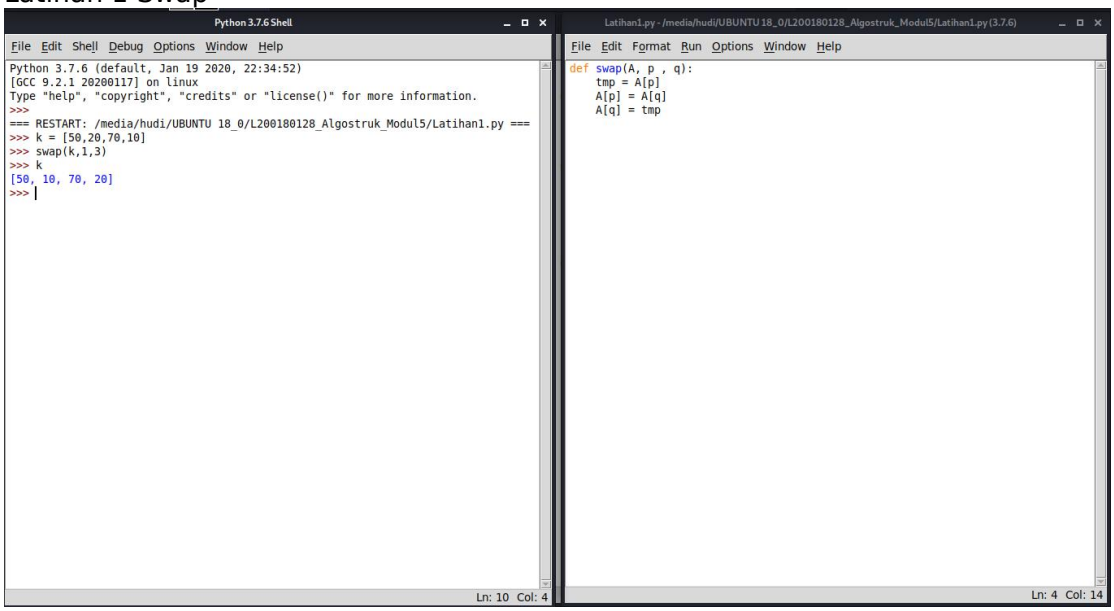
Nama : Hudi Pradjanu
NIM : L200180128
Kelas : E

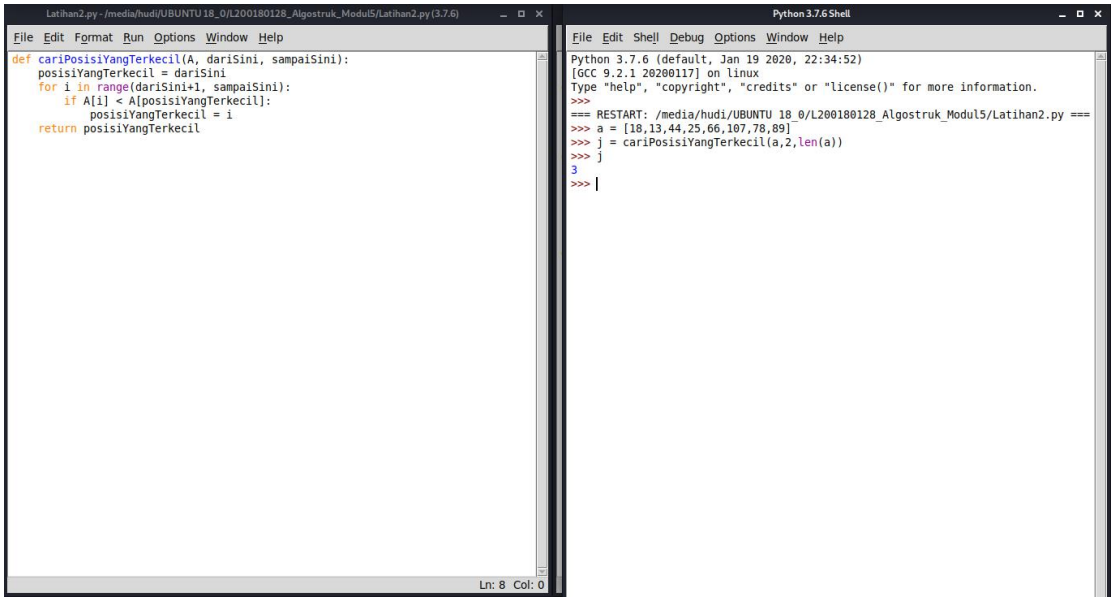
Latihan 1 Swap



```
Python 3.7.6 Shell
File Edit Shell Debug Options Window Help
Python 3.7.6 (default, Jan 19 2020, 22:34:52)
[GCC 9.2.1 20200117] on linux
Type "help", "copyright", "credits" or "license()" for more information.
>>>
=== RESTART: /media/hudi/UBUNTU 18_0/L200180128_Algostruk_Modul5/Latihan1.py ===
>>> k = [50,20,70,10]
>>> swap(k,1,3)
>>> k
[50, 10, 70, 20]
>>>
Ln: 10 Col: 4
```

```
Latihan1.py - /media/hudi/UBUNTU 18_0/L200180128_Algostruk_Modul5/Latihan1.py (3.7.6)
File Edit Format Run Options Window Help
def swap(A, p , q):
    tmp = A[p]
    A[p] = A[q]
    A[q] = tmp
Ln: 4 Col: 14
```

