LAPORAN PRAKTIKUM
ALGORITMA DAN STRUKTUR DATA
MODUL 4

DISUSUN OLEH :

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PROGRAM STUDI INFORMATIKA

FAKULTAS KOMUNIKASI DAN INFORMATIKA

UNIVERSITAS MUHAMMADIYAH SURAKARTA

LATIHAN

4.1

lat1.py - E:\kuliah\Prak-AlgoStruk\Mod

File Edit Format Run Options Wir

```
def cariLurus( wadah, target ):
    n = len( wadah )
    for i in range( n ):
        if wadah[i] == target:
            return True
    return False
```

IDLE Shell 3.10.8

File Edit Shell Debug Options Window Help

```
Python 3.10.8 (tags/v3.10.8:aaaf517, Oct 11 2022, 16:50:30) [MSC v.1933 64 bit (
AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
========== RESTART: E:\kuliah\Prak-AlgoStruk\Modul4\Latihan\lat1.py ==========
>>> A = [10, 51, 2, 18, 4, 31, 13, 5, 23, 64, 29]
>>> cariLurus(A,31)
True
>>> cariLurus(A,8)
False
>>>
```

lat2.py - E:\kuliah\Prak-AlgoStruk\Modul4\Latihan\lat2.py (3.10.8)

File Edit Format Run Options Window Help

```
from oop import *

c0 = MhsTIF('Ika',10,'Sukoharjo', 240000)
c1 = MhsTIF('Budi',51,'Sragen', 230000)
c2 = MhsTIF('Ahmad',2,'Surakarta', 250000)
c3 = MhsTIF('Chandra',18,'Surakarta', 235000)
c4 = MhsTIF('Eka',4,'Boyolali', 240000)
c5 = MhsTIF('Fandi',31,'Salatiga', 250000)
c6 = MhsTIF('Deni',13,'Klaten', 245000)
c7 = MhsTIF('Galuh',5,'Wonogiri', 245000)
c8 = MhsTIF('Janto',23,'Klaten', 245000)
c9 = MhsTIF('Hasan',64,'Karanganyar', 270000)
c10 = MhsTIF('Khalid',29,'Purwodadi', 265000)
##
## Lalu kita membuat daftar mahasiswa dalam bentuk list seperti ini:
##
Daftar = [c0, c1, c2, c3, c4, c5, c6, c7, c8, c9, c10]

target = 'Klaten'
for i in Daftar:
    if i.kotaTinggal == target:
        print(i.nama + ' tinggal di ' + target)
```

Ln: 1 Col: 0

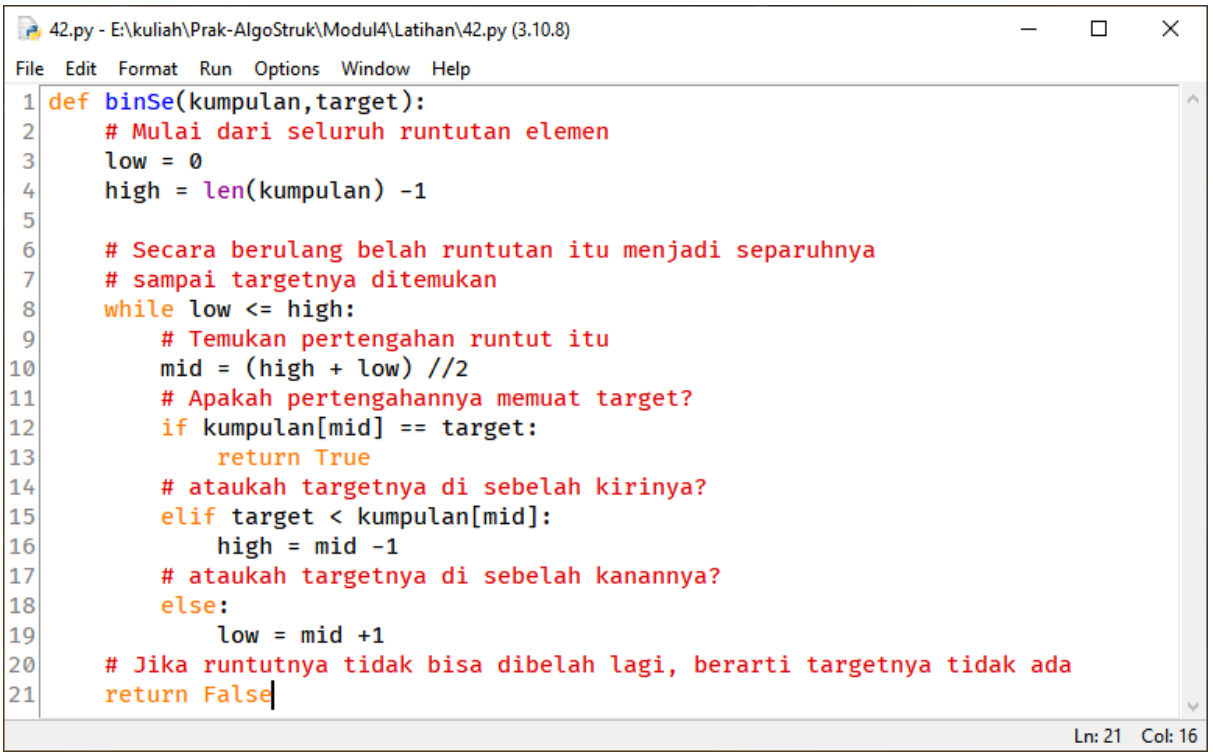
IDLE Shell 3.10.8

File Edit Shell Debug Options Window Help

```
Python 3.10.8 (tags/v3.10.8:aaaf517, Oct 11 2022, 16:50:30) [MSC v.1933 64 bit (
AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
========== RESTART: E:\kuliah\Prak-AlgoStruk\Modul4\Latihan\lat2.py ==========
Deni tinggal di Klaten
Janto tinggal di Klaten
>>>
```

