NAMA : BAITY JANNATIKA

NIM : L200180211

KELAS : H /PRAKTIKUM ALGORITMA DAN STRUKTUR DATA

MODUL 4

PENCARIAN

NOMER 1

```
class Mhs(object):
    def __init__(self, nama, nim, kota, uangsaku):
        self.nama = nama
        self.nim = nim
        self.kotaTinggal = kota
        self.uangSaku = uangsaku

h0 = Mhs("Baity", 211, "Klaten", 240000)
h1 = Mhs("Janna", 228, "Sragen", 230000)
h2 = Mhs("Tika", 222, "Semarang", 250000)
h3 = Mhs("Muahmmad", 232, "Kartasura", 235000)
h4 = Mhs("Azzam", 121, "Boyolali", 240000)
h5 = Mhs("Muzakky", 231, "Kranganyar", 250000)
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h8 = Mhs("Rafa", 233, "Klaten", 245000)
h9 = Mhs("Farida", 234, "Karanganyar", 270000)
h10 = Mhs("Hakim", 229, "Salatiga", 265000)

Daftar = [h0, h1, h2, h3, h4, h5, h6, h7, h8, h9, h10]

def KotaTinggal(list, target):
    a = []
    for i in list :
        if i.kotaTinggal == target:
            a.append(list.index(i))
    return a

a = KotaTinggal(Daftar, "Klaten")
print(a)
```

```
Python 3.7.0 (v3.7.
1)] on win32
Type "copyright", "
>>>
================== 
[0, 8]
>>>
```

NOMER 2

```
class Mhs(object):
    def __init__(self, nama, nim, kota, uangsaku):
        self.nama = nama
        self.nim = nim
        self.kotaTinggal = kota
        self.uangSaku = uangsaku

h0 = Mhs("Baity", 211, "Klaten", 240000)
h1 = Mhs("Janna", 228, "Sragen", 230000)
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h9 = Mhs("Farida", 234, "Karanganyar", 270000)
h10 = Mhs("Hakim", 229, "Salatiga", 265000)

Daftar = [h0, h1, h2, h3, h4, h5, h6, h7, h8, h9, h10]

def UangSakuPalingKecil(list):
    temp = list[0].uangSaku
    for i in list[1:]:
        if i.uangSaku < temp:
            temp = i.uangSaku
    return temp

a = UangSakuPalingKecil(Daftar)
print(a)
```

```
Python 3.7.0 (v3
1)] on win32
Type "copyright",
>>>
==========
230000
>>>
```

NOMER 3

```
class Mhs(object):
    def __init__(self, nama, nim, kota, uangsaku):
        self.nama = nama
        self.nim = nim
        self.kotaTinggal = kota
        self.uangSaku = uangsaku

h0 = Mhs("Baity", 211, "Klaten", 240000)
h1 = Mhs("Janna", 228, "Sragen", 230000)
h2 = Mhs("Tika", 222, "Semarang", 250000)
h3 = Mhs("Muahmmad", 232, "Kartasura", 235000)
h4 = Mhs("Azzam", 121, "Boyolali", 240000)
h5 = Mhs("Muzakky", 231, "Kranganyar", 250000)
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h9 = Mhs("Farida", 234, "Karanganyar", 270000)
h10 = Mhs("Hakim", 229, "Salatiga", 265000)

Daftar = [h0, h1, h2, h3, h4, h5, h6, h7, h8, h9, h10]

def cariUangSakuTerkecilObject(list):
    temp = [list[0]]
    for i in list[1:]:
        if i.uangSaku < temp[0].uangSaku:
            temp = [i]
        elif i.uangSaku == temp[0].uangSaku:
            temp.append(i)
    return temp

a = cariUangSakuTerkecilObject(Daftar)
print(a)
```

```
Python 3.7.0 (v3.7.0:1bf9cc5093, Jun 2
1)] on win32
Type "copyright", "credits" or "licens
>>>
================== RESTART: C:\Users\
[<__main__.Mhs object at 0x0325E370>]
>>>
```

