

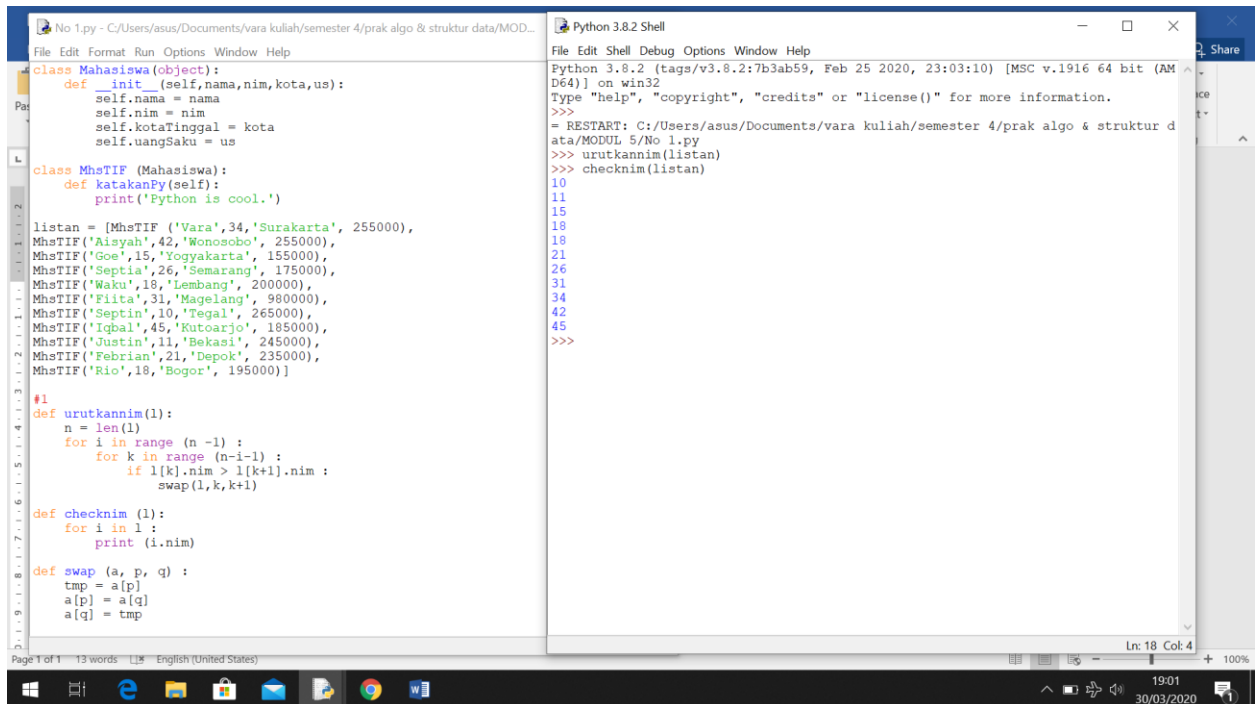
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Kelas : B