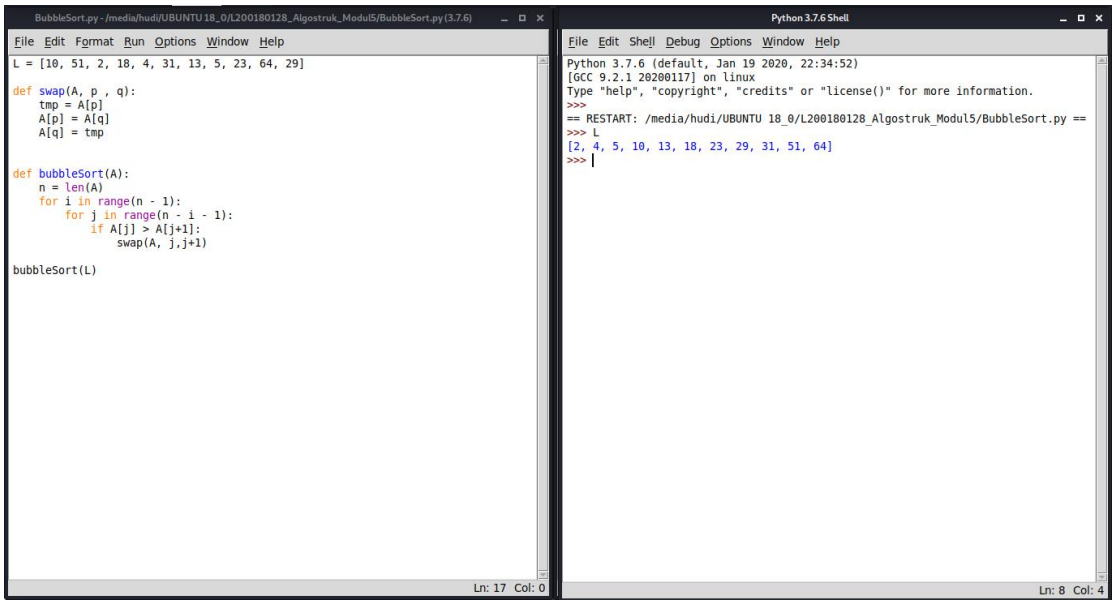
Latihan 2 Mencari data terkecil



```
Latihan2.py - /media/hudi/UBUNTU 18_0/L200180128_Algostruk_Modul5/Latihan2.py (3.7.6)
File Edit Format Run Options Window Help
def cariPosisiYangTerkecil(A, dariSini, sampaiSini):
    posisiYangTerkecil = dariSini
    for i in range(dariSini+1, sampaiSini):
        if A[i] < A[posisiYangTerkecil]:
            posisiYangTerkecil = i
    return posisiYangTerkecil
Ln: 8 Col: 0
```

```
Python 3.7.6 Shell
File Edit Shell Debug Options Window Help
Python 3.7.6 (default, Jan 19 2020, 22:34:52)
[GCC 9.2.1 20200117] on linux
Type "help", "copyright", "credits" or "license()" for more information.
>>>
=== RESTART: /media/hudi/UBUNTU 18_0/L200180128_Algostruk_Modul5/Latihan2.py ===
>>> a = [18,13,44,25,66,107,78,89]
>>> j = cariPosisiYangTerkecil(a,2,len(a))
>>> j
3
>>>
```

