

Nama : Alfian Pandu

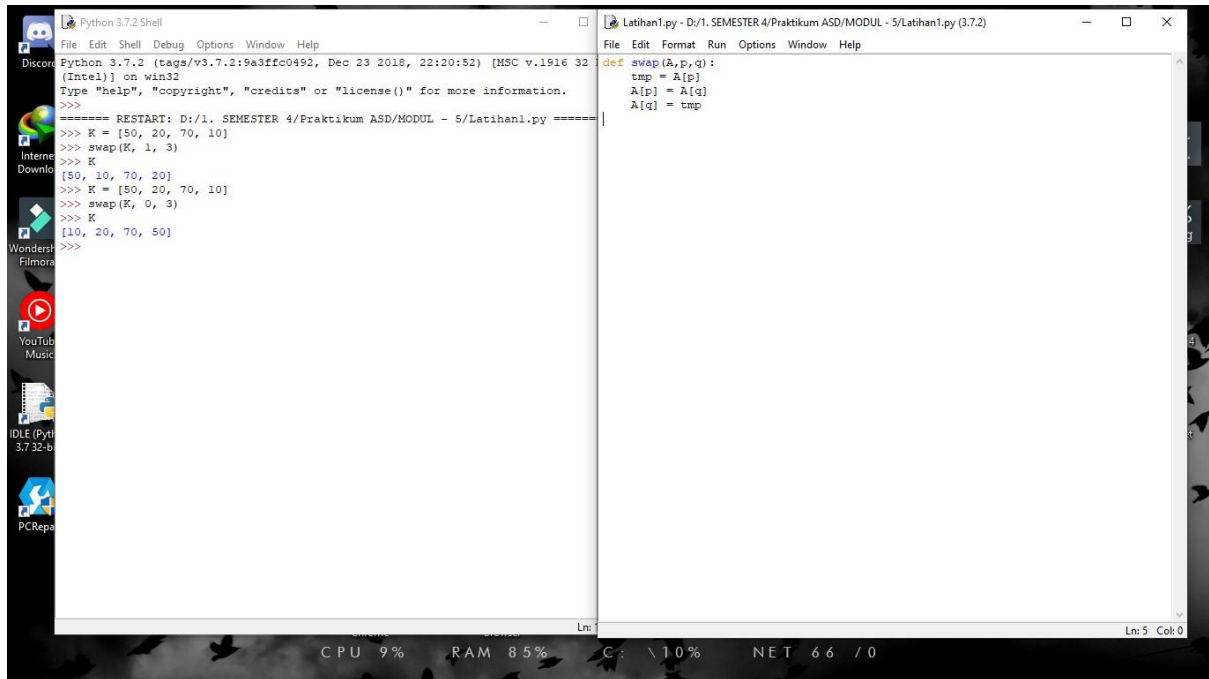
Nim : L200180027

Kelas : B

## MODUL 5

### Latihan

#### Tukar posisi



The screenshot shows two windows. The left window is a Python 3.7.2 Shell with the following code and output:

