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Nim : L200180010

Kelas : A

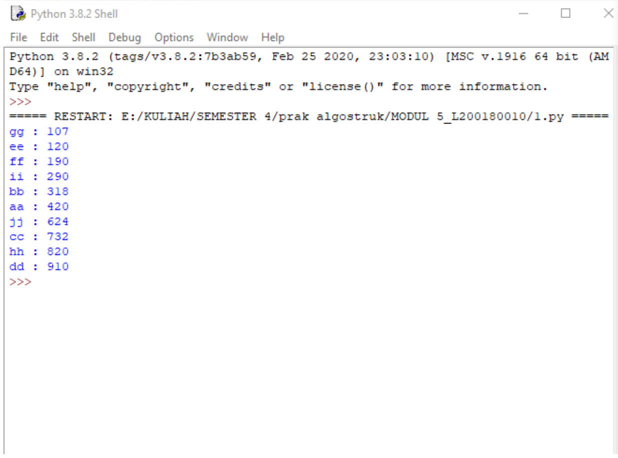
Matkul : Praktikum Algoritma dan Struktur Data

MODUL 5

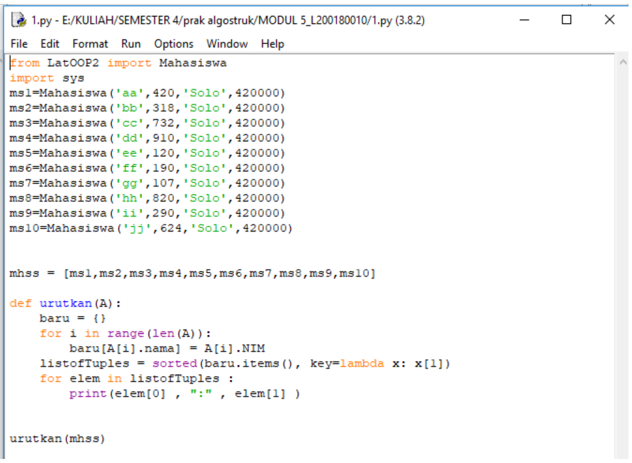
PENGURUTAN

SOAL-SOAL UNTUK MAHASISWA

1.

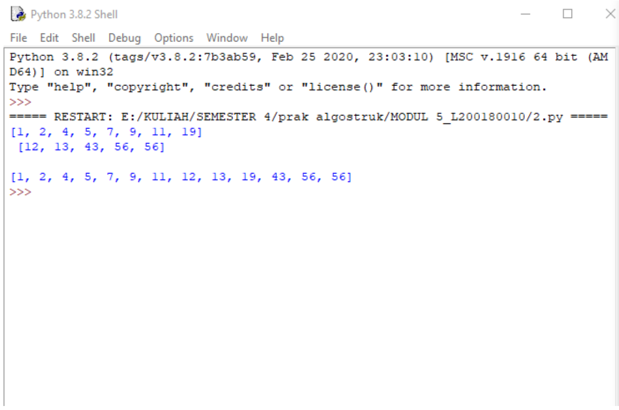


```
Python 3.8.2 (tags/v3.8.2:7b3ab59, Feb 25 2020, 23:03:10) [MSC v.1916 64 bit (AM
D64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>> 
===== RESTART: E:/KULIAH/SEMESTER 4/prak algostruk/MODUL 5_L200180010/1.py =====
gg : 107
ee : 120
ff : 190
ii : 290
bb : 318
aa : 420
jj : 624
cc : 732
hh : 820
dd : 910
>>> 
```

