>>> K = [50, 20, 70, 10]  
>>> swap(K, 1, 3)  
>>> K  
[50, 10, 70, 20]  
>>>
```

CariPosisiYangTerkecil

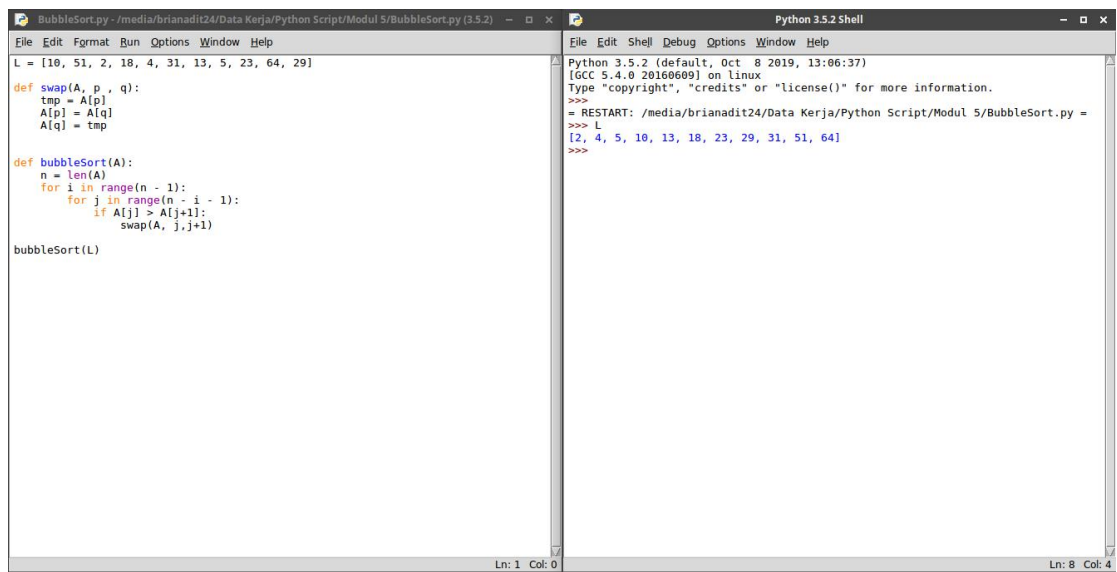


The screenshot shows a Python 3.5.2 IDE with two windows. The left window, titled 'Latihan2.py', contains a function definition for 'cariPosisiYangTerkecil'. The right window, titled 'Python 3.5.2 Shell', shows the execution of the code.

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

```
Python 3.5.2 (default, Oct 8 2019, 13:06:37)  
[GCC 5.4.0 20160609] on linux  
Type "copyright", "credits" or "license()" for more information.  
>>>  
== RESTART: /media/brianadit24/Data Kerja/Python Script/Modul 5/Latihan2.py ==  
>>> A = [18, 13, 44, 25, 66, 107, 78, 89]  
>>> j = cariPosisiYangTerkecil(A, 2, len(A))  
>>> j  
3  
>>>
```

Bubble Sort



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

```
L = [10, 51, 2, 18, 4, 31, 13, 5, 23, 64, 29]

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

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)

