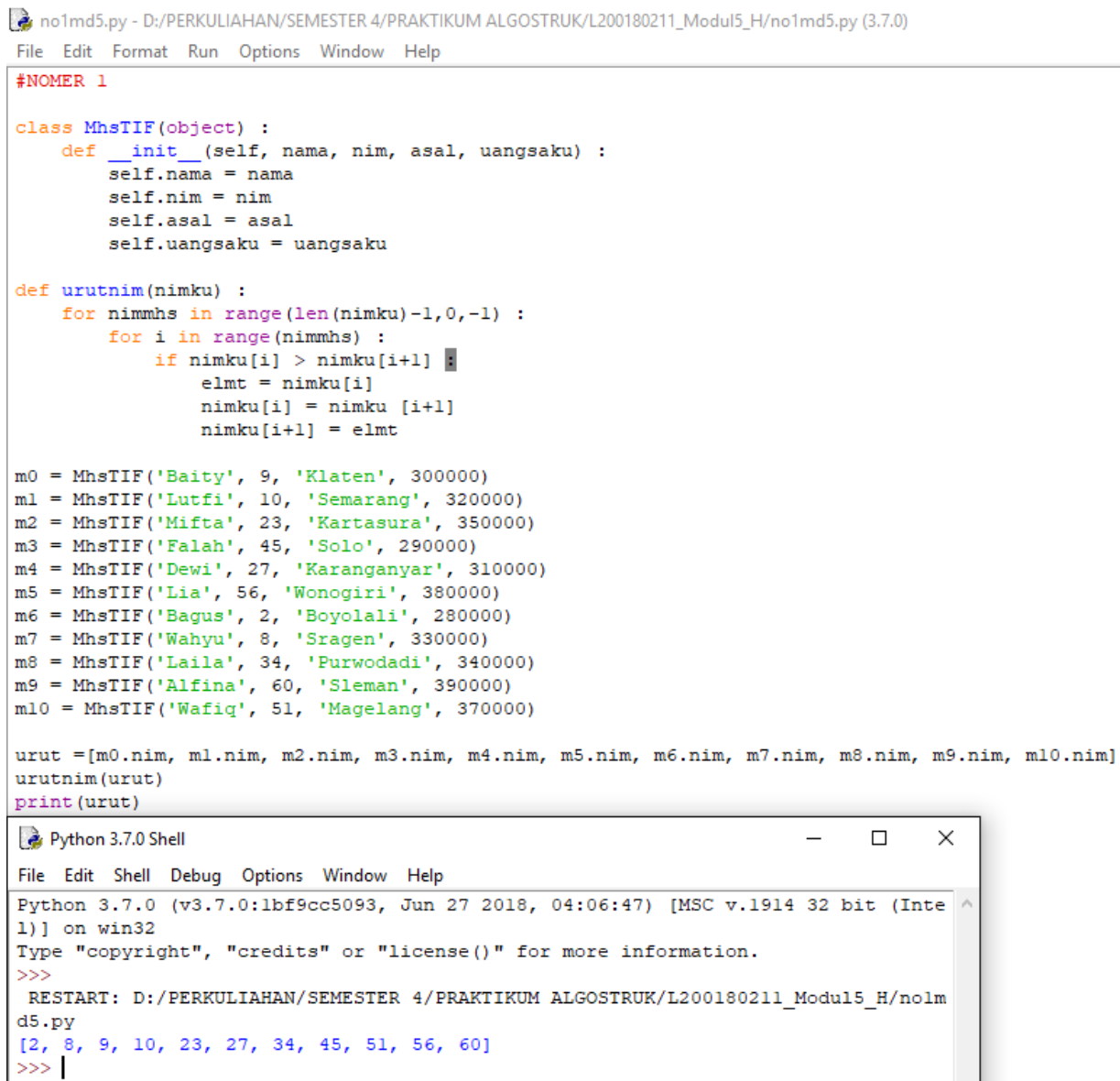**NAMA** : BAITY JANNATIKA

NIM : L200180211

KELAS : H / PRAKTIKUM ALGORITMA DAN STRUKTUR DATA

MODUL 5

PENGURUTAN

NOMER 1

no1md5.py - D:/PERKULIAHAN/SEMESTER 4/PRAKTIKUM ALGOSTRUK/L200180211_Modul5_H/no1md5.py (3.7.0)

