

Nama : Luqman Hanung Asidiq

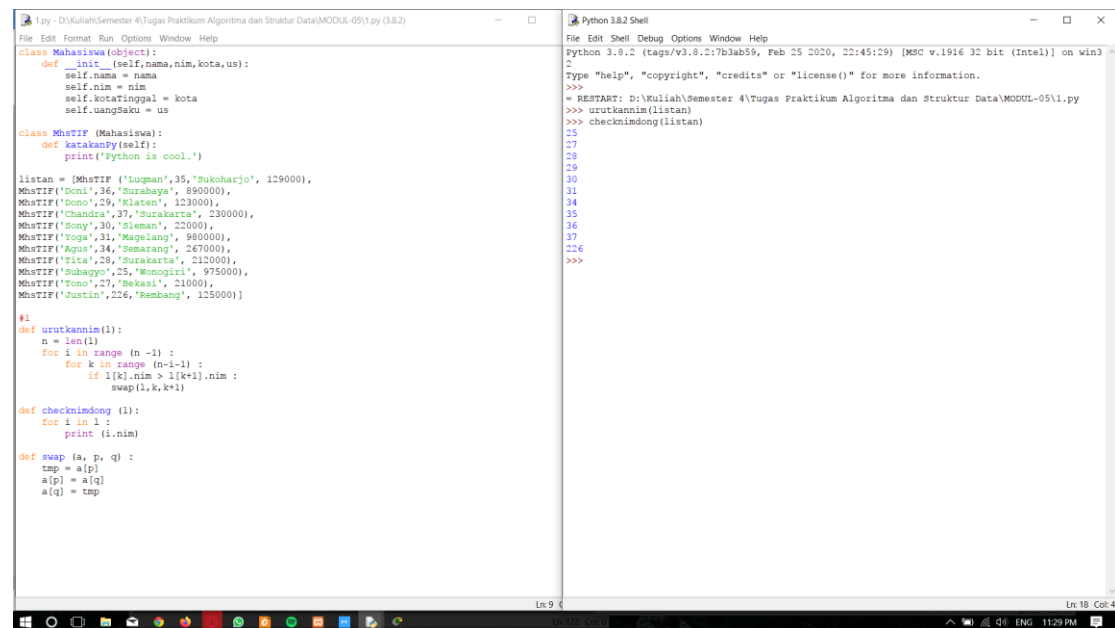
NIM : L200180035

Kelas : B

## Laporan Praktikum Algoritma dan Struktur Data

### Modul 5

1.



```
1.py - D:\Kuliah\Semester 4\Tugas Praktikum Algoritma dan Struktur Data\MODUL-05\1.py (3.8.2)
File Edit Format Run Options Window Help
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('Luqman',35,'Sukoharjo', 129000),
MhsTIF('Doni',36,'Surabaya', 890000),
MhsTIF('Dono',29,'Klaten', 123000),
MhsTIF('Chandra',37,'Surakarta', 230000),
MhsTIF('Sony',30,'Sleman', 22000),
MhsTIF('Yoga',31,'Magelang', 980000),
MhsTIF('Agus',34,'Semarang', 267000),
MhsTIF('Tita',28,'Surakarta', 212000),
MhsTIF('Subagyo',25,'Wonogiri', 975000),
MhsTIF('Tuno',27,'Bekasi', 21000),
MhsTIF('Justin',226,'Rembang', 125000)]

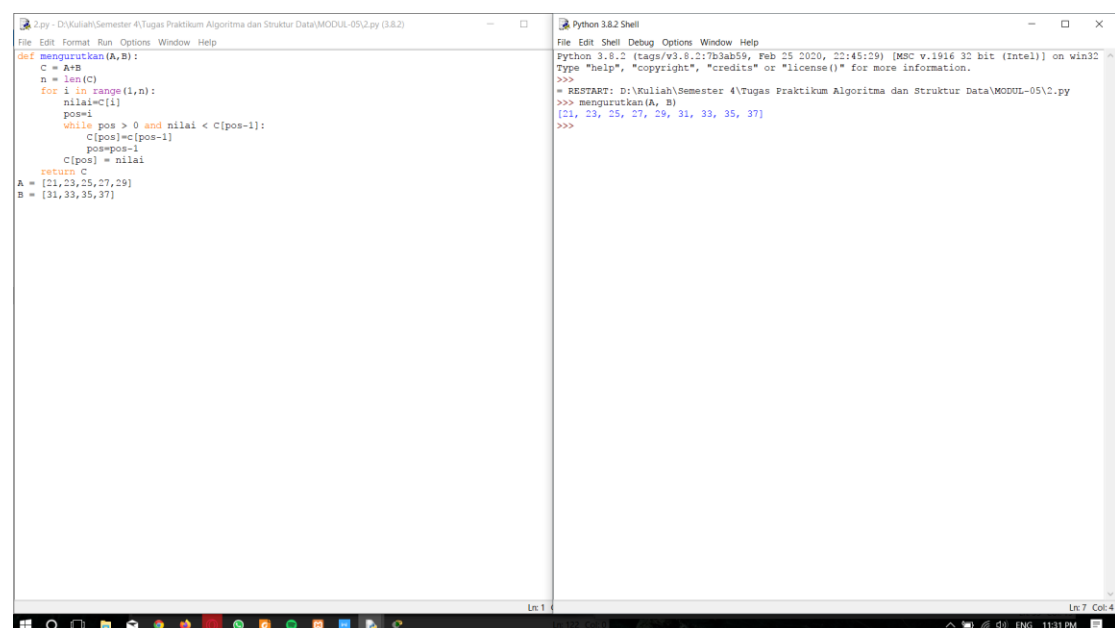
#1
def urutkannim(l):
    n = len(l)
    for i in range(n-1):
        for k in range(n-i-1):
            if l[k].nim > l[k+1].nim:
                swap(l,k,k+1)

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

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

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:\Kuliah\Semester 4\Tugas Praktikum Algoritma dan Struktur Data\MODUL-05\1.py
>>> urutkannim(listan)
>>> checkmimdong(listan)
25
27
28
29
30
31
34
35
36
37
226
>>>
```