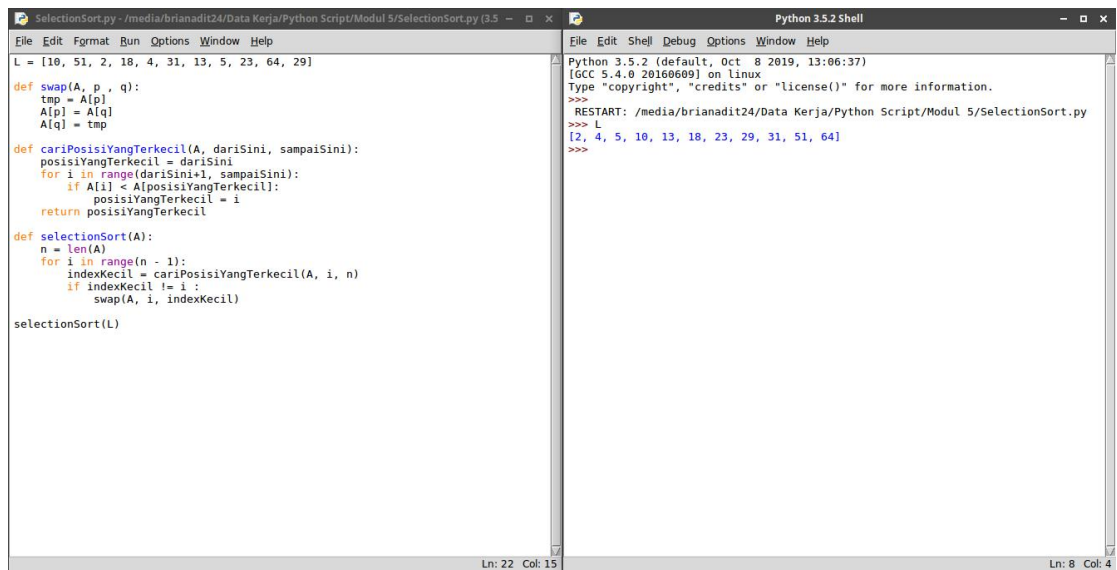
bubbleSort(L)
```

The right window, titled 'Python 3.5.2 Shell', shows the execution output:

```
Python 3.5.2 (default, Oct 8 2019, 13:06:37)
[GCC 5.4.0 20160609] on linux
Type "copyright", "credits" or "license()" for more information.
>>>
= RESTART: /media/brianadit24/Data Kerja/Python Script/Modul 5/BubbleSort.py =
>>> L
[2, 4, 5, 10, 13, 18, 23, 29, 31, 51, 64]
>>>
```

The status bar at the bottom indicates 'Ln: 1 Col: 0' for the left window and 'Ln: 8 Col: 4' for the right window.

Selection Sort



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

```
L = [10, 51, 2, 18, 4, 31, 13, 5, 23, 64, 29]

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

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

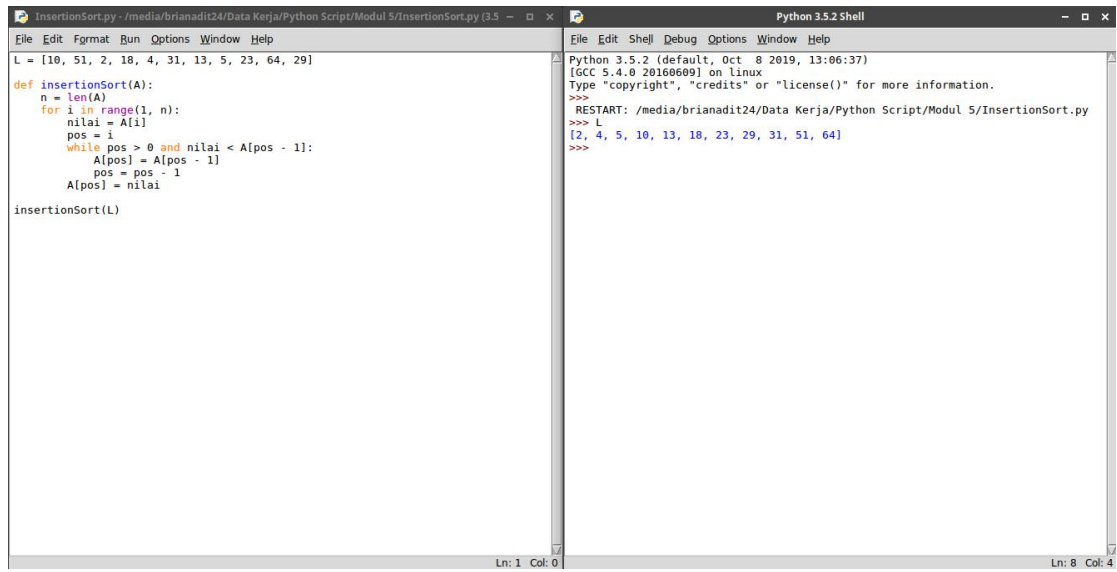
selectionSort(L)
```

The right window, titled 'Python 3.5.2 Shell', shows the execution output:

```
Python 3.5.2 (default, Oct 8 2019, 13:06:37)
[GCC 5.4.0 20160609] on linux
Type "copyright", "credits" or "license()" for more information.
>>>
= RESTART: /media/brianadit24/Data Kerja/Python Script/Modul 5/SelectionSort.py
>>> L
[2, 4, 5, 10, 13, 18, 23, 29, 31, 51, 64]
>>>
```

The status bar at the bottom indicates 'Ln: 22 Col: 15' for the left window and 'Ln: 8 Col: 4' for the right window.

Insertion Sort



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

