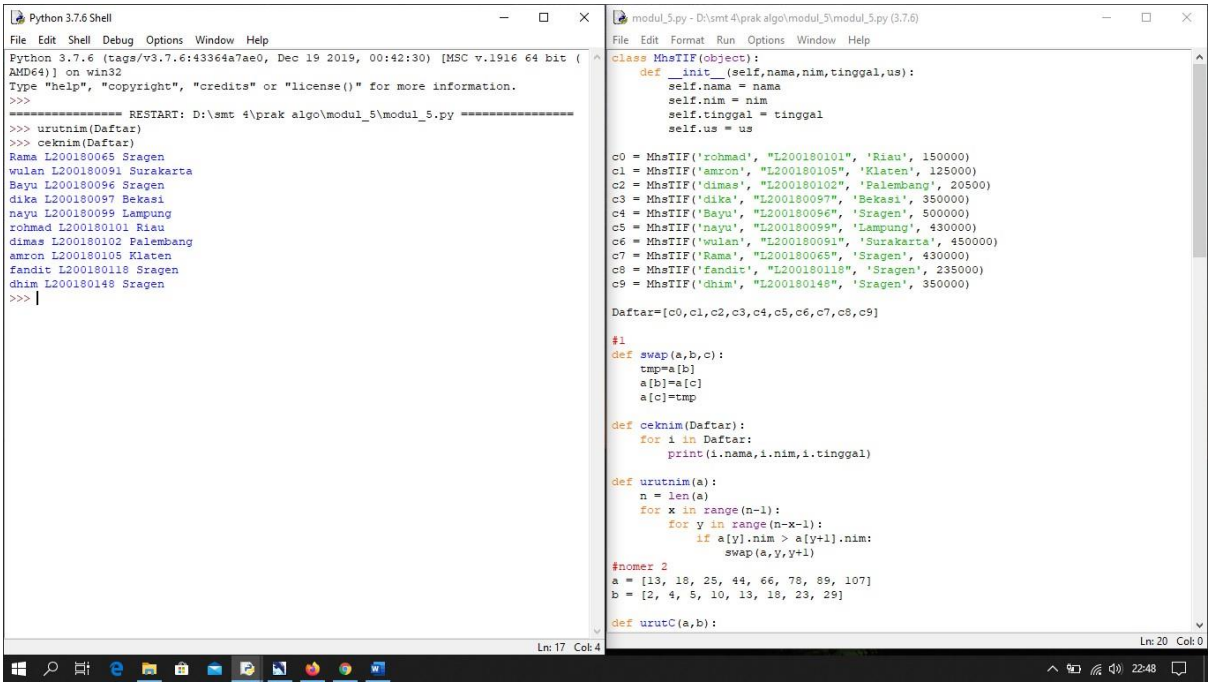
Nama : Bayu Aji Laksono
NIM : L200180089
Kelas : D

