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Kelas : D

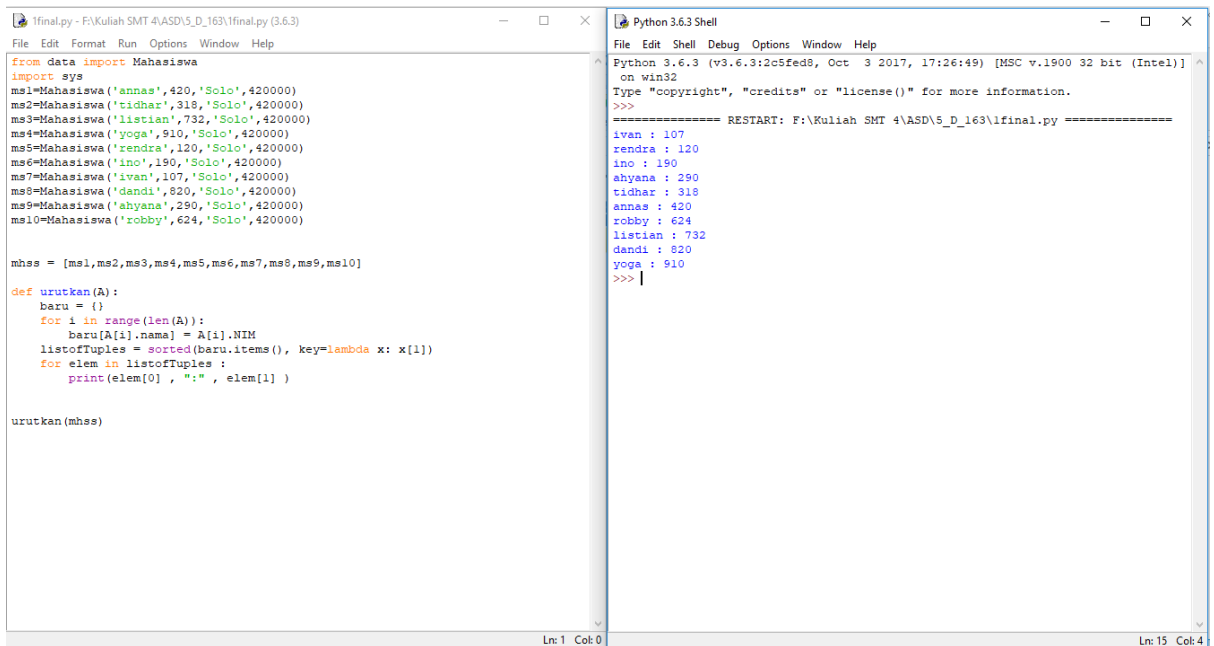
Nim : L200170163

LAPORAN PRAKTIKUM

ALGORITMA DAN STRUKTUR DATA

MODUL KE 5

1. Nomer 1



```
from data import Mahasiswa
import sys
ms1=Mahasiswa('annas',420,'Solo',420000)
ms2=Mahasiswa('tidhar',318,'Solo',420000)
ms3=Mahasiswa('listian',732,'Solo',420000)
ms4=Mahasiswa('yoga',910,'Solo',420000)
ms5=Mahasiswa('rendra',120,'Solo',420000)
ms6=Mahasiswa('ino',190,'Solo',420000)
ms7=Mahasiswa('ivan',107,'Solo',420000)
ms8=Mahasiswa('dandi',820,'Solo',420000)
ms9=Mahasiswa('ahyana',290,'Solo',420000)
ms10=Mahasiswa('robby',624,'Solo',420000)

mhss = [ms1,ms2,ms3,ms4,ms5,ms6,ms7,ms8,ms9,ms10]

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 elem in listofTuples:
        print(elem[0] , ":" , elem[1] )

urutkan(mhss)
```

```
Python 3.6.3 (v3.6.3:2c5fed8, Oct 3 2017, 17:26:49) [MSC v.1900 32 bit (Intel)]
on win32
Type "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: F:\Kuliah SMT 4\ASD\5_D_163\lfinal.py =====
ivan : 107
rendra : 120
ino : 190
ahyana : 290
tidhar : 318
annas : 420
robby : 624
listian : 732
dandi : 820
yoga : 910
>>> |
```

2. Nomer 2

The screenshot shows a Python 3.6.3 IDE with two windows. The left window, titled 'no2.py - F:/Kuliah SMT 4/ASD/5_D_163/no2.py (3.6.3)', 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

a = [9,2,5,11,4,7,19,1]
b = [13,43,56,12,56]
a, b = bubblesort(a), bubblesort(b)

print(a, "\n", b)
print()
print(gabung(a,b))
```

The right window, titled 'Python 3.6.3 Shell', shows the output of the script:

```
Python 3.6.3 (v3.6.3:2c5fed8, Oct 3 2017, 17:26:49) [MSC v.1900 32 bit (Intel)]
on win32
Type "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: F:/Kuliah SMT 4/ASD/5_D_163/no2.py =====
[1, 2, 4, 5, 7, 9, 11, 19]
[12, 13, 43, 56, 56]

[1, 2, 4, 5, 7, 9, 11, 12, 13, 19, 43, 56, 56]
>>>
```

3. Nomer 3

The screenshot shows a Python 3.6.3 IDE with two windows. The left window, titled 'no3.py - F:/Kuliah SMT 4/ASD/5_D_163/no3.py (3.6.3)', 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 bubb(arr):
    n = len(arr)

    # Traverse through all array elements
    for i in range(n):

        # Last i elements are already in place
        for j in range(0, n-i-1):

            # traverse the array from 0 to n-i-1
            # Swap if the element found is greater
            # than the next element
            if arr[j] > arr[j+1]:
                arr[j], arr[j+1] = arr[j+1], arr[j]

def sele(A):
    for i in range(len(A)):
        # Find the minimum element in remaining
        # unsorted array
        min_idx = i
        for j in range(i+1, len(A)):
            if A[min_idx] > A[j]:
                min_idx = j

        # Swap the found minimum element with
        # the first element
        A[i], A[min_idx] = A[min_idx], A[i]

def inse(arr):
    # Traverse through 1 to len(arr)
    for i in range(1, len(arr)):
        key = arr[i]
```

The right window, titled 'Python 3.6.3 Shell', shows the output of the script:

```
Python 3.6.3 (v3.6.3:2c5fed8, Oct 3 2017, 17:26:49) [MSC v.1900 32 bit (Intel)]
on win32
Type "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: F:/Kuliah SMT 4/ASD/5_D_163/no3.py =====
bubble : 6.66119 detik
selecion : 3.35204 detik
insertion : 2.88628 detik
>>>
```