BubbleSort



BubbleSort.py - /media/hudi/UBUNTU 18_0/L200180128_Algostruk_Modul5/BubbleSort.py (3.7.6)

File Edit Format Run Options Window Help

```
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)
```

Ln: 17 Col: 0

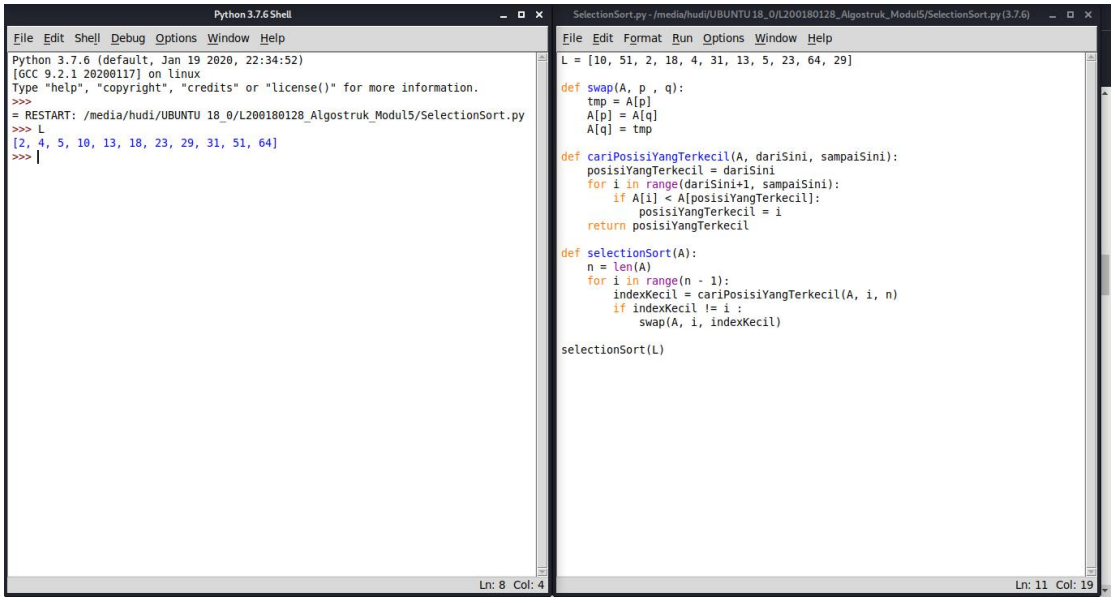
Python 3.7.6 Shell

File Edit Shell Debug Options Window Help

```
Python 3.7.6 (default, Jan 19 2020, 22:34:52)
[GCC 9.2.1 20200117] on linux
Type "help", "copyright", "credits" or "license()" for more information.
>>>
== RESTART: /media/hudi/UBUNTU 18_0/L200180128_Algostruk_Modul5/BubbleSort.py ==
>>> L
[2, 4, 5, 10, 13, 18, 23, 29, 31, 51, 64]
>>>
```

Ln: 8 Col: 4

Selectoion Sort



Python 3.7.6 Shell

File Edit Shell Debug Options Window Help

```
Python 3.7.6 (default, Jan 19 2020, 22:34:52)
[GCC 9.2.1 20200117] on linux
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: /media/hudi/UBUNTU 18_0/L200180128_Algostruk_Modul5/SelectionSort.py
>>> L
[2, 4, 5, 10, 13, 18, 23, 29, 31, 51, 64]
>>>
```

