

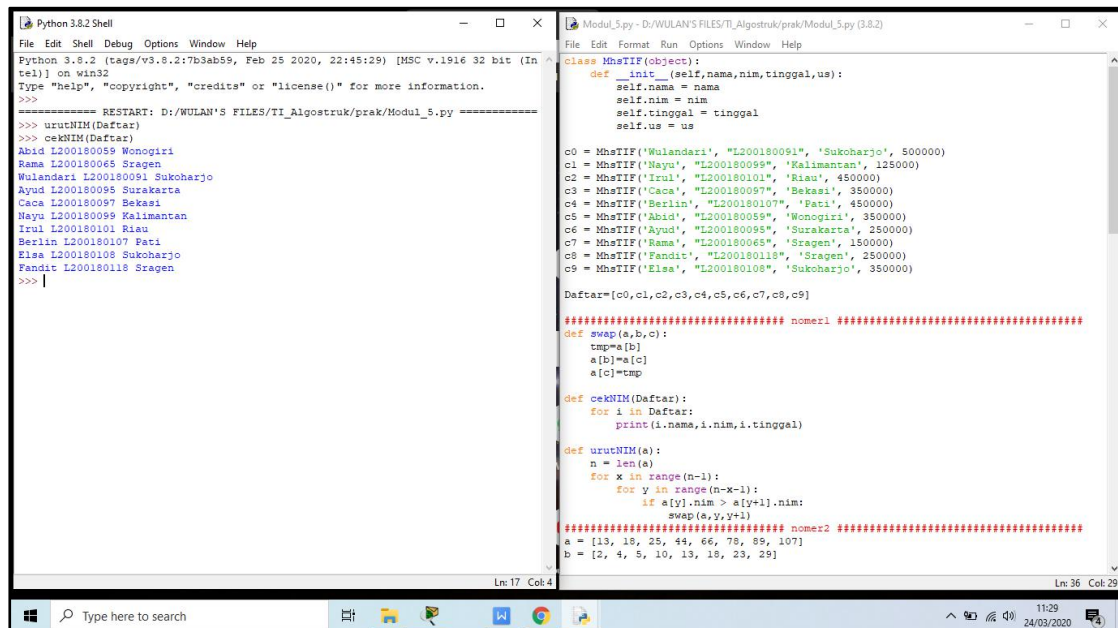
Nama : Wulandari Ratna Kartika Jayawardani

NIM : L200180091

Kelas : D

Modul 5

1. Mengurutkan daftar MhsTIF berdasarkan urutan NIM.



```
Python 3.8.2 Shell
File Edit Shell Debug Options Window Help
Python 3.8.2 (tags/v3.8.2:7b3ab59, Feb 25 2020, 22:45:29) [MSC v.1916 32 bit (Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: D:/WULAN'S FILES/TI_Algostruk/prak/Modul_5.py =====
>>> urutNIM(Daftar)
>>> cekNIM(Daftar)
Abid L200180059 Wonogiri
Rama L200180065 Sragen
Wulandari L200180091 Sukoharjo
Ayud L200180095 Surakarta
Caca L200180097 Bekasi
Nayu L200180099 Kalimantan
Irul L200180101 Riau
Berlin L200180107 Pati
Elsa L200180108 Sukoharjo
Fandit L200180118 Sragen
>>>

Modul_5.py - D:/WULAN'S FILES/TI_Algostruk/prak/Modul_5.py (3.8.2)
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('Wulandari', "L200180091", 'Sukoharjo', 500000)
c1 = MhsTIF('Nayu', "L200180099", 'Kalimantan', 125000)
c2 = MhsTIF('Irul', "L200180101", 'Riau', 450000)
c3 = MhsTIF('Caca', "L200180097", 'Bekasi', 350000)
c4 = MhsTIF('Berlin', "L200180107", 'Pati', 450000)
c5 = MhsTIF('Abid', "L200180059", 'Wonogiri', 350000)
c6 = MhsTIF('Ayud', "L200180095", 'Surakarta', 250000)
c7 = MhsTIF('Rama', "L200180065", 'Sragen', 150000)
c8 = MhsTIF('Fandit', "L200180118", 'Sragen', 250000)
c9 = MhsTIF('Elsa', "L200180108", 'Sukoharjo', 350000)

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

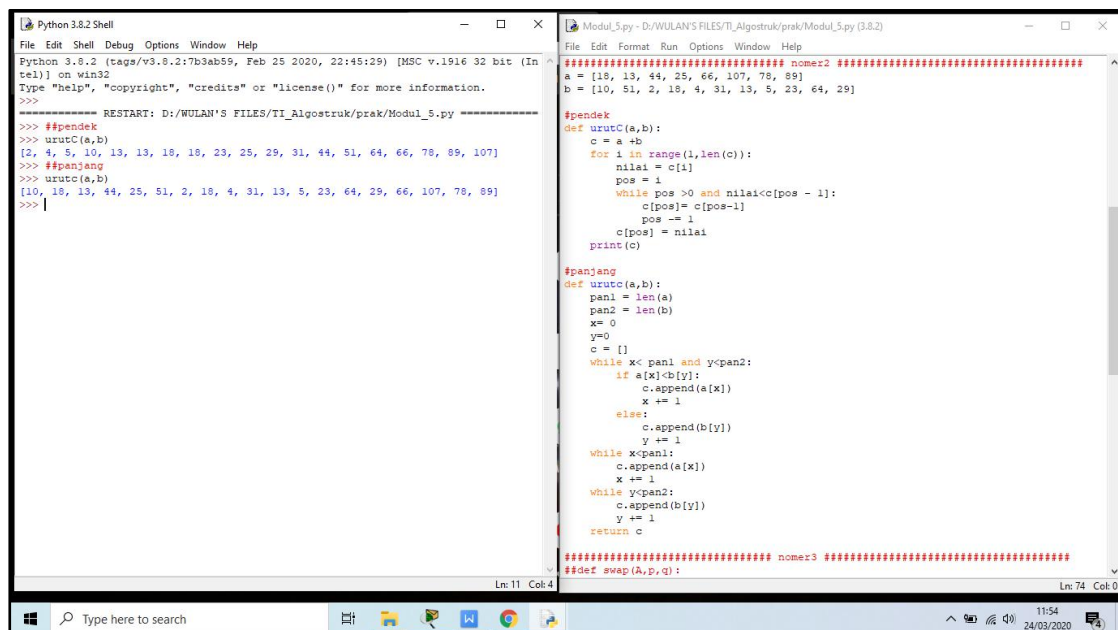
##### nomer1 #####
def swap(a,b,c):
    tmp=a[b]
    a[b]=a[c]
    a[c]=tmp

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)

a = [13, 18, 25, 44, 66, 78, 89, 107]
b = [2, 4, 5, 10, 13, 18, 23, 29]
```

