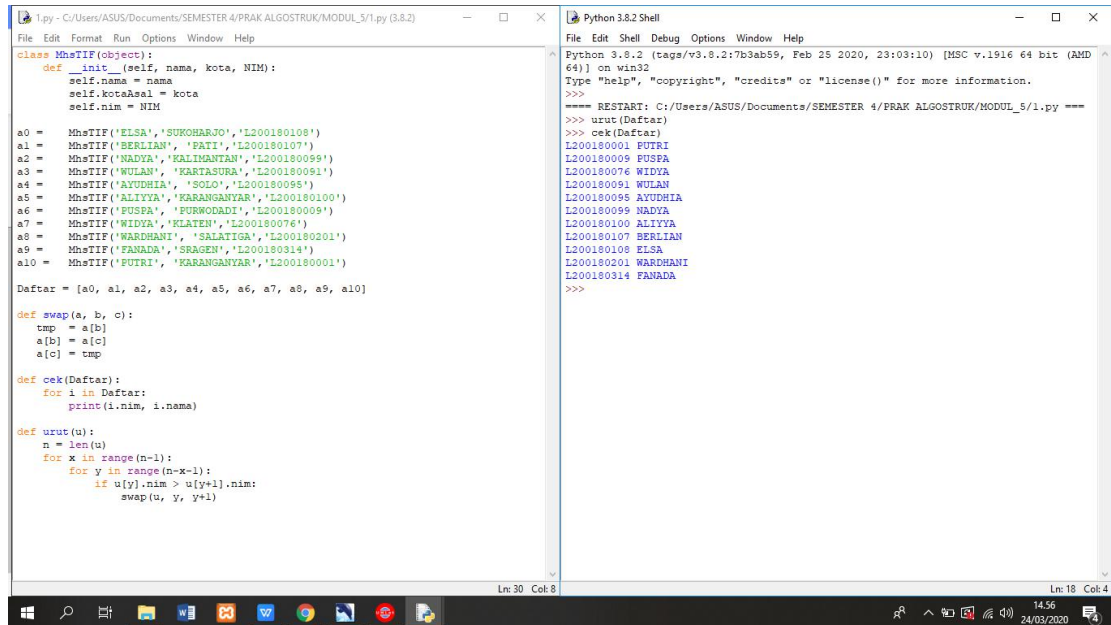


NAMA : ELSA PUTRI ALIYYA
NIM : L200180108
KELAS : D

TUGAS MODUL 5

1.



```
1.py - C:/Users/ASUS/Documents/SEMESTER 4/PRAK ALGOSTRUK/MODUL_5/1.py (3.8.2)
File Edit Format Run Options Window Help

class MhsTIF(object):
    def __init__(self, nama, kota, NIM):
        self.nama = nama
        self.kotaAsal = kota
        self.nim = NIM

a0 = MhsTIF('ELSA', 'SUKOHARJO', 'L200180108')
a1 = MhsTIF('BERLIAN', 'PATI', 'L200180107')
a2 = MhsTIF('NADYA', 'KALIMANTAN', 'L200180099')
a3 = MhsTIF('WULAN', 'KARTASURA', 'L200180091')
a4 = MhsTIF('AYUDHIA', 'SOLO', 'L200180098')
a5 = MhsTIF('ALIYYA', 'KARANGANYAR', 'L200180100')
a6 = MhsTIF('FUSPA', 'PURWODADI', 'L200180099')
a7 = MhsTIF('WIDYA', 'KLATEN', 'L200180076')
a8 = MhsTIF('WARDHANI', 'SALATIGA', 'L200180201')
a9 = MhsTIF('FANADA', 'SRAGEN', 'L200180314')
a10 = MhsTIF('PUTRI', 'KARANGANYAR', 'L200180001')

Daftar = [a0, a1, a2, a3, a4, a5, a6, a7, a8, a9, a10]

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

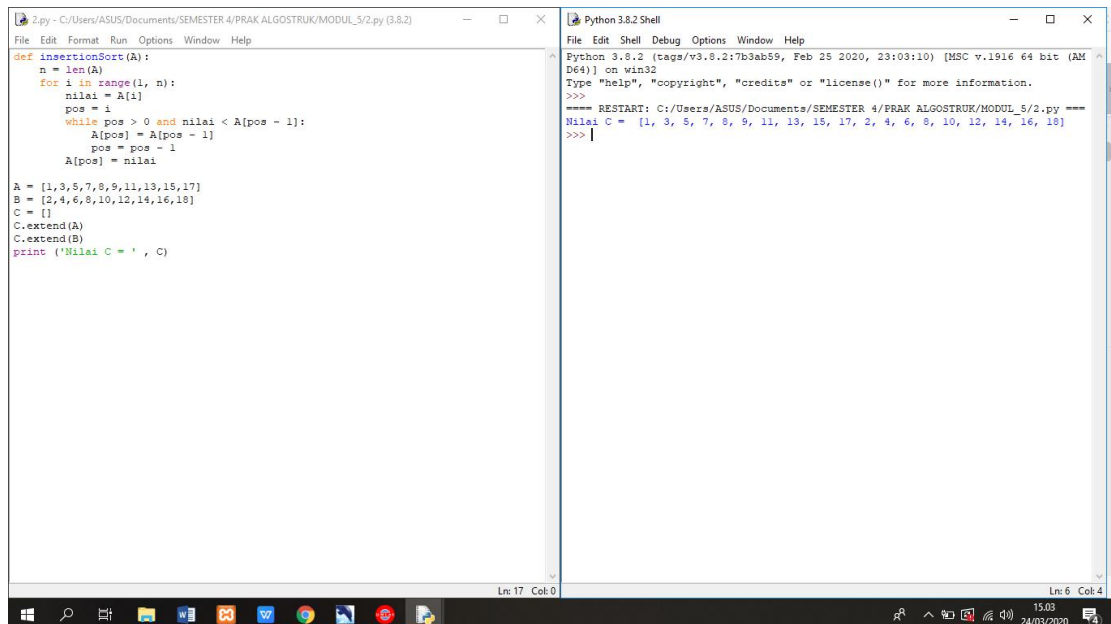
def cek(Daftar):
    for i in Daftar:
        print(i.nim, i.nama)

def urut(u):
    n = len(u)
    for x in range(n-1):
        for y in range(n-x-1):
            if u[y].nim > u[y+1].nim:
                swap(u, y, y+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, 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/SEMESTER 4/PRAK ALGOSTRUK/MODUL_5/1.py =====