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```python
#NOMER 1

class MhsTIF(object) :
    def __init__(self, nama, nim, asal, uangsaku) :
        self.nama = nama
        self.nim = nim
        self.asal = asal
        self.uangsaku = uangsaku

def urutnim(nimku) :
    for nimmhs in range(len(nimku)-1,0,-1) :
        for i in range(nimmhs) :
            if nimku[i] > nimku[i+1] :
                elmt = nimku[i]
                nimku[i] = nimku [i+1]
                nimku[i+1] = elmt

m0 = MhsTIF('Baity', 9, 'Klaten', 300000)
m1 = MhsTIF('Lutfi', 10, 'Semarang', 320000)
m2 = MhsTIF('Mifta', 23, 'Kartasura', 350000)
m3 = MhsTIF('Falah', 45, 'Solo', 290000)
m4 = MhsTIF('Dewi', 27, 'Karanganyar', 310000)
m5 = MhsTIF('Lia', 56, 'Wonogiri', 380000)
m6 = MhsTIF('Bagus', 2, 'Boyolali', 280000)
m7 = MhsTIF('Wahyu', 8, 'Sragen', 330000)
m8 = MhsTIF('Laila', 34, 'Purwodadi', 340000)
m9 = MhsTIF('Alfina', 60, 'Sleman', 390000)
m10 = MhsTIF('Wafiq', 51, 'Magelang', 370000)

urut =[m0.nim, m1.nim, m2.nim, m3.nim, m4.nim, m5.nim, m6.nim, m7.nim, m8.nim, m9.nim, m10.nim]
urutnim(urut)
print(urut)
```
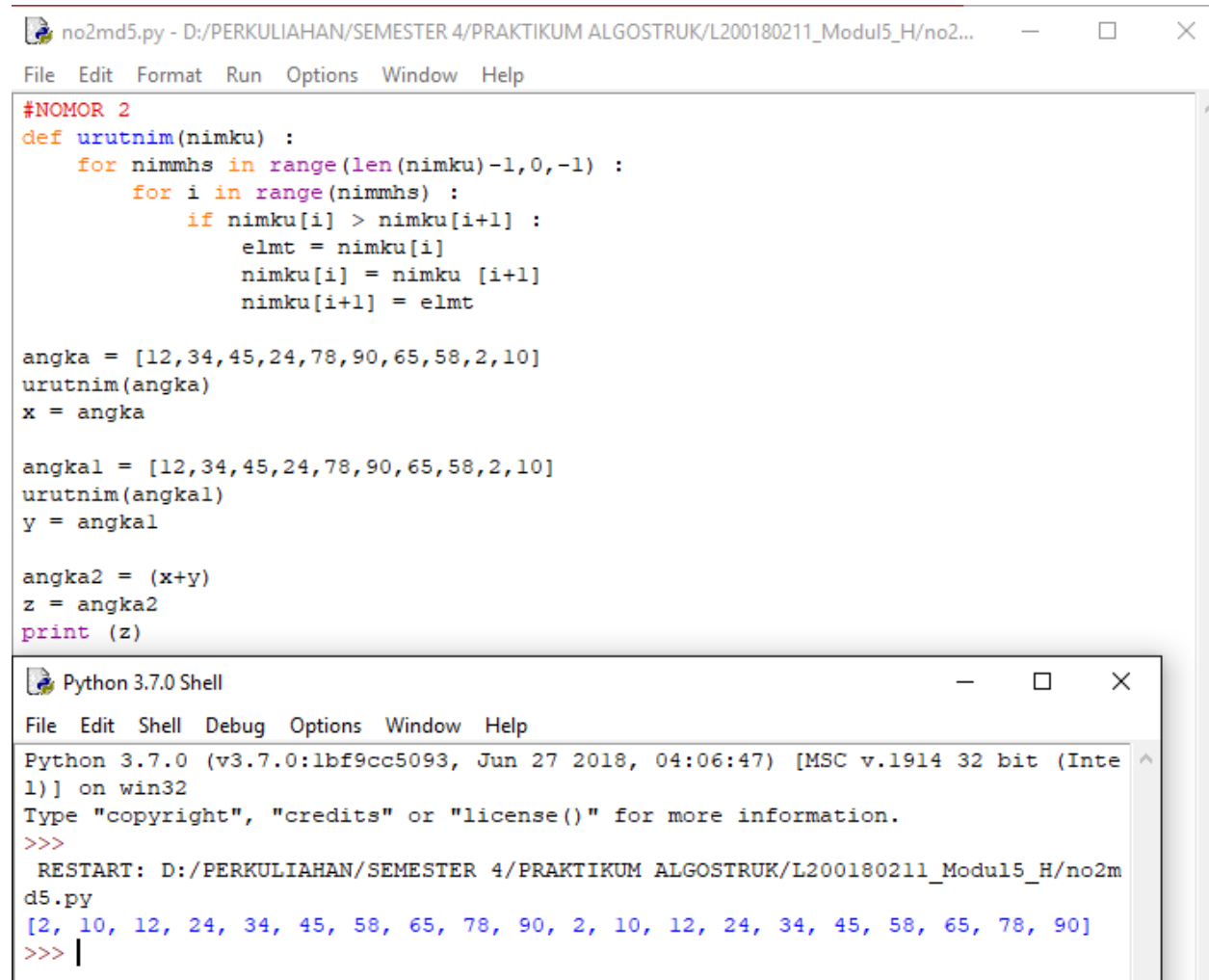
Python 3.7.0 Shell — □ ×

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```
Python 3.7.0 (v3.7.0:1bf9cc5093, Jun 27 2018, 04:06:47) [MSC v.1914 32 bit (Inte
l)] on win32
Type "copyright", "credits" or "license()" for more information.
>>>
 RESTART: D:/PERKULIAHAN/SEMESTER 4/PRAKTIKUM ALGOSTRUK/L200180211_Modul5_H/no1m
d5.py
[2, 8, 9, 10, 23, 27, 34, 45, 51, 56, 60]
>>>
```