NOMER 4

```
class Mhs(object):
    def __init__(self, nama, nim, kota, uangsaku):
        self.nama = nama
        self.nim = nim
        self.kotaTinggal = kota
        self.uangSaku = uangsaku

h0 = Mhs("Baity", 211, "Klaten", 240000)
h1 = Mhs("Janna", 228, "Sragen", 230000)
h2 = Mhs("Tika", 222, "Semarang", 250000)
h3 = Mhs("Muahmmad", 232, "Kartasura", 235000)
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h6 = Mhs("Addina", 223, "Sukoharjo", 245000)
h7 = Mhs("Hanu", 225, "Sukoharjo", 245000)
h8 = Mhs("Rafa", 233, "Klaten", 245000)
h9 = Mhs("Farida", 234, "Karanganyar", 270000)
h10 = Mhs("Hakim", 229, "Salatiga", 265000)
Daftar = [h0, h1, h2, h3, h4, h5, h6, h7, h8, h9, h10]

def UangSakuKurang(list):
    temp = []
    for i in list:
        if i.uangSaku < 250000:
            temp.append(i)
    return temp

a = UangSakuKurang(Daftar)
for i in a:
    print(i.nama)
```

```
Python 3.7.0 (v3.7.0:1bf
1)] on win32
Type "copyright", "credi
>>>
================== RESTA
Baity
Janna
Muahmmad
Azzam
Addina
Hanu
Rafa
>>>
```

NOMER 5

```
class node(object):
    def __init__ (self, data, next = None):
        self.data = data
        self.next = next

    def cariLinkedList(self, dicari):
        curNode = self
        while curNode is not None:
            if curNode.next != None:
                if curNode.data != dicari:
                    curNode = curNode.next
                else:
                    print ("Data", dicari, "ada dalam Linked List")
                    break
            elif curNode.next == None:
                print ("Data", dicari, "tidak ada dalam Linked List")
                break
a = node(45)
menu = a
a.next = node (9)
a = a.next
a.next = node (17)
a = a.next
a.next = node (23)

menu.cariLinkedList(9)
menu.cariLinkedList(22)
```

```
Python 2.7.15 (v2.7.15:ca079a3ea3, Apr 30 2(
tel)] on win32
Type "copyright", "credits" or "license()" :
>>>
================== RESTART: C:\Users\ASUS\I
('Data', 9, 'ada dalam Linked List')
('Data', 22, 'tidak ada dalam Linked List')
>>>
```

NOMER 6

```
class Mhs(object):
    def __init__(self, nama, nim, kota, uangsaku):
        self.nama = nama
        self.nim = nim
        self.kotaTinggal = kota
        self.uangSaku = uangsaku

h0 = Mhs("Baity", 211, "Klaten", 240000)
h1 = Mhs("Janna", 228, "Sragen", 230000)
h2 = Mhs("Tika", 222, "Semarang", 250000)
h3 = Mhs("Muahmmad", 232, "Kartasura", 235000)
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h5 = Mhs("Muzakky", 231, "Kranganyar", 250000)
h6 = Mhs("Addina", 223, "Sukoharjo", 245000)
h7 = Mhs("Hanu", 225, "Sukoharjo", 245000)
h8 = Mhs("Rafa", 233, "Klaten", 245000)
h9 = Mhs("Farida", 234, "Karanganyar", 270000)
h10 = Mhs("Hakim", 229, "Salatiga", 265000)

Daftar = [h0, h1, h2, h3, h4, h5, h6, h7, h8, h9, h10]

def binSe(kumpulan, target):
    low = 0
    high = len(kumpulan)-1
    while low <= high:
        mid = (high+low)//2
        if kumpulan[mid] == target:
            return mid
        elif target < kumpulan[mid]:
            high = mid-1
        else:
            low = mid+1
    return False

kumpulan = [2, 4, 5, 10, 13, 18, 23, 29, 31, 51, 64]
print(binSe(kumpulan, 5))
```

```
Python 3.7.0 (v3.7.0:1bf9
1)] on win32
Type "copyright", "credit
>>>
========== RESTAR
2
>>>
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2
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>>>
2
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```

NOMER 7

```
class Mhs(object):
    def __init__(self, nama, nim, kota, uangsaku):
        self.nama = nama
        self.nim = nim
        self.kotaTinggal = kota
        self.uangSaku = uangsaku

h0 = Mhs("Baity", 211, "Klaten", 240000)
h1 = Mhs("Janna", 228, "Sragen", 230000)
h2 = Mhs("Tika", 222, "Semarang", 250000)
h3 = Mhs("Muahmmad", 232, "Kartasura", 235000)
h4 = Mhs("Azzam", 121, "Boyolali", 240000)
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h7 = Mhs("Hanu", 225, "Sukoharjo", 245000)
h8 = Mhs("Rafa", 233, "Klaten", 245000)
h9 = Mhs("Farida", 234, "Karanganyar", 270000)
h10 = Mhs("Hakim", 229, "Salatiga", 265000)