Ln: 8 Col: 4

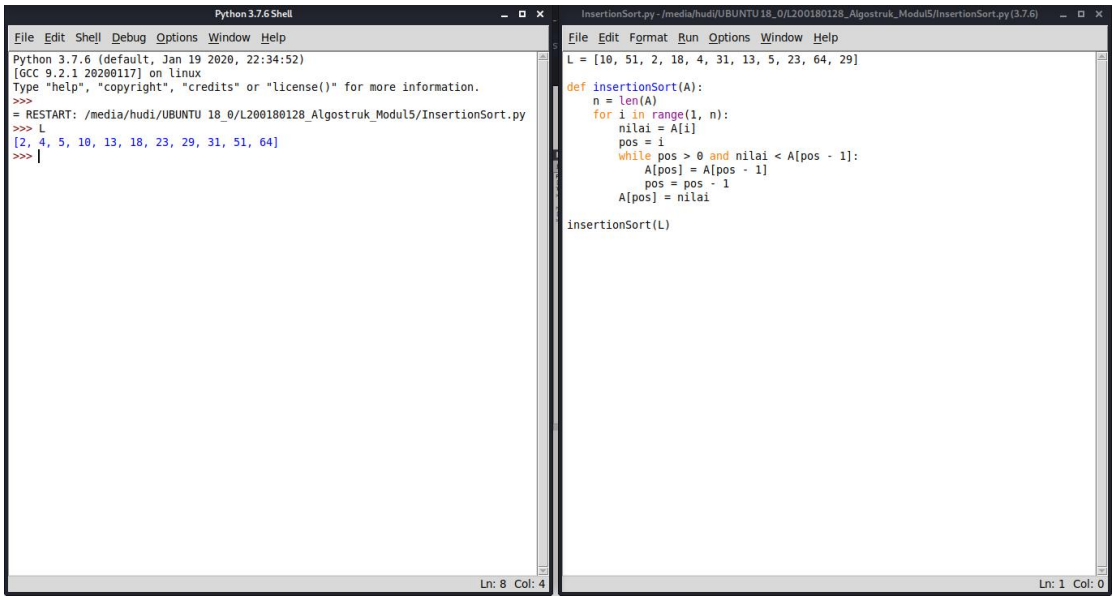
SelectionSort.py - /media/hudi/UBUNTU 18_0/L200180128_Algostruk_Modul5/SelectionSort.py (3.7.6)

File Edit Format Run Options Window Help

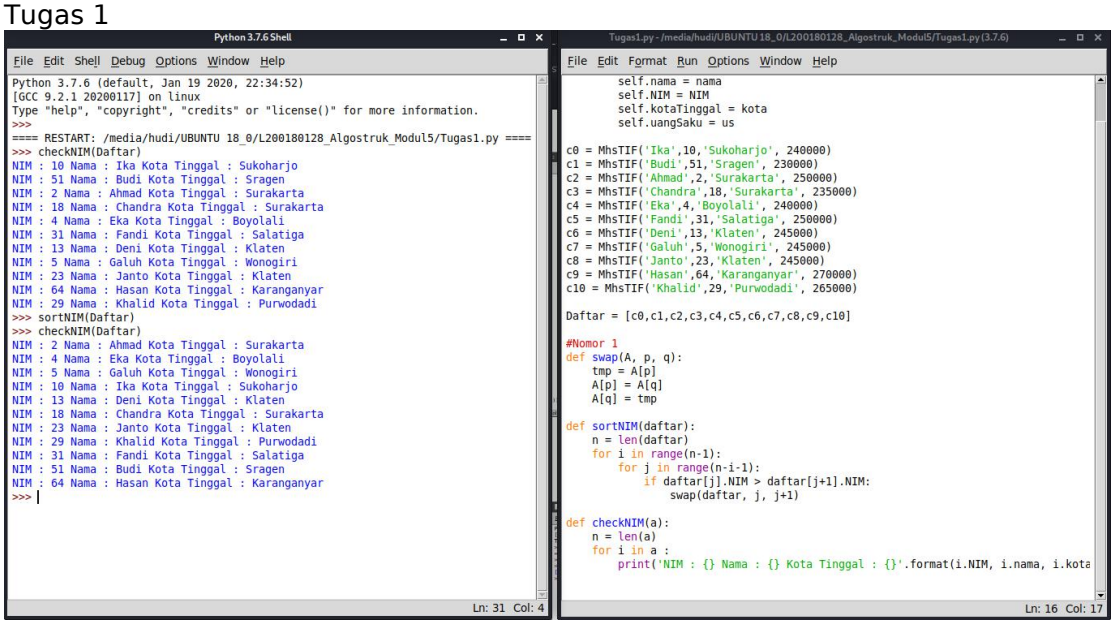
```
L = [10, 51, 2, 18, 4, 31, 13, 5, 23, 64, 29]

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)
```