```
L = [10, 51, 2, 18, 4, 31, 13, 5, 23, 64, 29]

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(L)
```

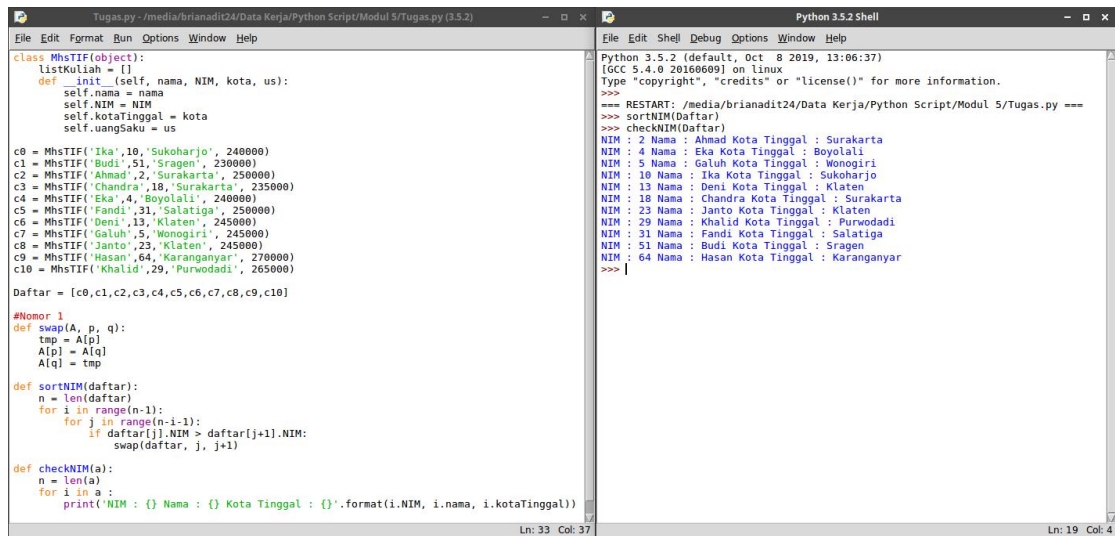
The right window, titled 'Python 3.5.2 Shell', shows the execution output:

```
Python 3.5.2 (default, Oct 8 2019, 13:06:37)
[6CC 5.4.0 20160609] on linux
Type "copyright", "credits" or "license()" for more information.
>>>
RESTART: /media/brianadit24/Data Kerja/Python Script/Modul 5/InsertionSort.py
>>> L
[2, 4, 5, 10, 13, 18, 23, 29, 31, 51, 64]
>>>
```

The status bar at the bottom indicates the current line and column: 'Ln: 1 Col: 0' for the script editor and 'Ln: 8 Col: 4' for the shell.

Tugas

Nomor 1



```
class MhsTIF(object):
    listKuliah = []
    def __init__(self, nama, NIM, kota, us):
        self.nama = nama
        self.NIM = NIM
        self.kotaTinggal = kota
        self.uangSaku = us

c0 = MhsTIF('Ika',10,'Sukoharjo', 240000)
c1 = MhsTIF('Budi',51,'Sragen', 230000)
c2 = MhsTIF('Ahmad',2,'Surakarta', 250000)
c3 = MhsTIF('Chandra',18,'Surakarta', 235000)
c4 = MhsTIF('Eka',4,'Boyolali', 240000)
c5 = MhsTIF('Fandi',31,'Salatiga', 250000)
c6 = MhsTIF('Deni',13,'Klaten', 245000)
c7 = MhsTIF('Galuh',5,'Wonogiri', 245000)
c8 = MhsTIF('Janto',23,'Klaten', 245000)
c9 = MhsTIF('Hasan',64,'Karanganyar', 270000)
c10 = MhsTIF('Khalid',29,'Purwodadi', 265000)

Daftar = [c0,c1,c2,c3,c4,c5,c6,c7,c8,c9,c10]

