

Nama : Amartya Maulana

NIM : L200180196

Kelas G

Praktikum Modul 5 Algoritma Dan Struktur Data

Soal-soal untuk Mahasiswa

```
1 #Kode untuk Soal Nomer 1 dan Nomer 2
2 class Manusia(object):
3     keadaan = "lapar"
4     def __init__(self, nama):
5         self.nama = nama
6     def ucapkanSalam(self):
7         print("Salam, namaku ", self.nama)
8     def makan(self, s):
9         print("Saya baru saja makan ", s)
10        self.keadaan = 'kenyang'
11    def olahraga(self, k):
12        print("Saya baru saja latihan ", k)
13        self.keadaan = 'lapar'
14    def mengalikanDua(self, n):
15        return n * 2
16
17 class Mahasiswa(Manusia):
18     def __init__(self, nama, NIM, kota, us):
19         self.nama = nama
20         self.NIM = NIM
21         self.kotaTinggal = kota
22         self.uangSaku = us
23     def __str__(self):
24         s = self.nama + ', NIM ' + str(self.NIM) \
25            + '. Tinggal di ' + self.kotaTinggal \
26            + ', dan memiliki uang saku ' + self.uangSaku + ' tiap bulannya.'
27         return s
28     def ambilNama(self):
29         return self.nama
30     def ambilNIM(self):
31         return self.NIM
32     def ambilUangSaku(self):
33         return self.uangSaku
```

```

34 def makan(self, s):
35     print("Saya baru saja makan", s, "Sambil belajar.")
36     self.keadaan = 'kenyang'
37
38 class MhsTIF(Mahasiswa):
39     def kataKanPy(self):
40         print('Python is cool.')
41
42 a1=Mahasiswa("Anna",190,"Ngawi",250000)
43 a2=Mahasiswa("Noer",207,"Surakarta",550000)
44 a3=Mahasiswa("Kinan",167,"Ngawi",50000)
45 a4=Mahasiswa("Nafiza",104,"Jakarta",100000)
46 a5=Mahasiswa("Sari",132,"Jakarta",750000)
47 a6=Mahasiswa("Andri",209,"Sragen",650000)
48 a7=Mahasiswa("Fahrur",134,"Ngawi",8250000)
49 a8=Mahasiswa("Sia",202,"Salatiga",400000)
50 a9=Mahasiswa("Arif",213,"Ngawi",480000)
51 a10=Mahasiswa("Supri",160,"Sragen",950000)
52 a11=Mahasiswa("Erwan",215,"Salatiga",365000)
53
54 def urutkan(p):
55     for i in range (len(p)-1, 0, -1):
56         for k in range (i):
57             if p[k] > p[k+1]:
58                 c = p[k]
59                 p[k] = p[k+1]
60                 p[k+1] = c
61

```

Nomer 1

```

61
62 #Nomer 1
63 Daftar = [a1.NIM,a2.NIM,a3.NIM,a4.NIM,a5.NIM,a6.NIM,a7.NIM,a8.NIM,a9.NIM,a10.NIM,a11.NIM]
64
65 urutkan(Daftar)
66 print(Daftar)
67

```

Nomer 2

```

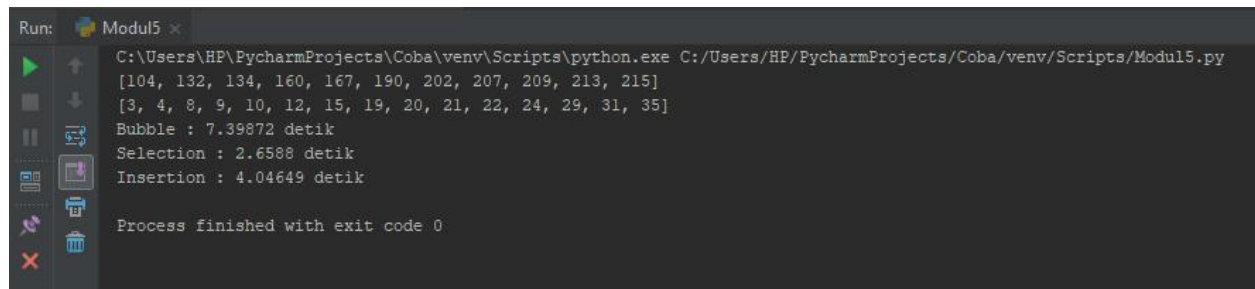
67
68 #Nomer 2
69 A = [8,12,15,22,29,31,35]
70 B = [3,4,9,10,19,20,21,24]
71 C = A+B
72 urutkan(C)
73 print(C)

```

Nomer 3

```
74
75 #Nomer 3
76 from time import time as detak
77 from random import shuffle as kocok
78
79 def BubbleSort(a):
80     r = len(a)
81     for x in range (r-1):
82         for y in range (r-x-1):
83             if a[y] > a[y+1]:
84                 tukar (a, y, y+1)
85
86 def SelectionSort(a):
87     r = len(a)
88     for x in range (r-1):
89         indexKecil = mencariTerkecil(a, x, r)
90         if indexKecil != x :
91             tukar (a, x, indexKecil)
92
93 def InsertionSort(a):
94     r = len(a)
95     for x in range (1, r):
96         n = a[x]
97         pqr = x
98         while pqr > 0 and n < a[pqr-1]:
99             a[pqr] = a[pqr-1]
100             pqr = pqr-1
101         a[pqr] = n
102
103 def tukar (a, p, q):
104     xyz = a[p]
105     a[p] = a[q]
106     a[q] = xyz
107
108 def mencariTerkecil(a, awal, nStop):
109     terkecil = awal
110     for x in range (awal+1, nStop):
111         if a[x] < a[terkecil]:
112             terkecil = x
113     return terkecil
114
115 k = []
116 for x in range (1, 6001):
117     k.append(x)
118
119 kocok(k)
120
121 u_bub = k[:]
122 u_sel = k[:]
123 u_ins = k[:]
124
125 aw = detak(); BubbleSort(u_bub); ak = detak(); print("Bubble : %g detik" %(ak-aw));
126 aw = detak(); SelectionSort(u_sel); ak = detak(); print("Selection : %g detik" %(ak-aw));
127 aw = detak(); InsertionSort(u_ins); ak = detak(); print("Insertion : %g detik" %(ak-aw));
```

Output

A screenshot of the PyCharm Run console window. The title bar shows 'Run: Modul5 x'. The console output displays the execution of a Python script. It shows two lists of numbers, timing for 'Bubble', 'Selection', and 'Insertion' sorting algorithms, and a final message 'Process finished with exit code 0'. The left sidebar contains standard IDE icons for running and debugging.

```
Run: Modul5 x
C:\Users\HP\PycharmProjects\Coba\venv\Scripts\python.exe C:/Users/HP/PycharmProjects/Coba/venv/Scripts/Modul5.py
[104, 132, 134, 160, 167, 190, 202, 207, 209, 213, 215]
[3, 4, 8, 9, 10, 12, 15, 19, 20, 21, 22, 24, 29, 31, 35]
Bubble : 7.39872 detik
Selection : 2.6588 detik
Insertion : 4.04649 detik

Process finished with exit code 0
```