>>> urut(Daftar)
>>> cek(Daftar)
L200180001 PUTRI
L200180099 FUSPA
L200180076 WIDYA
L200180091 WULAN
L200180098 AYUDHIA
L200180099 NADYA
L200180100 ALIYYA
L200180107 BERLIAN
L200180108 ELSA
L200180201 WARDHANI
L200180314 FANADA
>>>
```

2.



```
2.py - C:/Users/ASUS/Documents/SEMESTER 4/PRAK ALGOSTRUK/MODUL_5/2.py (3.8.2)
File Edit Format Run Options Window Help

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 = [1,3,5,7,8,9,11,13,15,17]
B = [2,4,6,8,10,12,14,16,18]
C = []
C.extend(A)
C.extend(B)
print('Nilai C = ', C)

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/SEMESTER 4/PRAK ALGOSTRUK/MODUL_5/2.py =====
Nilai C = [1, 3, 5, 7, 8, 9, 11, 13, 15, 17, 2, 4, 6, 8, 10, 12, 14, 16, 18]
>>>
```

3.

The image shows two screenshots of a Python 3.8.2 IDE. The top screenshot shows a script with the following code:

```

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 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)

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

k = [i for i in range(1,6001)]
kocok(k)

```

The bottom screenshot shows the same script with additional code for timing and execution:

```

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));

```

The output in the Python Shell for both screenshots is:

```

==== RESTART: C:/Users/ASUS/Documents/SEMESTER 4/PRAK ALGOSTRUK/MODUL_5/3.py ====
bubble: 5.60824 detik
selection: 1.8916 detik
insertion:2.90488 detik
>>>

```