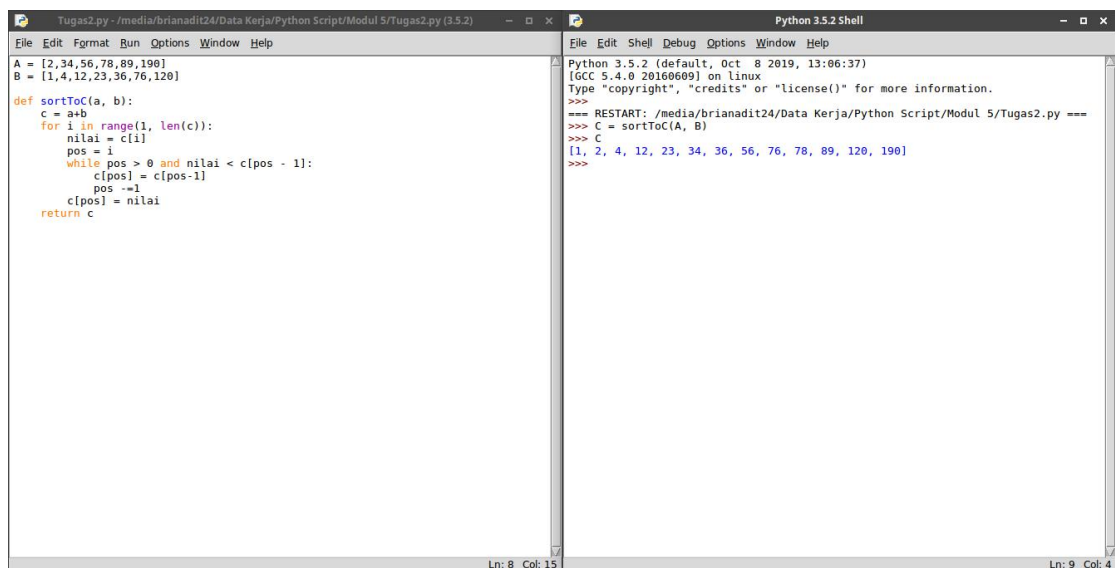
#Nomor 1
def swap(A, p, q):
    tmp = A[p]
    A[p] = A[q]
    A[q] = tmp

def sortNIM(daftar):
    n = len(daftar)
    for i in range(n-1):
        for j in range(n-i-1):
            if daftar[j].NIM > daftar[j+1].NIM:
                swap(daftar, j, j+1)

def checkNIM(a):
    n = len(a)
    for i in a:
        print('NIM : {} Nama : {} Kota Tinggal : {}'.format(i.NIM, i.nama, i.kotaTinggal))