Ln: 11 Col: 19

Insertion Sort



Tugas 1



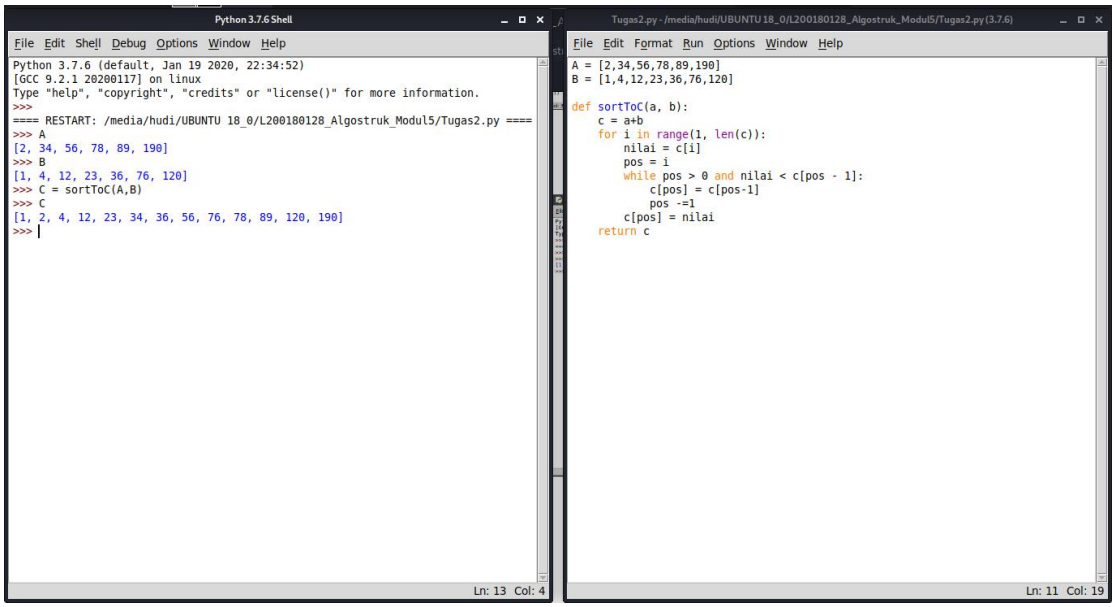
Python 3.7.6 Shell

```
Python 3.7.6 (default, Jan 19 2020, 22:34:52)
[GCC 9.2.1 20200117] on linux
Type "help", "copyright", "credits" or "license()" for more information.
>>>
==== RESTART: /media/hudi/UBUNTU 18_0/L200180128_Algostruk_Modul5/Tugas1.py ====
>>> checkNIM(Daftar)
NIM : 10 Nama : Ika Kota Tinggal : Sukoharjo
NIM : 51 Nama : Budi Kota Tinggal : Sragen
NIM : 2 Nama : Ahmad Kota Tinggal : Surakarta
NIM : 18 Nama : Chandra Kota Tinggal : Surakarta
NIM : 4 Nama : Eka Kota Tinggal : Boyolali
NIM : 31 Nama : Fandi Kota Tinggal : Salatiga
NIM : 13 Nama : Deni Kota Tinggal : Klaten
NIM : 5 Nama : Galuh Kota Tinggal : Wonogiri
NIM : 23 Nama : Janto Kota Tinggal : Klaten
NIM : 64 Nama : Hasan Kota Tinggal : Karanganyar
NIM : 29 Nama : Khalid Kota Tinggal : Purwodadi
>>> 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
>>>
```

Tugas1.py - /media/hudi/UBUNTU 18_0/L200180128_Algostruk_Modul5/Tugas1.py (3.7.6)

```
        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.kota
```