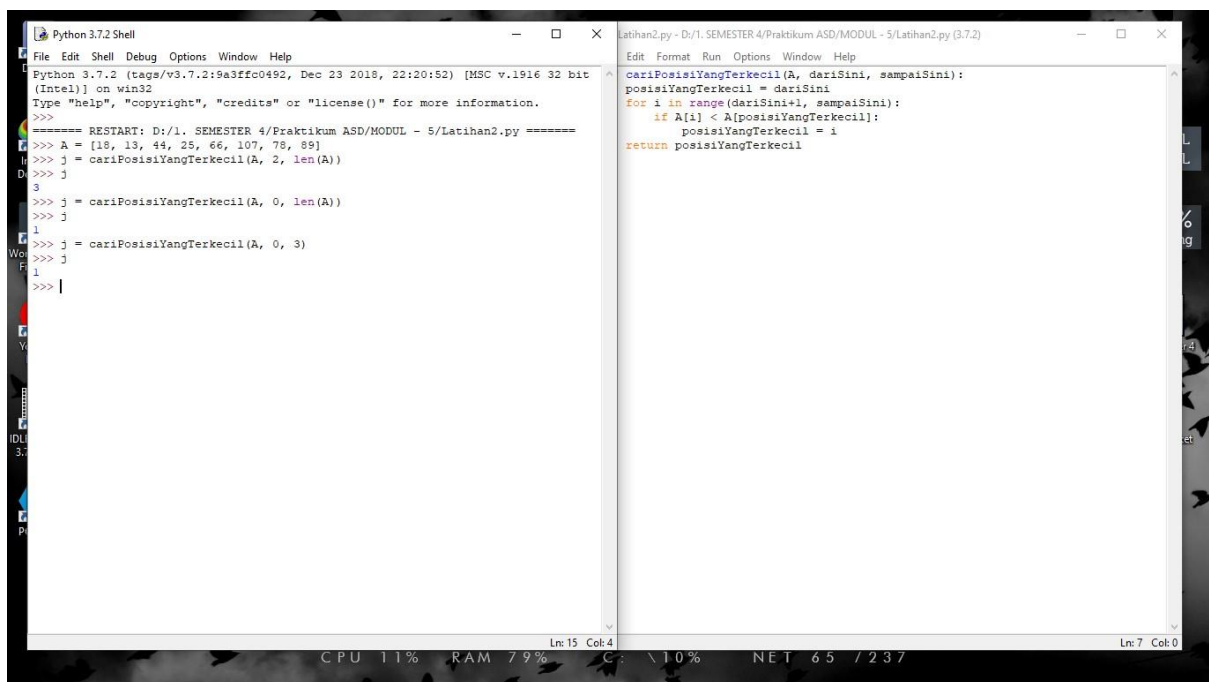
```
Python 3.7.2 (tags/v3.7.2:9a3ffc0492, Dec 23 2018, 22:20:52) [MSC v.1916 32 bit (Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: D:/1. SEMESTER 4/Praktikum ASD/MODUL - 5/Latihan1.py =====
>>> K = [50, 20, 70, 10]
>>> swap(K, 1, 3)
>>> K
[50, 10, 70, 20]
>>> K = [50, 20, 70, 10]
>>> swap(K, 0, 3)
>>> K
[10, 20, 70, 50]
>>>
```

The right window is a Python script editor showing the following code:

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

The taskbar at the bottom shows CPU 9%, RAM 85%, C: \10%, and NET 66 / 0.

#### Cari Posisi



The screenshot shows two windows. The left window is a Python 3.7.2 Shell with the following code and 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: D:/1. SEMESTER 4/Praktikum ASD/MODUL - 5/Latihan2.py =====
>>> A = [18, 13, 44, 25, 66, 107, 78, 89]
>>> j = cariPosisiYangTerkecil(A, 2, len(A))
>>> j
3
>>> j = cariPosisiYangTerkecil(A, 0, len(A))
>>> j
1
>>> j = cariPosisiYangTerkecil(A, 0, 3)
>>> j
1
>>>
```

The right window is a Python script editor showing the following code:

```
def cariPosisiYangTerkecil(A, dariSini, sampaiSini):
    posisiYangTerkecil = dariSini
    for i in range(dariSini+1, sampaiSini):
        if A[i] < A[posisiYangTerkecil]:
            posisiYangTerkecil = i
    return posisiYangTerkecil
```

The taskbar at the bottom shows CPU 11%, RAM 79%, C: \10%, and NET 65 / 237.

```
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
(Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: D:/1. SEMESTER 4/Praktikum ASD/MODUL - 5/Latihan.py =====
>>> print('Average case:', hasil1)
Average case: [3, 11, 20, 33, 42, 53, 65, 76, 87, 99]
>>> print('Average case:', hasil1)
Average case: [3, 11, 20, 33, 42, 53, 65, 76, 87, 99]
>>> print('best case:', hasil2)
best case: [3, 11, 20, 33, 42, 53, 65, 76, 87, 99]
>>>