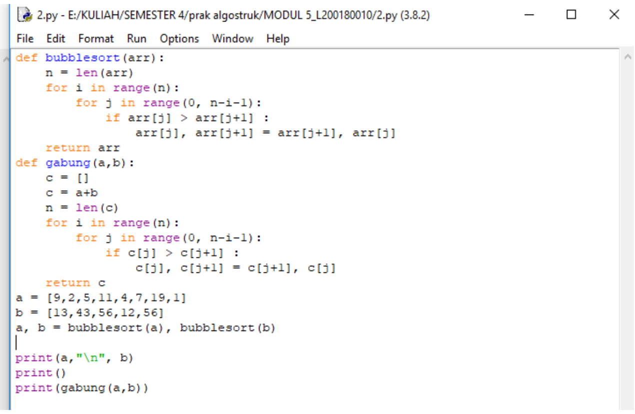

1.py - E:/KULIAH/SEMESTER 4/prak algostruk/MODUL 5_L200180010/1.py (3.8.2)
File Edit Format Run Options Window Help

```python
from LatOOP2 import Mahasiswa
import sys
ms1=Mahasiswa('aa',420,'Solo',420000)
ms2=Mahasiswa('bb',318,'Solo',420000)
ms3=Mahasiswa('cc',732,'Solo',420000)
ms4=Mahasiswa('dd',910,'Solo',420000)
ms5=Mahasiswa('ee',120,'Solo',420000)
ms6=Mahasiswa('ff',190,'Solo',420000)
ms7=Mahasiswa('gg',107,'Solo',420000)
ms8=Mahasiswa('hh',820,'Solo',420000)
ms9=Mahasiswa('ii',290,'Solo',420000)
ms10=Mahasiswa('jj',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)
```

2.

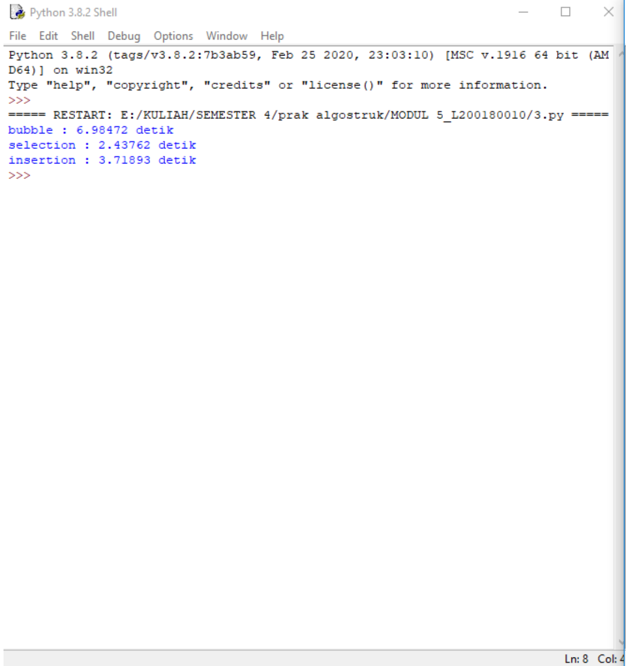


```
Python 3.8.2 (tags/v3.8.2:7b3ab59, Feb 25 2020, 23:03:10) [MSC v.1916 64 bit (AM
D64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>> 
===== RESTART: E:/KULIAH/SEMESTER 4/prak algostruk/MODUL 5_L200180010/2.py =====
[1, 2, 4, 5, 7, 9, 11, 19]
 [12, 13, 43, 56, 56]

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

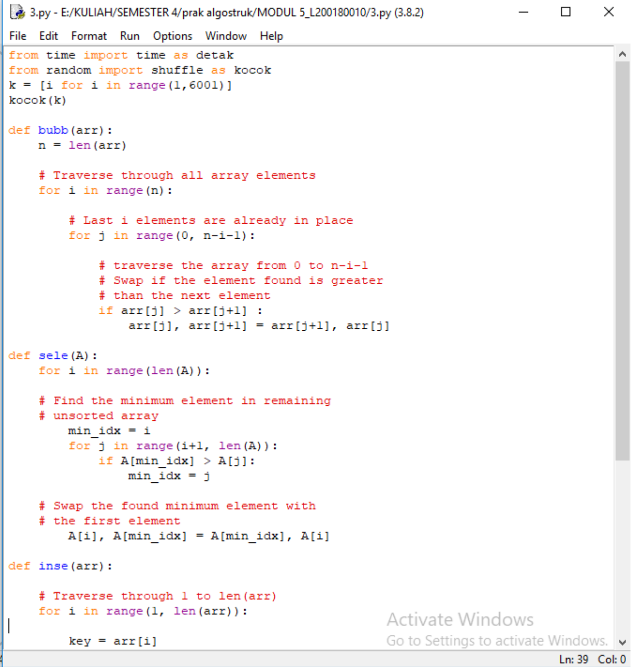

2.py - E:/KULIAH/SEMESTER 4/prak algostruk/MODUL 5_L200180010/2.py (3.8.2)
File Edit Format Run Options Window Help

