

Nomer 1

1.py - C:/Users/ASUS/AppData/Local/Programs/Python/Python37-32/1.py (3.7.2)
File Edit Format Run Options Window Help

```

from ee import Mahasiswa
import sys
ms1=Mahasiswa('aa',111,'pati',120000)
ms2=Mahasiswa('bb',112,'pati',220000)
ms3=Mahasiswa('cc',222,'pati',320000)
ms4=Mahasiswa('dd',223,'pati',420000)
ms5=Mahasiswa('ee',888,'pati',520000)
ms6=Mahasiswa('ff',889,'pati',620000)
ms7=Mahasiswa('gg',555,'pati',720000)
ms8=Mahasiswa('hh',119,'pati',820000)
ms9=Mahasiswa('ii',967,'pati',920000)
ms10=Mahasiswa('jj',102,'pati',1020000)

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)

```

Ln: 12 Col: 23

Python 3.7.2 Shell
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```

Python 3.7.2 (tags/v3.7.2:9a3ffc0492, Dec 23 2018, 22:20:52) [MSC v.1916 32 bit (Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
==== RESTART: C:/Users/ASUS/AppData/Local/Programs/Python/Python37-32/1.py ====
jj : 102
aa : 111
bb : 112
hh : 119
cc : 222
dd : 223
gg : 555
ee : 888
ff : 889
ii : 967
>>>

```

Ln: 15 Col: 4

Nomer 2

2.py - C:/Users/ASUS/AppData/Local/Programs/Python/Python37-32/2.py (3.7.2)
File Edit Format Run Options Window Help

```

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 = [13,43,56,12,56,12]
a, b = bubblesort(a), bubblesort(b)

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

```

Ln: 23 Col: 18

Python 3.7.2 Shell
File Edit Shell Debug Options Window Help

```

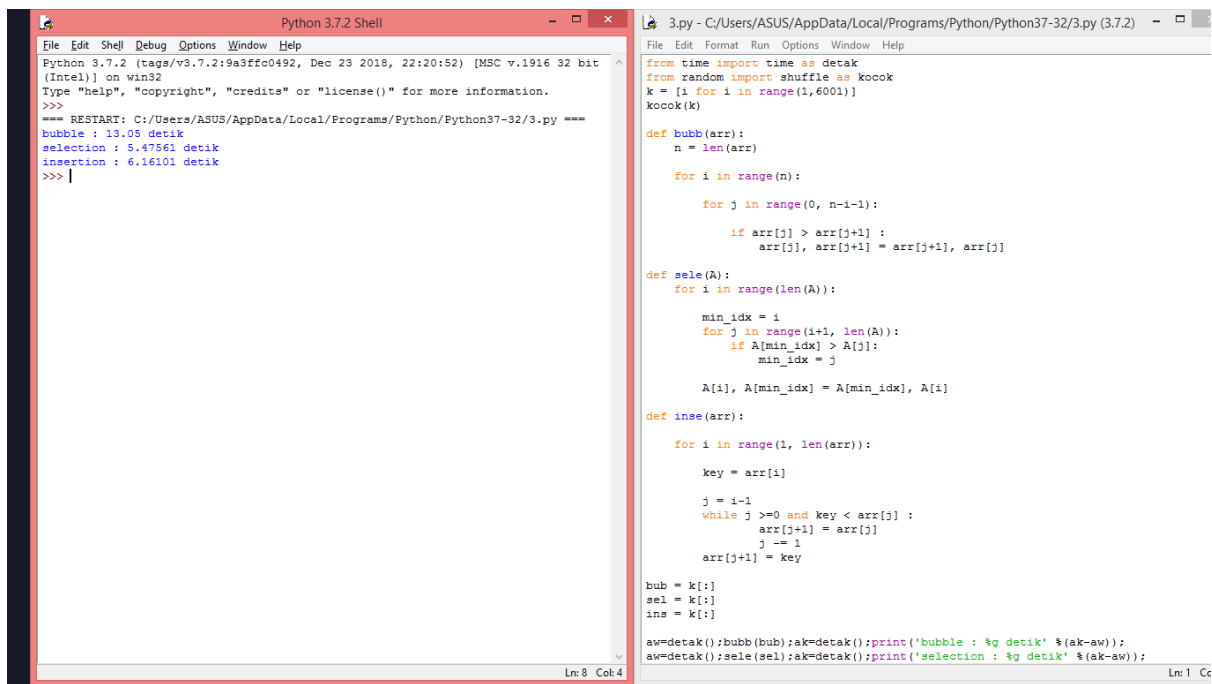
Python 3.7.2 (tags/v3.7.2:9a3ffc0492, Dec 23 2018, 22:20:52) [MSC v.1916 32 bit (Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
==== RESTART: C:/Users/ASUS/AppData/Local/Programs/Python/Python37-32/2.py ====
[1, 2, 4, 5, 7, 9, 11, 19]
[12, 12, 13, 43, 56, 56]

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

```

Ln: 9 Col: 4

Nomer 3



The image shows two windows from a Windows desktop. The left window is titled 'Python 3.7.2 Shell' and displays the output of a Python script. The right window is titled '3.py - C:/Users/ASUS/AppData/Local/Programs/Python/Python37-32/3.py (3.7.2)' and shows the source code of the script.

Python 3.7.2 Shell Output:

```
Python 3.7.2 (tags/v3.7.2:9a3ffc0492, Dec 23 2018, 22:20:52) [MSC v.1916 32 bit (Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
=== RESTART: C:/Users/ASUS/AppData/Local/Programs/Python/Python37-32/3.py ===
bubble : 13.05 detik
selection : 5.47561 detik
insertion : 6.16101 detik
>>> |
```

3.py Source 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)
    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]

def sele(A):
    for i in range(len(A)):
        min_idx = i
        for j in range(i+1, len(A)):
            if A[min_idx] > A[j]:
                min_idx = j
        A[i], A[min_idx] = A[min_idx], A[i]

def inse(arr):
    for i in range(1, len(arr)):
        key = arr[i]
        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));
```