Latihan.py - D:/1. SEMESTER 4/Praktikum ASD/MODUL - 5/Latihan.py (3.7.2)
File Edit Format Run Options Window Help
def swap(A, p, q):
    tmp = A[p]
    A[p] = A[q]
    A[q] = tmp

def cariPosisiTerkecil(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)
        return A

worst = [99, 87, 76, 65, 53, 42, 33, 20, 11, 3]
average = [3, 20, 11, 76, 87, 99, 42, 53, 33, 65]
best = [3, 11, 20, 33, 42, 53, 65, 76, 87, 99]

hasil1 = bubbleSort(worst)
hasil2 = bubbleSort(average)
hasil3 = bubbleSort(best)

Ln: 11 Col: 30
CPU 14% RAM 77% C: \10% NET 0 / 0
```

```
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
(Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: D:/1. SEMESTER 4/Praktikum ASD/MODUL - 5/Latihan.py =====
>>> print(ss1)
[3, 11, 20, 33, 42, 53, 65, 76, 87, 99]
>>> print(ss3)
[3, 11, 20, 33, 42, 53, 65, 76, 87, 99]
>>> print(ss2)
[3, 11, 20, 33, 42, 53, 65, 76, 87, 99]
>>>

Latihan.py - D:/1. SEMESTER 4/Praktikum ASD/MODUL - 5/Latihan.py (3.7.2)
File Edit Format Run Options Window Help
def swap(A, p, q):
    tmp = A[p]
    A[p] = A[q]
    A[q] = tmp

def cariPosisiTerkecil(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)
        return A

worst = [99, 87, 76, 65, 53, 42, 33, 20, 11, 3]
average = [3, 20, 11, 76, 87, 99, 42, 53, 33, 65]
best = [3, 11, 20, 33, 42, 53, 65, 76, 87, 99]

hasil1 = bubbleSort(worst)
hasil2 = bubbleSort(average)
hasil3 = bubbleSort(best)

def selectionSort(A):
    n = len(A)
    for i in range(n-1):
        indexKecil = cariPosisiTerkecil(A, i, n)
        if indexKecil != i:
            swap(A, i, indexKecil)
    return A

ss1 = selectionSort(worst)
ss2 = selectionSort(average)
ss3 = selectionSort(best)

Ln: 39 Col: 23
CPU 60% RAM 82% C: \10% NET 160 / 122
```

```
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: D:/1. SEMESTER 4/Praktikum ASD/MODUL - 5/Latihan.py =====
>>> print(ss3)
[3, 11, 20, 33, 42, 53, 65, 76, 87, 99]
>>> print(ss2)
[3, 11, 20, 33, 42, 53, 65, 76, 87, 99]
>>> print(ss1)
[3, 11, 20, 33, 42, 53, 65, 76, 87, 99]
>>>

Latihan.py - D:/1. SEMESTER 4/Praktikum ASD/MODUL - 5/Latihan.py (3.7.2)
File Edit Format Run Options Window Help
    for j in range(n-1-1):
        if A[j] > A[j+1]:
            swap(A, j, j+1)
    return A

worst = [99, 87, 76, 65, 53, 42, 33, 20, 11, 3]
average = [3, 20, 11, 76, 87, 99, 42, 53, 33, 65]
best = [3, 11, 20, 33, 42, 53, 65, 76, 87, 99]

hasil1 = bubbleSort(worst)
hasil2 = bubbleSort(average)
hasil3 = bubbleSort(best)

def selectionSort(A):
    n = len(A)
    for i in range(n-1):
        indexKecil = cariPosisiTerkecil(A, i, n)
        if indexKecil != i:
            swap(A, i, indexKecil)
    return A

ss1 = selectionSort(worst)
ss2 = selectionSort(average)
ss3 = selectionSort(best)

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
    return A

is1 = insertionSort(worst)
is2 = insertionSort(average)
is3 = insertionSort(best)