Python 3.5.2 (default, Oct 8 2019, 13:06:37)
[GCC 5.4.0 20160609] on linux
Type "copyright", "credits" or "license()" for more information.
>>>
=== RESTART: /media/brianadit24/Data Kerja/Python Script/Modul 5/Tugas.py ===
>>> sortNIM(Daftar)
>>> checkNIM(Daftar)
NIM : 2 Nama : Ahmad Kota Tinggal : Surakarta
NIM : 4 Nama : Eka Kota Tinggal : Boyolali
NIM : 5 Nama : Galuh Kota Tinggal : Wonogiri
NIM : 10 Nama : Ika Kota Tinggal : Sukoharjo
NIM : 13 Nama : Deni Kota Tinggal : Klaten
NIM : 18 Nama : Chandra Kota Tinggal : Surakarta
NIM : 23 Nama : Janto Kota Tinggal : Klaten
NIM : 29 Nama : Khalid Kota Tinggal : Purwodadi
NIM : 31 Nama : Fandi Kota Tinggal : Salatiga
NIM : 51 Nama : Budi Kota Tinggal : Sragen
NIM : 64 Nama : Hasan Kota Tinggal : Karanganyar
>>>
```

Nomor 2

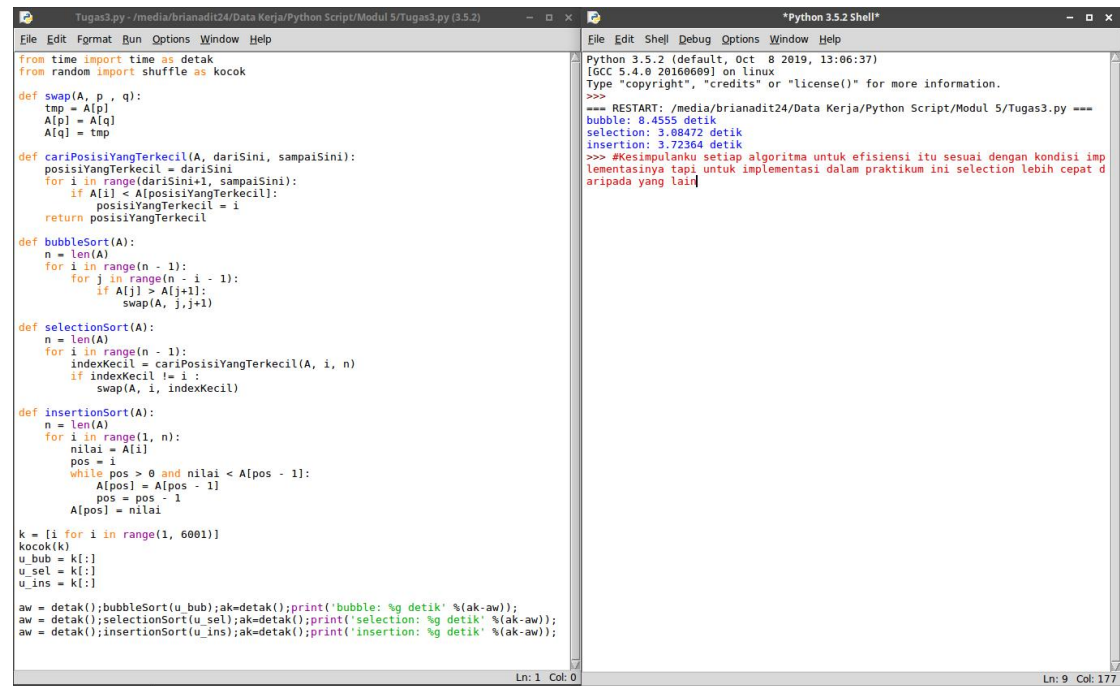


```
A = [2,34,56,78,89,190]
B = [1,4,12,23,36,76,120]

def sortToC(a, b):
    c = a+b
    for i in range(1, len(c)):
        nilai = c[i]
        pos = i
        while pos > 0 and nilai < c[pos - 1]:
            c[pos] = c[pos-1]
            pos -= 1
        c[pos] = nilai
    return c

Python 3.5.2 (default, Oct 8 2019, 13:06:37)
[GCC 5.4.0 20160609] on linux
Type "copyright", "credits" or "license()" for more information.
>>>
=== RESTART: /media/brianadit24/Data Kerja/Python Script/Modul 5/Tugas2.py ===
>>> C = sortToC(A, B)
>>> C
[1, 2, 4, 12, 23, 34, 36, 56, 76, 78, 89, 120, 190]
>>>
```

Nomor 3



```
Tugas3.py - /media/brianadit24/Data Kerja/Python Script/Modul 5/Tugas3.py (3.5.2)
File Edit Format Run Options Window Help

from time import time as detik
from random import shuffle as kocok

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

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

k = [i for i in range(1, 6001)]
kocok(k)
u_bub = k[:]
u_sel = k[:]
u_ins = k[:]

aw = detik();bubbleSort(u_bub);ak=detak();print('bubble: %g detik' %(ak-aw));
aw = detik();selectionSort(u_sel);ak=detak();print('selection: %g detik' %(ak-aw));
aw = detik();insertionSort(u_ins);ak=detak();print('insertion: %g detik' %(ak-aw));

Ln: 1 Col: 0

Python 3.5.2 Shell*
File Edit Shell Debug Options Window Help

Python 3.5.2 (default, Oct 8 2019, 13:06:37)
[GCC 5.4.0 20160609] on linux
Type "copyright", "credits" or "license()" for more information.
>>>
=== RESTART: /media/brianadit24/Data Kerja/Python Script/Modul 5/Tugas3.py ===
bubble: 8.4555 detik
selection: 3.08472 detik
insertion: 3.72364 detik
>>> #Kesimpulan: setiap algoritma untuk efisiensi itu sesuai dengan kondisi imp
lementasinya tapi untuk implementasi dalam praktikum ini selection lebih cepat d
aripada yang lain
Ln: 9 Col: 177
```