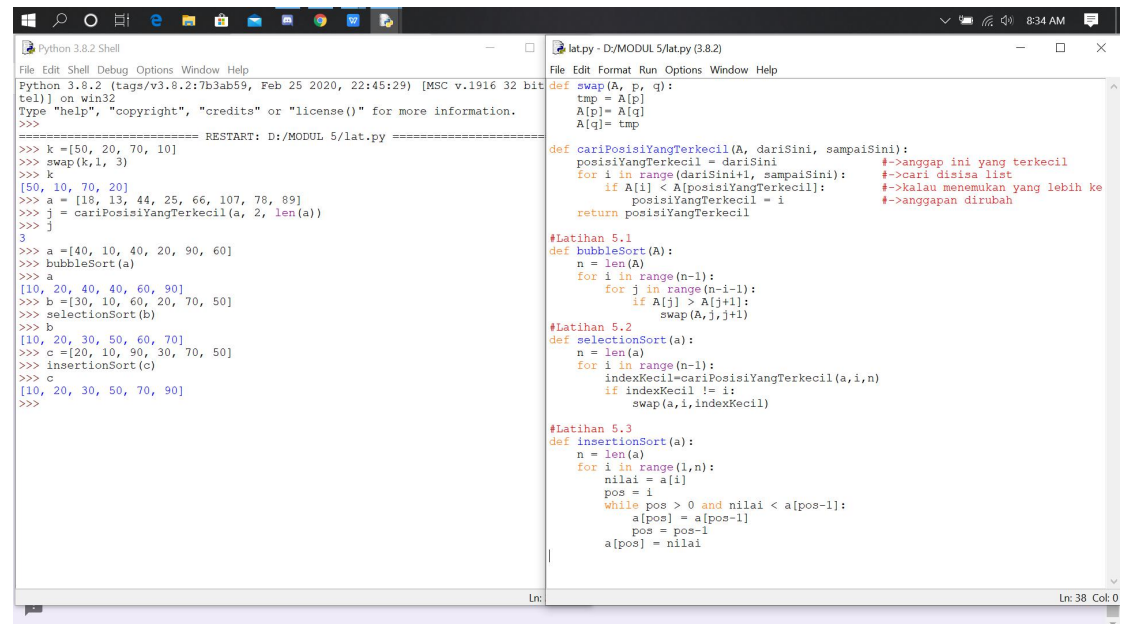


Nama : Auzan Danar K
NIM : L200180005
Kelas : A

Latihan



```
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
tel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: D:/MODUL 5/lat.py =====
>>> k=[50, 20, 70, 10]
>>> swap(k,1, 3)
>>> k
[50, 10, 70, 20]
>>> a = [18, 13, 44, 25, 66, 107, 78, 89]
>>> j = cariPosisiYangTerkecil(a, 2, len(a))
>>> j
3
>>> a=[40, 10, 40, 20, 90, 60]
>>> bubbleSort(a)
>>> a
[10, 20, 40, 40, 60, 90]
>>> b=[30, 10, 60, 20, 70, 50]
>>> selectionSort(b)
>>> b
[10, 20, 30, 50, 60, 70]
>>> c=[20, 10, 90, 30, 70, 50]
>>> insertionSort(c)
>>> c
[10, 20, 30, 50, 70, 90]
>>>
```

```
latpy - D:/MODUL 5/latpy (3.8.2)
File Edit Format Run Options Window Help
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

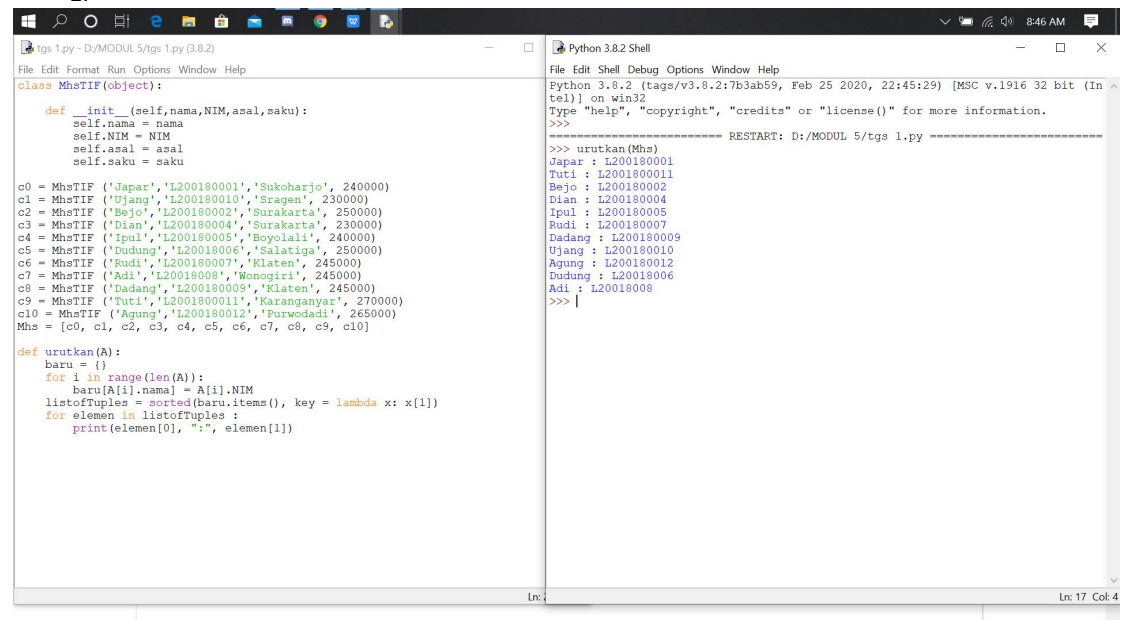
#Latihan 5.1
def bubbleSort(A):
    n = len(A)
    for i in range(n-1):
        for j in range(n-i-1):
            if A[j] > A[j+1]:
                swap(A,j,j+1)

#Latihan 5.2
def selectionSort(a):
    n = len(a)
    for i in range(n-1):
        indexKecil=cariPosisiYangTerkecil(a,i,n)
        if indexKecil != i:
            swap(a,i,indexKecil)

#Latihan 5.3
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
```