Modul 5

Pengurutan



```
No 1.py - C:/Users/asus/Documents/vara kuliah/semester 4/prak algo & struktur data/MOD...
Python 3.8.2 Shell
File Edit Shell Debug Options Window Help

Python 3.8.2 (tags/v3.8.2:7b3ab59, Feb 25 2020, 23:03:10) [MSC v.1916 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: C:/Users/asus/Documents/vara kuliah/semester 4/prak algo & struktur d
ata/MODUL 5/No 1.py
>>> urutkannim(listan)
>>> checknim(listan)
10
11
15
18
18
21
26
31
34
42
45
>>>

class Mahasiswa(object):
    def __init__(self,nama,nim,kota,us):
        self.nama = nama
        self.nim = nim
        self.kotaTinggal = kota
        self.uangSaku = us

class MhsTIF (Mahasiswa):
    def katakanPy(self):
        print('Python is cool.')

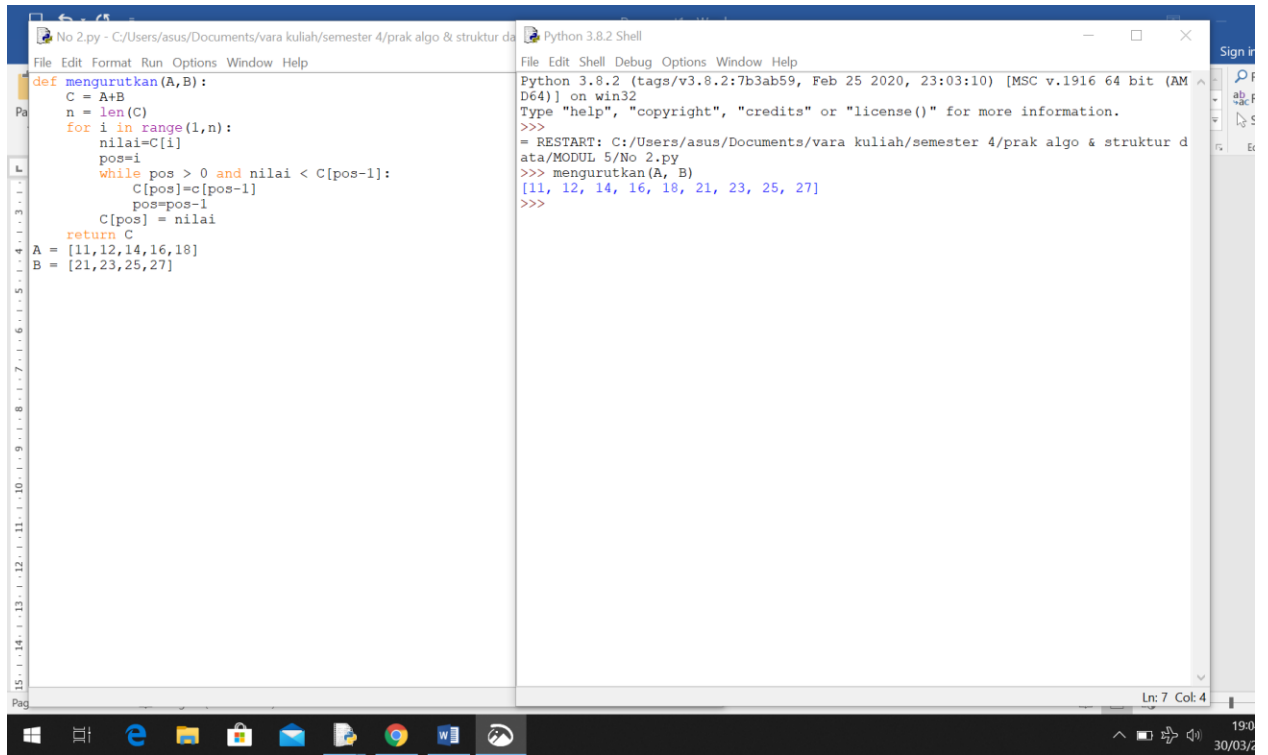
listan = [MhsTIF ('Vara',34,'Surakarta', 255000),
MhsTIF ('Aisyah',42,'Monosobo', 255000),
MhsTIF ('Goe',15,'Yogyakarta', 155000),
MhsTIF ('Septia',26,'Semarang', 175000),
MhsTIF ('Waku',18,'Lembang', 200000),
MhsTIF ('Fiita',31,'Magelang', 980000),
MhsTIF ('Septin',10,'Tegal', 265000),
MhsTIF ('Iqbal',45,'Kutoarjo', 185000),
MhsTIF ('Justin',11,'Bekasi', 245000),
MhsTIF ('Febrian',21,'Depok', 235000),
MhsTIF ('Rio',18,'Bogor', 195000)]

#1
def urutkannim(l):
    n = len(l)
    for i in range (n-1):
        for k in range (n-1-l):
            if l[k].nim > l[k+1].nim :
                swap(l,k,k+1)

def checknim (l):
    for i in l:
        print (i.nim)

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

1.



The image shows a screenshot of a Windows desktop with a Python 3.8.2 Shell window open. The shell window is divided into two panes. The left pane contains a Python script named 'mengurutkan(A,B):' which implements a sorting algorithm. The right pane shows the output of the script, which is the sorted list [11, 12, 14, 16, 18, 21, 23, 25, 27].

```
def mengurutkan(A,B):  
    C = A+B  
    n = len(C)  
    for i in range(1,n):  
        nilai=C[i]  
        pos=i  
        while pos > 0 and nilai < C[pos-1]:  
            C[pos]=C[pos-1]  
            pos=pos-1  
        C[pos] = nilai  
    return C  
A = [11,12,14,16,18]  
B = [21,23,25,27]
```

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>>>
= RESTART: C:/Users/asus/Documents/vara kuliah/semester 4/prak algo & struktur data/MODUL 5/No 2.py
>>> mengurutkan(A, B)
[11, 12, 14, 16, 18, 21, 23, 25, 27]
>>>

2.

No 3.py - C:/Users/asus/Documents/vara kuliah/semester 4/prak algo & struktur data/MODUL 5/No 3.py (3.8.2)

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```
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 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

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

k = []
for i in range(1, 6001):
    k.append(i)
kocok(k)
```

3.



```

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

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

k = []
for i in range(1, 6001):
    k.append(i)
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));

```



```
Python 3.8.2 Shell
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>>>
= RESTART: C:/Users/asus/Documents/vara kuliah/semester 4/prak algo & struktur data/MODUL 5/No 3.py
bubble: 5.34268 detik
selection: 2.3603 detik
insertion: 4.23505 detik
>>>
```

Ln: 8 Col: 4