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Nim : L200180086
Kelas : D

MODUL 5

Nomer 1

Modul_ke5.py - E:/KULIAH SEMESTER 4/PRAKTIKUM ALGORITMA dan STRUKTUR DATA/Modul_ke5.py (3.7.6)

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```
##Kelas : D
##MODUL 5
#Nomor 1
class MhsTIF(object): #Nomor 1
    def __init__(self,nama,NIM,kota,us):
        self.nama = nama
        self.NIM = NIM
        self.kotaTinggal = kota
        self.uangSaku = us
    def ambilNama(self):
        return self.nama
    def ambilNIM(self):
        return self.NIM
    def ambilKota(self):
        return self.kota
    def ambilUangSaku(self):
        return self.uangSaku

c0 = MhsTIF('Ika',10,'Sukoharjo',240000)
c1 = MhsTIF('Budi',51,'Sragen', 230000)
c2 = MhsTIF('Ahmad',2,'Surakarta',250000)
c3 = MhsTIF('Chandra',18,'Surakarta',235000)
c4 = MhsTIF('Eka',4,'Boyolali',240000)
c5 = MhsTIF('Fandi',31,'Salatiga',250000)
c6 = MhsTIF('Deni',13,'Klaten', 240000)
c7 = MhsTIF('Galuh',5,'Wonogiri',245000)
c8 = MhsTIF('Janto',23,'Klaten',245000)
c9 = MhsTIF('Hasan',64,'Karanganyar',270000)
c10 = MhsTIF('Khalid',29,'Purwodadi',265000)

Daftar = [c0,c1,c2,c3,c4,c5,c6,c7,c8,c9,c10]

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

def nim(daftar):
    for i in daftar:
        print(i.NIM)

def bubblesort(daftar):
    n = len(daftar)
    for i in range (n-1):
        for j in range(n-i-1):
            if daftar[j].NIM > daftar[j+1].NIM:
                swap(daftar,j,j+1)
```

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Python 3.7.6 Shell

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```
Python 3.7.6 (tags/v3.7.6:43364a7ae0, Dec 19 2019, 00:42:30) [MSC v.1916 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: E:/KULIAH SEMESTER 4/PRAKTIKUM ALGORITMA dan STRUKTUR DATA/Modul_ke5.py
>>> bubblesort(Daftar)
>>> print(nim(Daftar))
2
4
5
10
13
18
23
29
31
51
64
None
>>>
```

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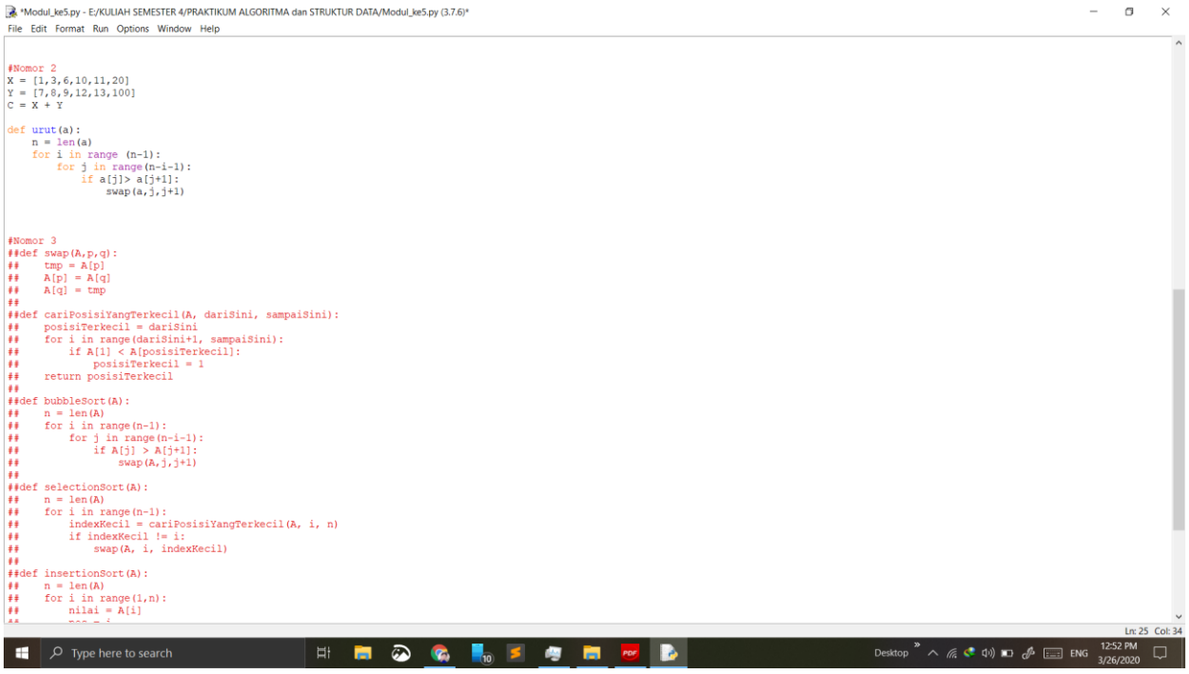
Nomer 2