```python
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))
```

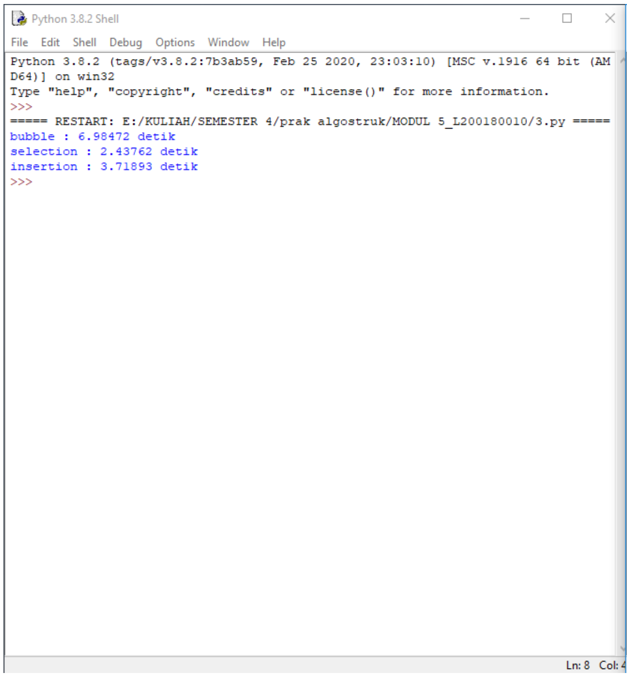
3.



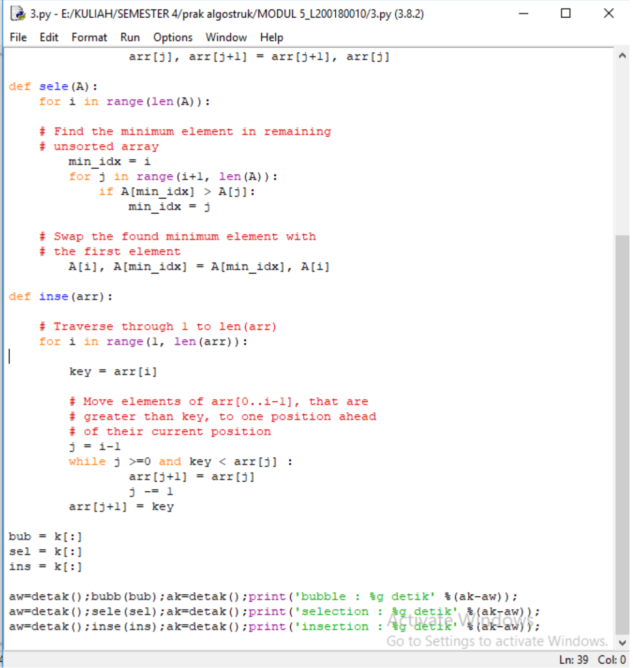
```
Python 3.8.2 (tags/v3.8.2:7b3ab59, Feb 25 2020, 23:03:10) [MSC v.1916 64 bit (AM
D64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: E:/KULIAH/SEMESTER 4/prak algostruk/MODUL 5_L200180010/3.py =====
bubble : 6.98472 detik
selection : 2.43762 detik
insertion : 3.71893 detik
>>>
```


3.py - E:/KULIAH/SEMESTER 4/prak algostruk/MODUL 5_L200180010/3.py (3.8.2)
File Edit Format Run Options Window Help
Ln: 39 Col: 0

```
from time import time as detak
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]
```



```
Python 3.8.2 (tags/v3.8.2:7b3ab59, Feb 25 2020, 23:03:10) [MSC v.1916 64 bit (AM
D64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: E:/KULIAH/SEMESTER 4/prak algostruk/MODUL 5_L200180010/3.py =====
bubble : 6.98472 detik
selection : 2.43762 detik
insertion : 3.71893 detik
>>>
```


3.py - E:/KULIAH/SEMESTER 4/prak algostruk/MODUL 5_L200180010/3.py (3.8.2)
File Edit Format Run Options Window Help
Ln: 39 Col: 0

```
                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]

        # Move elements of arr[0..i-1], that are
        # greater than key, to one position ahead
        # of their current position
        j = i-1
        while j >=0 and key < arr[j] :
                arr[j+1] = arr[j]
                j -= 1
        arr[j+1] = key

bub = k[:]
sel = k[:]
ins = k[:]

aw=detak();bubb(bub);ak=detak();print('bubble : %g detik' %(ak-aw));
aw=detak();sele(sel);ak=detak();print('selection : %g detik' %(ak-aw));
aw=detak();inse(ins);ak=detak();print('insertion : %g detik' %(ak-aw));
```