Ln: 20 Col: 0
CPU 55% RAM 83% C: \10% NET 0 / 0
```

Nomer 1

```
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: D:\1. SEMESTER 4\Praktikum ASD\MODUL - 5\001.py -----
[1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11]
>>>

class Mahasiswa(object):
    """Class Mahasiswa yang dibangun dari class Manusia."""
    def __init__(self, nama, NIM, kota):
        """Metode inisiasi ini menutupi metode inisiasi di class Manusia"""
        self.nama = nama
        self.NIM = NIM
        self.kotaTinggal = kota

def BubbleSort(value):
    for passnum in range(len(value)-1,0,-1):
        for i in range(passnum):
            if value[i]>value[i+1]:
                temp = value[i]
                value[i] = value[i+1]
                value[i+1] = temp

c0 = Mahasiswa("Tiko",9,"Sukoharjo")
c1 = Mahasiswa("Budi",2,"Jogjakarta")
c2 = Mahasiswa("Ahmad",10,"Surakarta")
c3 = Mahasiswa("Chandro",1,"Surakarta")
c4 = Mahasiswa("Eko",7,"Sopela")
c5 = Mahasiswa("Fandi",3,"Slatiga")
c6 = Mahasiswa("Dewi",6,"Klaten")
c7 = Mahasiswa("Doloh",4,"Wonoprat")
c8 = Mahasiswa("Janto",5,"Klaten")
c9 = Mahasiswa("Hasi",8,"Karanganyar")
c10 = Mahasiswa("Rahison",11,"Purwodadi")

DaftarAngka = [c0.NIM,c1.NIM,c2.NIM,c3.NIM,c4.NIM,c5.NIM,c6.NIM,c7.NIM,c8.NIM,c9.NIM]
print(DaftarAngka)
```

Nomer 2

The image shows two side-by-side Windows command prompt windows. The left window is titled 'Python 3.7.2 Shell' and shows the execution of a Python script. The right window is titled '002.py - D:\1. SEMESTER 4/Praktikum ASD/MODUL - 5/002.py (3.7.2)' and displays the source code of the script.

**Left Window (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
(Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: D:\1. SEMESTER 4/Praktikum ASD/MODUL - 5/002.py =====
[3, 3, 6, 6, 33, 33, 36, 36, 66, 66, 333, 333, 366, 366, 666, 666]
>>>
```

**Right Window (002.py):**

```
File Edit Format Run Options Window Help
def BubbleSort(value):
    for passnum in range(len(value)-1,0,-1):
        for i in range(passnum):
            if value[i]>value[i+1]:
                temp = value[i]
                value[i] = value[i+1]
                value[i+1] = temp
        DaftarAngka = [6,66,666,33,3,333,36,366]
        BubbleSort(DaftarAngka)

a = DaftarAngka
DaftarAngka1 = [6,66,666,33,3,333,36,366]
BubbleSort(DaftarAngka1)

b = DaftarAngka1
DaftarAngka2 = (a+b)
BubbleSort(DaftarAngka2)

c = DaftarAngka2
print(c)
```

At the bottom of the taskbar, system information is visible: CPU 8%, RAM 78%, C: \ 10%, NET 105 / 56, and the date/time is 12/13/2018 10:41.

### Nomer 3

```
Python 3.7.2 Shell
File Edit Shell Debug Options Window Help
Python 3.7.2 (tags/v3.7.2:3a3ff0492, Dec 23 2018, 22:20:52) [MSC v.1916 32 bit
[Intel]] on win32
Type "help()", "copyright()", "credits()" or "license()" for more information.
>>>
>>> ===== RESTART: D:/1. SEMESTER 4/Praktikum ASD/MODUL - 5/003.py =====
bubble: 7.58473 detik
selection: 0.0090498 detik
insertion: 3.92567 detik
>>>

Python 003.py - D:/1. SEMESTER 4/Praktikum ASD/MODUL - 5/003.py (0.72)
File Edit Format Run Options Window Help
from time import time as detik
from random import shuffle as kooak

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

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

def cariPosisiYangTerkecil(A,p,q):
    posisiYangTerkecil = p
    for i in range (p+1, q):
        if A[i] < A[posisiYangTerkecil]:
            posisiYangTerkecil = i
    return posisiYangTerkecil

k = []

CPU 8% RAM 79% C: \10% NET 54 / 92
```