Modul 5

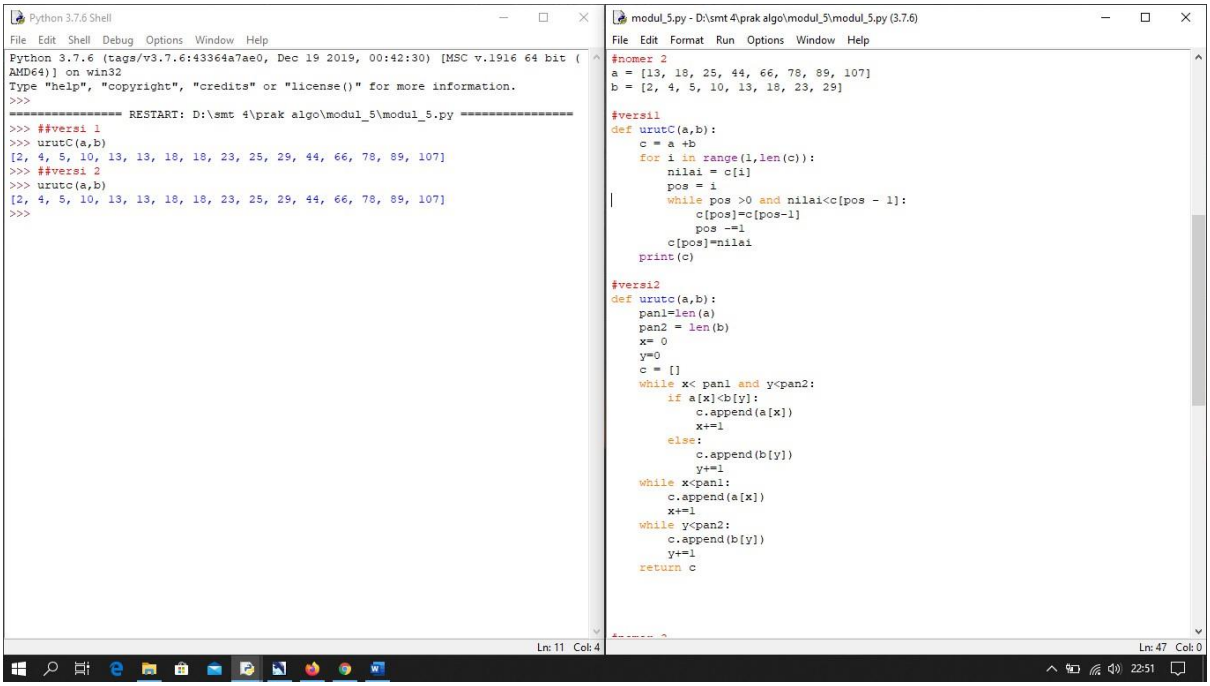
1).Mengurutkan dafatr MhsTIF berdasarkan NIM



```
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: D:\smt 4\prak algo\modul_5\modul_5.py ==========
>>> urutnim(Daftar)
>>> ceknim(Daftar)
Rama L200180065 Sragen
wulan L200180091 Surakarta
Bayu L200180096 Sragen
dika L200180097 Bekasi
nayu L200180099 Lampung
rohmad L200180101 Riau
dimas L200180102 Palembang
amron L200180105 Klaten
fandit L200180118 Sragen
dhim L200180148 Sragen
>>>
```

```
modul_5.py - D:\smt 4\prak algo\modul_5\modul_5.py (3.7.6)
File Edit Format Run Options Window Help
class MhsTIF(object):
    def __init__(self,nama,nim,tinggal,us):
        self.nama = nama
        self.nim = nim
        self.tinggal = tinggal
        self.us = us

c0 = MhsTIF('rohmad', "L200180101", 'Riau', 150000)
c1 = MhsTIF('amron', "L200180105", 'Klaten', 125000)
c2 = MhsTIF('dimas', "L200180102", 'Palembang', 20500)
c3 = MhsTIF('dika', "L200180097", 'Bekasi', 350000)
c4 = MhsTIF('Bayu', "L200180096", 'Sragen', 500000)
c5 = MhsTIF('nayu', "L200180099", 'Lampung', 430000)
c6 = MhsTIF('wulan', "L200180091", 'Surakarta', 450000)
c7 = MhsTIF('Rama', "L200180065", 'Sragen', 430000)
c8 = MhsTIF('fandit', "L200180118", 'Sragen', 235000)
c9 = MhsTIF('dhim', "L200180148", 'Sragen', 350000)

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

#1
def swap(a,b,c):
    tmp=a[b]
    a[b]=a[c]
    a[c]=tmp

def ceknim(Daftar):
    for i in Daftar:
        print(i.nama,i.nim,i.tinggal)

def urutnim(a):
    n = len(a)
    for x in range(n-1):
        for y in range(n-x-1):
            if a[y].nim > a[y+1].nim:
                swap(a,y,y+1)
#nomer 2
a = [13, 18, 25, 44, 66, 78, 89, 107]
b = [2, 4, 5, 10, 13, 18, 23, 29]

def urutC(a,b):
```