Tugas 2



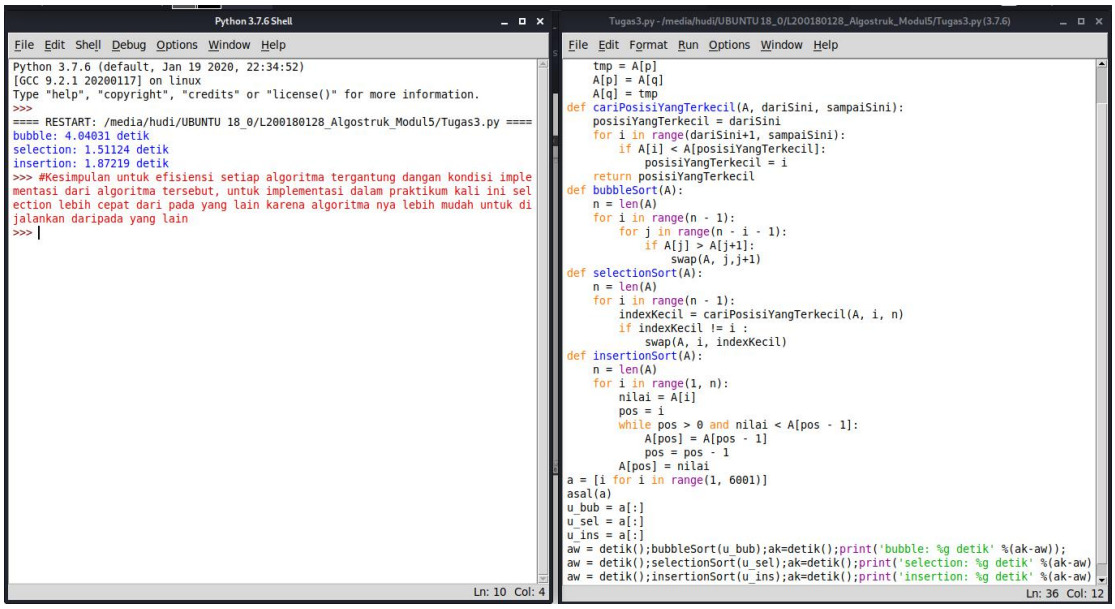
Python 3.7.6 Shell

```
Python 3.7.6 (default, Jan 19 2020, 22:34:52)
[GCC 9.2.1 20200117] on linux
Type "help", "copyright", "credits" or "license()" for more information.
>>>
==== RESTART: /media/hudi/UBUNTU 18_0/L200180128_Algostruk_Modul5/Tugas2.py ====
>>> A
[2, 34, 56, 78, 89, 190]
>>> B
[1, 4, 12, 23, 36, 76, 120]
>>> C = sortToC(A,B)
>>> C
[1, 2, 4, 12, 23, 34, 36, 56, 76, 78, 89, 120, 190]
>>>
```

Tugas2.py - /media/hudi/UBUNTU 18_0/L200180128_Algostruk_Modul5/Tugas2.py (3.7.6)

```
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
```

Tugas 3



Python 3.7.6 Shell

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```
Python 3.7.6 (default, Jan 19 2020, 22:34:52)
[GCC 9.2.1 20200117] on linux
Type "help", "copyright", "credits" or "license()" for more information.
>>>
==== RESTART: /media/hudi/UBUNTU 18_0/L200180128_Algostruk_Modul5/Tugas3.py ====
bubble: 4.04031 detik
selection: 1.51124 detik
insertion: 1.87219 detik
>>> #Kesimpulan untuk efisiensi setiap algoritma tergantung dangan kondisi imple
mentasi dari algoritma tersebut, untuk implementasi dalam praktikum kali ini sel
ection lebih cepat dari pada yang lain karena algoritma nya lebih mudah untuk di
jalankan daripada yang lain
>>>
```

Ln: 10 Col: 4

Tugas3.py - /media/hudi/UBUNTU 18_0/L200180128_Algostruk_Modul5/Tugas3.py (3.7.6)

File Edit Format Run Options Window Help

```
    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
a = [i for i in range(1, 6001)]
asal(a)
u_bub = a[:]
u_sel = a[:]
u_ins = a[:]
aw = detik();bubbleSort(u_bub);ak=detik();print('bubble: %g detik' %(ak-aw));
aw = detik();selectionSort(u_sel);ak=detik();print('selection: %g detik' %(ak-aw)
aw = detik();insertionSort(u_ins);ak=detik();print('insertion: %g detik' %(ak-aw)
```

Ln: 36 Col: 12