Tugas

1.



```
tgs 1.py - D:/MODUL 5/tgs 1.py (3.8.2)
File Edit Format Run Options Window Help
class MhsTIF(object):

    def __init__(self,nama,NIM,asal,saku):
        self.nama = nama
        self.NIM = NIM
        self.asal = asal
        self.saku = saku

c0 = MhsTIF ('Japar','L200180001','Sukoharjo', 240000)
c1 = MhsTIF ('Ujang','L200180010','Sragen', 230000)
c2 = MhsTIF ('Bejo','L200180002','Surakarta', 250000)
c3 = MhsTIF ('Dian','L200180004','Surakarta', 230000)
c4 = MhsTIF ('Ipul','L200180005','Boyolali', 240000)
c5 = MhsTIF ('Dadang','L200180006','Salatiga', 250000)
c6 = MhsTIF ('Rudi','L200180007','Klaten', 245000)
c7 = MhsTIF ('Adi','L200180008','Wonogiri', 245000)
c8 = MhsTIF ('Dadang','L200180009','Klaten', 245000)
c9 = MhsTIF ('Tuti','L200180011','Karanganyar', 270000)
c10 = MhsTIF ('Agung','L200180012','Purwodadi', 265000)
Mhs = [c0, c1, c2, c3, c4, c5, c6, c7, c8, c9, c10]

def urutkan(A):
    baru = {}
    for i in range(len(A)):
        baru[A[i].nama] = A[i].NIM
    listofTuples = sorted(baru.items(), key = lambda x: x[1])
    for elemen in listofTuples:
        print(elemen[0], ":", elemen[1])
```

```
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 (In
tel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: D:/MODUL 5/tgs 1.py =====
>>> urutkan(Mhs)
Japar : L200180001
Tuti : L200180011
Bejo : L200180002
Dian : L200180004
Ipul : L200180005
Rudi : L200180007
Dadang : L200180009
Ujang : L200180010
Agung : L200180012
Dadang : L200180006
Adi : L200180008
>>>
```

2.

The screenshot shows a Python IDE with two windows. The left window, titled 'tgs 2.py - D:/MODUL 5/tgs 2.py (3.8.2)', contains the following code:

```
def bubbleSort(arr):
    n = len(arr)
    for i in range(n):
        for j in range(0, n-i-1):
            if arr[j] > arr[j+1]:
                arr[j], arr[j+1] = arr[j+1], arr[j]
    return arr

def gabung(a,b):
    c = []
    c = a+b
    n = len(c)
    for i in range(n):
        for j in range(0, n-i-1):
            if c[j] > c[j+1]:
                c[j], c[j+1] = c[j+1], c[j]
    return c
```

The right window, titled 'Python 3.8.2 Shell', shows the execution of the code:

```
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:/MODUL 5/tgs 2.py =====
>>> a = [3,10,13,20,25,28,34,45]
>>> b = [47,63,68,71,85]
>>> a, b = bubbleSort(a), bubbleSort(b)
>>> gabung(a,b)
[3, 10, 13, 20, 25, 28, 34, 45, 47, 63, 68, 71, 85]
>>>
```

The status bar at the bottom indicates 'Ln: 1' and 'Col: 4'.

3.

The screenshot shows a Python IDE with two windows. The left window, titled 'tgs 3.py - D:/MODUL 5/tgs 3.py (3.8.2)', contains the following code:

```
from time import time as detik
from random import shuffle as kocok
k = [i for i in range(1,6001)]
kocok(k)

def u_bub(arr):
    n = len(arr)
    for i in range(n):
        for j in range(0, n-i-1):
            if arr[j] > arr[j+1]:
                arr[j], arr[j+1] = arr[j+1], arr[j]
    return arr

def u_sel(A):
    for i in range(len(A)):
        min_in = i
        for j in range(i+1, len(A)):
            if A[min_in] > A[j]:
                min_in = j
        A[i], A[min_in] = A[min_in], A[i]

def u_ins(arr):
    for i in range(1, len(arr)):
        key = arr[i]
        j = i-1
        while j >= 0 and key < arr[j]:
            arr[j+1] = arr[j]
            j -= 1
        arr[j+1] = key
```

The right window, titled 'Python 3.8.2 Shell', shows the execution of the code:

```
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:/MODUL 5/tgs 3.py =====
>>> bub = k[:]
>>> sel = k[:]
>>> aw = detik(); u_bub(bub); ak = detik(); print('bubble : %g detik' % (ak-aw));
bubble : 4.91025 detik
>>> aw = detik(); u_sel(sel); ak = detik(); print('bubble : %g detik' % (ak-aw));
bubble : 2.33511 detik
>>> aw = detik(); u_ins(aw); ak = detik(); print('bubble : %g detik' % (ak-aw));
bubble : 2.38072 detik
>>>
```

The status bar at the bottom indicates 'Ln: 14' and 'Col: 4'.