Daftar = [h0, h1, h2, h3, h4, h5, h6, h7, h8, h9, h10]

def binSeMass(kumpulan, target):
    temp = []
    low = 0
    high = len(kumpulan)-1
    while low <= high :
        mid = (high+low)//2
        if kumpulan[mid] == target:
            midKiri = mid-1
            while kumpulan[midKiri] == target:
                temp.append(midKiri)
                midKiri = midKiri-1
            temp.append(mid)
            midKanan = mid+1
            while kumpulan[midKanan] == target:
                temp.append(midKanan)
                midKanan = midKanan+1
            return temp
        elif target < kumpulan[mid]:
```

```
h1 = Mhs("Janna", 228, "Sragen", 230000)
h2 = Mhs("Tika", 222, "Semarang", 250000)
h3 = Mhs("Muahmmad", 232, "Kartasura", 235000)
h4 = Mhs("Azzam", 121, "Boyolali", 240000)
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h9 = Mhs("Farida", 234, "Karanganyar", 270000)
h10 = Mhs("Hakim", 229, "Salatiga", 265000)


Daftar = [h0, h1, h2, h3, h4, h5, h6, h7, h8, h9, h10]

def binSeMass(kumpulan, target):
    temp = []
    low = 0
    high = len(kumpulan)-1
    while low <= high :
        mid = (high+low)//2
        if kumpulan[mid] == target:
            midKiri = mid-1
            while kumpulan[midKiri] == target:
                temp.append(midKiri)
                midKiri = midKiri-1
            temp.append(mid)
            midKanan = mid+1
            while kumpulan[midKanan] == target:
                temp.append(midKanan)
                midKanan = midKanan+1
            return temp
        elif target < kumpulan[mid]:
            high = mid-1
        else:
            low = mid+1
    return False

kumpulan = [2, 4, 5, 6, 6, 6, 8, 9, 9, 10, 11, 12, 13, 13, 14]
print(binSeMass(kumpulan, 6))
```

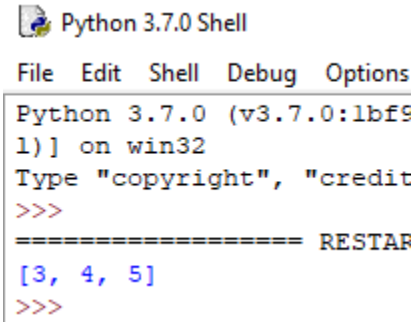

NOMER 8

```
Dalam kasus ini menggunakan konsep Big-O. Yang mana rumus yang dipakai
adalah dengan rumus O(log n) yaitu dengan rincian 1 = 1, 2 = 2, 4 = 3, 10 = 4, 100 = 7, 1000=10.
Yang mana log ini berasal dari pangkat log yang berbasis 2. Sehingga dapat mengetahui jumlah
maksimal tebakan.
Untuk polanya adalah sebagai berikut:
        apabila ingin menebak angka 80

        a = nilai tebakan pertama // 2
        tebakan selanjutnya = nilai tebakan "lebih dari" + a
        *jika hasil tebakan selanjutnya "kurang dari", maka nilai yang dipakai
        tetap nilai lebih dari sebelumnya*
        a = a // 2

    Untuk simulasinya adalah sebagai berikut
        tebakan ke 1: 50 (mengambil nilai tengah) jawaban= "itu terlalu kecil"
        tebakan ke 2: 90 (dari 50 + 40) jawaban = "itu terlalu besar"
        tebakan ke 3: 70 (dari 50 + 20) jawaban = "itu terlalu kecil"
        tebakan ke 4: 78 (dari 72 + 6) jawaban = "itu terlalu kecil"
        tebakan ke 5: 81 (dari 78 + 3) jawaban = "itu terlalu besar"
        tebakan ke 6: 79 (dari 78 + 1) jawaban = "itu terlalu kecil"
        tebakan ke 7: diantara angka 81 dan angka 79 hanya terdapat 1 angka yaitu angka 80
        jadi tebakan terakhir untuk mendapatkan jawaban yang benar adalah dengan menebak angka 80
```