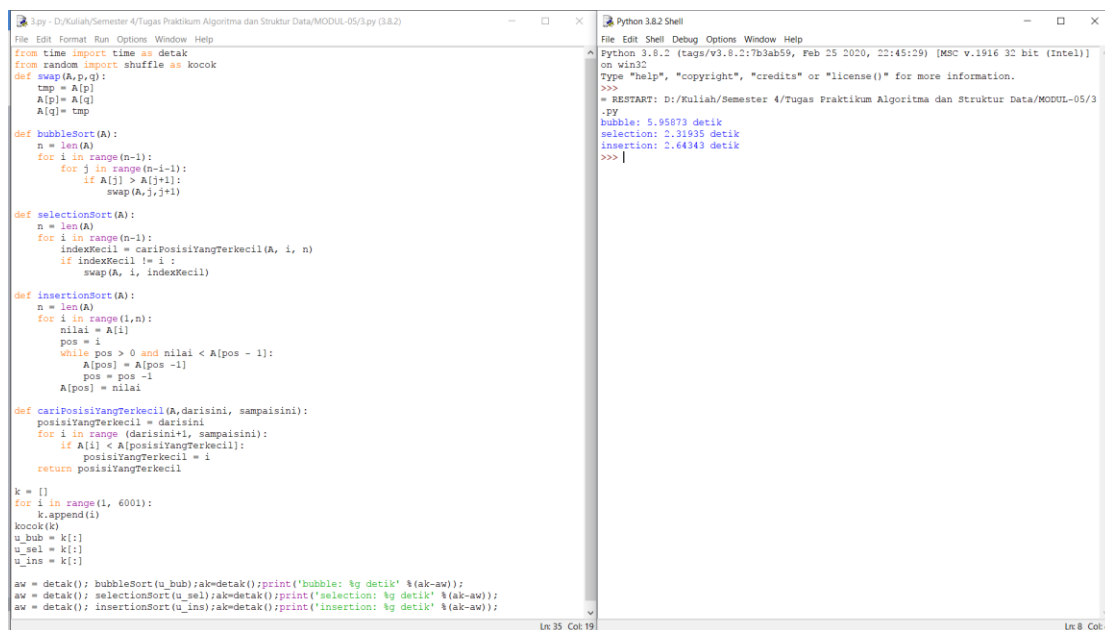
2.



```
2.py - D:\Kuliah\Semester 4\Tugas Praktikum Algoritma dan Struktur Data\MODUL-05\2.py (3.8.2)
File Edit Format Run Options Window Help
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 = [21,23,25,27,29]
B = [31,33,35,37]

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:\Kuliah\Semester 4\Tugas Praktikum Algoritma dan Struktur Data\MODUL-05\2.py
>>> mengurutkan(A, B)
[21, 23, 25, 27, 29, 31, 33, 35, 37]
>>>
```

3.



```
3.py - D:/Kuliah/Semester 4/Tugas Praktikum Algoritma dan Struktur Data/MODUL-05/3.py (3.8.2)
File Edit Format Run Options Window Help
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)
u_bub = k[:]
u_sel = k[:]
u_ins = k[:]
aw = detik(); bubbleSort(u_bub);ak=detik();print('bubble: %g detik' %(ak-aw));
aw = detik(); selectionSort(u_sel);ak=detik();print('selection: %g detik' %(ak-aw));
aw = detik(); insertionSort(u_ins);ak=detik();print('insertion: %g detik' %(ak-aw));

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:/Kuliah/Semester 4/Tugas Praktikum Algoritma dan Struktur Data/MODUL-05/3
.py
bubble: 5.95073 detik
selection: 2.31935 detik
insertion: 2.64343 detik
>>>
```