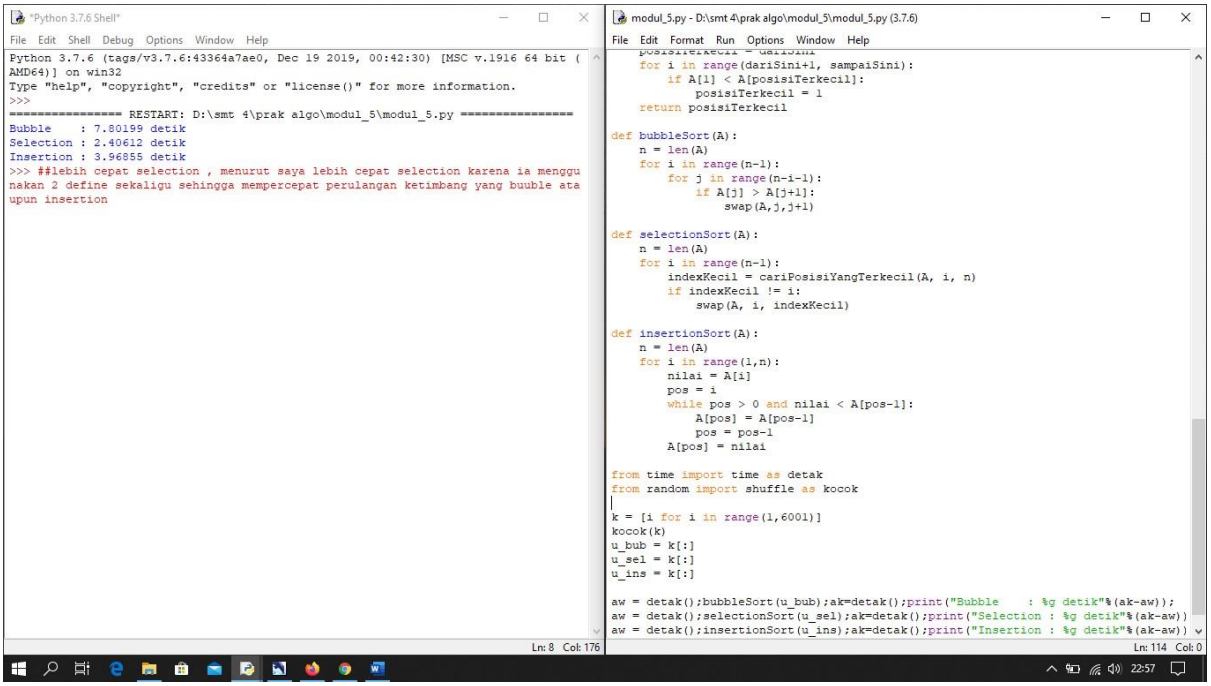
2). penggabungan array a dan b menjadi aray c dan urutkan



```
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: D:\smt 4\prak algo\modul_5\modul_5.py ==========
>>> ##versi 1
>>> urutC(a,b)
[2, 4, 5, 10, 13, 13, 18, 18, 23, 25, 29, 44, 66, 78, 89, 107]
>>> ##versi 2
>>> urutc(a,b)
[2, 4, 5, 10, 13, 13, 18, 18, 23, 25, 29, 44, 66, 78, 89, 107]
>>>
```

```
modul_5.py - D:\smt 4\prak algo\modul_5\modul_5.py (3.7.6)
File Edit Format Run Options Window Help
#nomer 2
a = [13, 18, 25, 44, 66, 78, 89, 107]
b = [2, 4, 5, 10, 13, 18, 23, 29]

#versi1
def urutC(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
    print(c)

#versi2
def urutc(a,b):
    pan1=len(a)
    pan2 = len(b)
    x= 0
    y=0
    c = []
    while x< pan1 and y<pan2:
        if a[x]<b[y]:
            c.append(a[x])
            x+=1
        else:
            c.append(b[y])
            y+=1
    while x<pan1:
        c.append(a[x])
        x+=1
    while y<pan2:
        c.append(b[y])
        y+=1
    return c
```

3).membandingkan lebih cepat mana buble,selection atau insertion



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: D:\smt 4\prak algo\modul_5\modul_5.py ==========
Bubble    : 7.80199 detik
Selection : 2.40612 detik
Insertion : 3.96855 detik
>>> ##lebih cepat selection , menurut saya lebih cepat selection karena ia menggu
nakan 2 define sekaligu sehingga mempercepat perulangan ketimbang yang buuble ata
upun insertion
```

Ln: 8 Col: 176

modul_5.py - D:\smt 4\prak algo\modul_5\modul_5.py (3.7.6)

```
File  Edit  Format  Run  Options  Window  Help
    for i in range(dariSini+1, sampaiSini):
        if A[i] < 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] > 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

from time import time as detak
from random import shuffle as kocok

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

aw = detak();bubbleSort(u_bub);ak=detak();print("Bubble    : %g detik"%(ak-aw));
aw = detak();selectionSort(u_sel);ak=detak();print("Selection : %g detik"%(ak-aw))
aw = detak();insertionSort(u_ins);ak=detak();print("Insertion : %g detik"%(ak-aw))
```

Ln: 114 Col: 0

22:57