NOMOR 2

```
#NOMOR 2
def urutnim(nimku) :
    for nimmhs in range(len(nimku)-1,0,-1) :
        for i in range(nimmhs) :
            if nimku[i] > nimku[i+1] :
                elmt = nimku[i]
                nimku[i] = nimku [i+1]
                nimku[i+1] = elmt

angka = [12,34,45,24,78,90,65,58,2,10]
urutnim(angka)
x = angka

angka1 = [12,34,45,24,78,90,65,58,2,10]
urutnim(angka1)
y = angka1

angka2 = (x+y)
z = angka2
print (z)
```

```
Python 3.7.0 (v3.7.0:1bf9cc5093, Jun 27 2018, 04:06:47) [MSC v.1914 32 bit (Inte
1)] on win32
Type "copyright", "credits" or "license()" for more information.
>>>
 RESTART: D:/PERKULIAHAN/SEMESTER 4/PRAKTIKUM ALGOSTRUK/L200180211_Modul5_H/no2m
d5.py
[2, 10, 12, 24, 34, 45, 58, 65, 78, 90, 2, 10, 12, 24, 34, 45, 58, 65, 78, 90]
>>> |
```

NOMOR 3

```python
from time import time as detak
from random import shuffle as kocok

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

def selectionSort(X) :
    n = len (X)
    for i in range(n-1) :
        indeksKecil = mencariYangPalingKecil(X, i, n)
        if indeksKecil != i :
            swap (X, i, indeksKecil)

def insertSort(X) :
    n = len (X)
    for i in range (1, n) :
        nilai = X[i]
        abc = i
        while abc > 0 and nilai < X[abc-1] :
            X[abc] = X[abc-1]
            abc = abc-1
        X[abc] = nilai

def swap (X, a, b) :
    klm = X[a]
    X[a] = X[b]
    X[b] = klm

def mencariYangPalingKecil(X, awal, pilihanberhenti) :
    palingKecil = awal
    for i in range (awal+1, pilihanberhenti) :
        if X[i] < X[palingKecil] :
            palingKecil = i
    return palingKecil
```
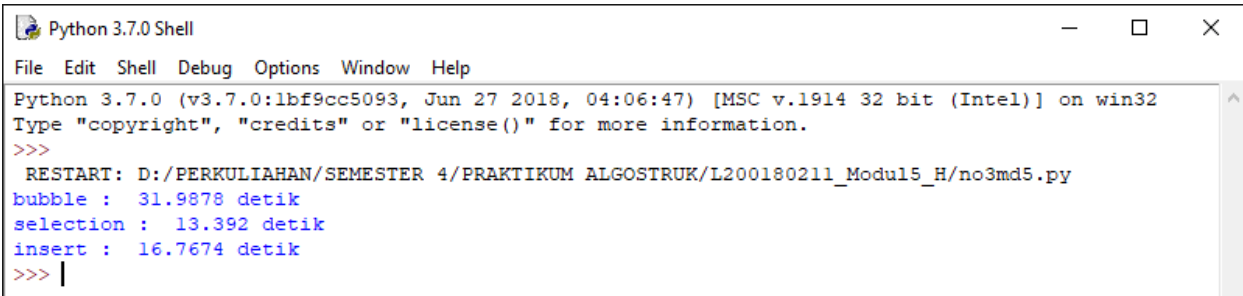
```
k = []
for i in range(1, 6001) :
    k.append(i)

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 () ; insertSort (u_ins) ; ak = detak() ; print('insert : % g detik' % (ak - aw)) ;
```

Python 3.7.0 Shell   — □ ✕

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```
Python 3.7.0 (v3.7.0:1bf9cc5093, Jun 27 2018, 04:06:47) [MSC v.1914 32 bit (Intel)] on win32
Type "copyright", "credits" or "license()" for more information.
>>>
 RESTART: D:/PERKULIAHAN/SEMESTER 4/PRAKTIKUM ALGOSTRUK/L200180211_Modul5_H/no3md5.py
bubble :  31.9878 detik
selection :  13.392 detik
insert :  16.7674 detik
>>>
```