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PRAKTIKUM TUGAS MODUL 5 ALGORITMA STRUKTUR DATA

Tugas

No. 1



```
tugasal.py - C:/Users/kevin/Music/tugasal.py (3.8.1)
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class MhsTIF():
    def __init__(self, nama, nim, asal, us):
        self.nama = nama
        self.nim = nim
        self.asal = asal
        self.uangsaku = us

c0 = MhsTIF("kevin", "1200180004", "sukoharjo", 50000)
c1 = MhsTIF("aji", "1200180011", "sukoharjo", 25000)
c2 = MhsTIF("edi", "1200180010", "klaten", 10000)
c3 = MhsTIF("rifqi", "1200180008", "karanganyar", 30000)
c4 = MhsTIF("ismi", "1200180006", "sukoharjo", 40000)
c5 = MhsTIF("galih", "1200180005", "surakarta", 15000)
c6 = MhsTIF("dhiul", "1200180003", "sukoharjo", 12000)
c7 = MhsTIF("auzan", "1200180001", "sragen", 22000)
c8 = MhsTIF("satria", "1200180002", "sukoharjo", 26000)
c9 = MhsTIF("tito", "1200180009", "boyolali", 35000)
c10 = MhsTIF("dika", "1200180007", "wonogiri", 45000)

Daftar = [c0, c1, c2, c3, c4, c5, c6, c7, c8, c9, c10]

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

#No.1
def bubbleSort():
    n = len(Daftar)
    for i in range(n-1):
        for j in range(n-i-1):
            if Daftar[j].nim > Daftar[j+1].nim:
                swap(Daftar, j, j+1)
    Daftar2 = [Daftar[0].nim, Daftar[1].nim, Daftar[2].nim, Daftar
    print (Daftar2)

Python 3.8.1 Shell
File Edit Shell Debug Options Window Help

Python 3.8.1 (tags/v3.8.1:1b293b6, Dec 18 2019, 22:39:24) [MSC v.1916 32 bit (Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:/Users/kevin/Music/tugasal.py =====
>>> bubbleSort()
['1200180001', '1200180002', '1200180003', '1200180004', '1200180005', '1200180006', '1200180007', '1200180008', '1200180009', '1200180010', '1200180011']
>>> |
```

No. 2

tugasal.py - C:/Users/kevin/Music/tugasal.py (3.8.1)

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```
c8 = MhsTIF("satria","1200180002","sukoharjo",26000)
c9 = MhsTIF("tito","1200180009","boyolali",35000)
c10 = MhsTIF("dika","1200180007","wonogiri",45000)

Daftar = [c0, c1, c2, c3, c4, c5, c6, c7, c8, c9, c10]

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

#No.1
def bubbleSort():
    n = len(Daftar)
    for i in range (n-1):
        for j in range (n-i-1):
            if Daftar[j].nim > Daftar[j+1].nim:
                swap(Daftar,j,j+1)
    Daftar2 = [Daftar[0].nim, Daftar[1].nim, Daftar[2].nim,
    print (Daftar2)

#No.2
A = [1, 3, 5, 7, 9]
B = [2, 4, 6, 8, 10]
C = []

def gabung():
    C.extend(A)
    C.extend(B)
    n = len(C)
    for i in range (n-1):
        for j in range (n-i-1):
            if C[j] > C[j+1]:
                swap(C,j,j+1)
    print (C)
```

Python 3.8.1 Shell

File Edit Shell Debug Options Window Help

```
Python 3.8.1 (tags/v3.8.1:1b293b6, Dec 18
tel)] on win32
Type "help", "copyright", "credits" or "l
>>>
===== RESTART: C:/Users/kev.
>>> gabung()
[1, 2, 3, 4, 5, 6, 7, 8, 9, 10]
>>> |
```

No. 3

Python 3.8.1 Shell

File Edit Shell Debug Options Window Help

Python 3.8.1 (tags/v3.8.1:1b293b6, Dec 18 2019, 22:39:24) on win32

Type "help", "copyright", "credits" or "license()" for more
>>>

===== RESTART: C:/Users/kevin/Music/tugasal.py

Bubble : 12.5785 detik

Selection : 4.84341 detik

Insertion : 6.05682 detik

>>>

tugasal.py - C:\Users\kevin\Music\tugasal.py (3.8.1)

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#No.3

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

```
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)
```

```
def selectionsort(A):  
    n = len(A)  
    for i in range(n - 1):  
        indexkecil = cariposisiterkecil(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
```