Modul_ke5.py - E:/KULIAH SEMESTER 4/PRAKTIKUM ALGORITMA dan STRUKTUR DATA/Modul_ke5.py (3.7.6)
File Edit Format Run Options Window Help
#Nomor 2
X = [1,3,6,10,11,20]
Y = [7,8,9,12,13,100]
C = X + Y
def urut(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)
#Nomor 3
##def swap(A,p,q):
tmp = A[p]
A[p] = A[q]
A[q] = tmp
##
##def cariPosisiYangTerkecil(A, dariSini, sampaiSini):
posisiTerkecil = dariSini
for i in range(dariSini+1, sampaiSini):
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]
Ln: 25 Col: 34
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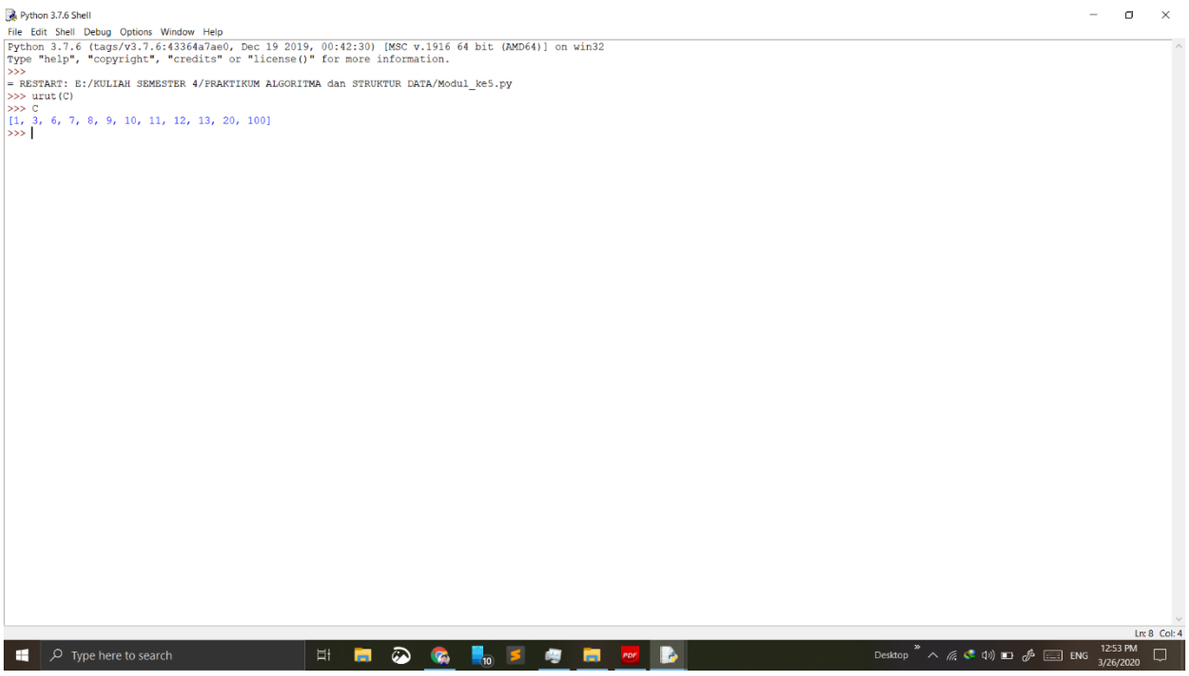
3/26/2020


Python 3.7.6 Shell
File Edit Shell Debug Options Window Help
Python 3.7.6 (tags/v3.7.6:43364a7ae0, Dec 19 2019, 00:42:30) [MSC v.1916 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: E:/KULIAH SEMESTER 4/PRAKTIKUM ALGORITMA dan STRUKTUR DATA/Modul_ke5.py
>>> urut(C)
>>> C
[1, 3, 6, 7, 8, 9, 10, 11, 12, 13, 20, 100]
>>>
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Nomer 3

Modul_ke5.py - E:/KULIAH SEMESTER 4/PRAKTIKUM ALGORITMA dan STRUKTUR DATA/Modul_ke5.py (3.7.6)

File Edit Format Run Options Window Help

```
#Nomor 3
def swap(A,p,q):
    tmp = A[p]
    A[p] = A[q]
    A[q] = tmp

def cariPosisiYangTerkecil(A, dariSini, sampaiSini):
    posisiTerkecil = dariSini
    for i in range(dariSini+1, sampaiSini):
        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 detak
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 = 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));
```

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Python 3.7.6 Shell

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```
Python 3.7.6 (tags/v3.7.6:43364a7ae0, Dec 19 2019, 00:42:30) [MSC v.1916 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: E:/KULIAH SEMESTER 4/PRAKTIKUM ALGORITMA dan STRUKTUR DATA/Modul_ke5.py
Bubble    : 5.45635 detik
Selection : 1.93032 detik
Insertion : 2.89072 detik
>>>
```

Ln: 8 Col: 4