2. Penggabungan array A dan B menjadi array C yang urut.



```
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>>>
===== RESTART: D:/WULAN'S FILES/TI_Algostruk/prak/Modul_5.py =====
>>> urutC(a,b)
[2, 4, 5, 10, 13, 13, 18, 18, 23, 25, 29, 31, 44, 51, 64, 66, 78, 89, 107]
>>> #panjang
>>> urutC(a,b)
[10, 18, 13, 44, 25, 51, 2, 18, 4, 31, 13, 5, 23, 64, 29, 66, 107, 78, 89]
>>>

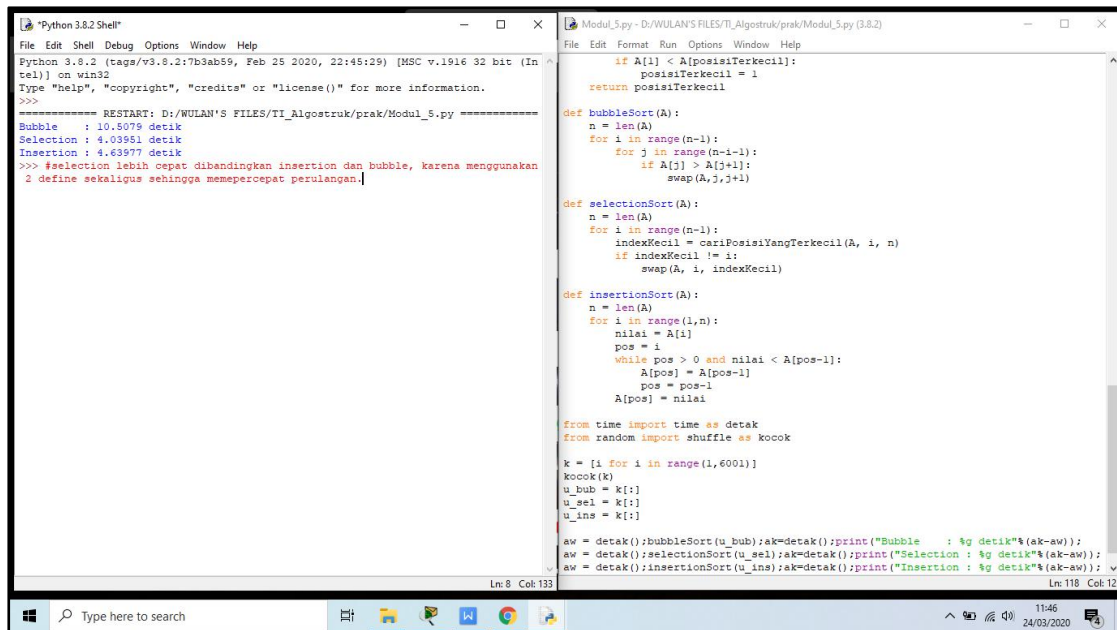
Modul_5.py - D:/WULAN'S FILES/TI_Algostruk/prak/Modul_5.py (3.8.2)
File Edit Format Run Options Window Help
##### nomer2 #####
a = [18, 13, 44, 25, 66, 107, 78, 89]
b = [10, 51, 2, 18, 4, 31, 13, 5, 23, 64, 29]

#pendek
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)

#panjang
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

##### nomer3 #####
def swap(A,p,q):
```

3. Membandingkan lebih cepat mana bubble, selection, atau insertion.



```
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>>>
===== RESTART: D:/WULAN'S FILES/TL_Algostruk/prak/Modul_5.py =====
Bubble      : 10.5079 detik
Selection   : 4.03951 detik
Insertion   : 4.63977 detik
>>> #selection lebih cepat dibandingkan insertion dan bubble, karena menggunakan
2 define sekaligus sehingga mempercepat perulangan.

Modul_5.py - D:/WULAN'S FILES/TL_Algostruk/prak/Modul_5.py (3.8.2)
File Edit Format Run Options Window Help
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 detik
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 = 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));
```