Ln: 7 Col: 0

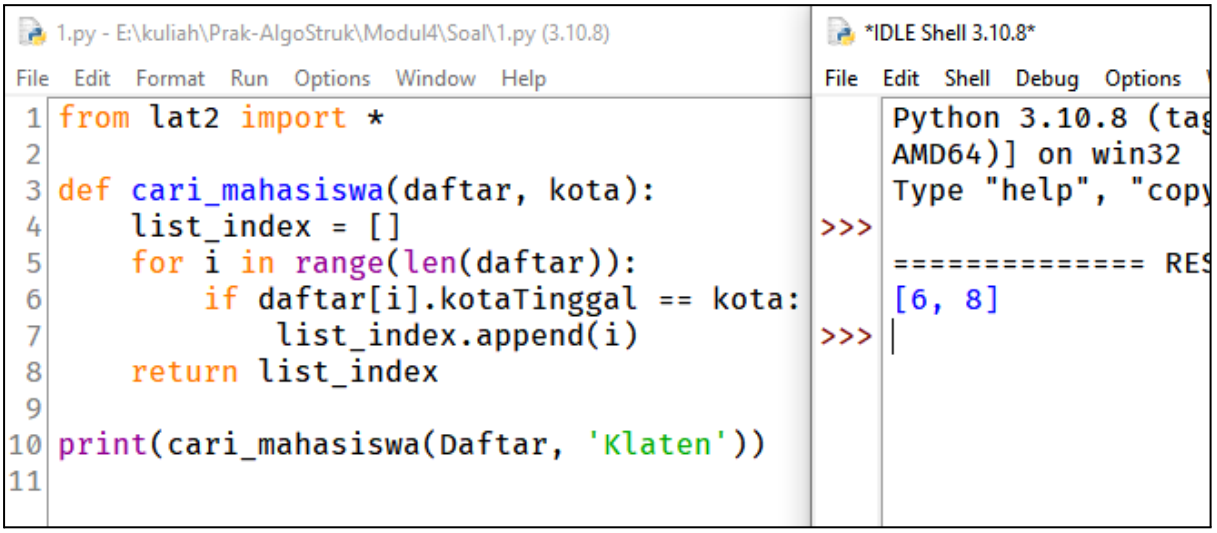
4.2



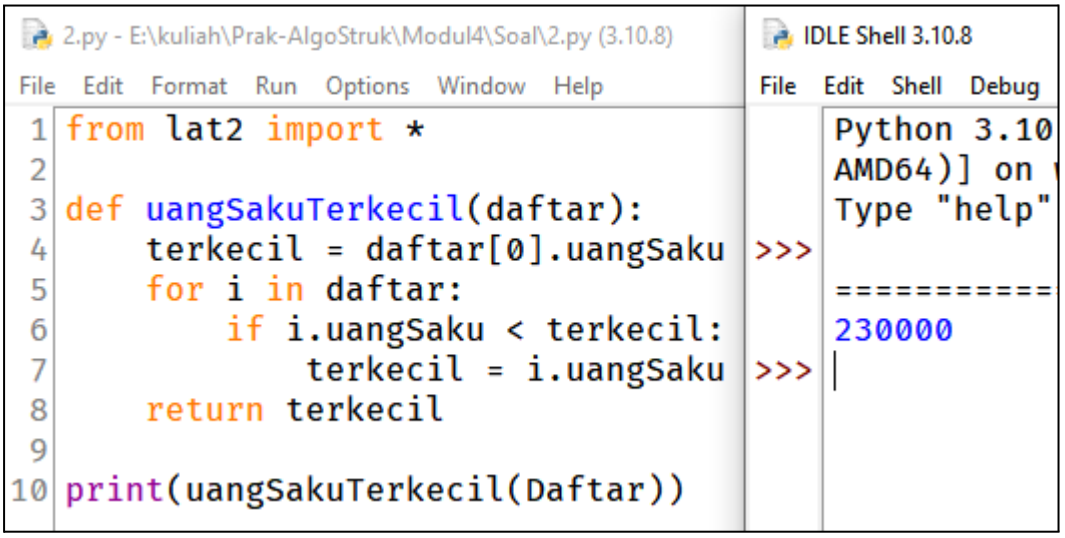

```python
def binSe(kumpulan,target):
    # Mulai dari seluruh runtutan elemen
    low = 0
    high = len(kumpulan) -1

    # Secara berulang belah runtutan itu menjadi separuhnya
    # sampai targetnya ditemukan
    while low <= high:
        # Temukan pertengahan runtut itu
        mid = (high + low) //2
        # Apakah pertengahannya memuat target?
        if kumpulan[mid] == target:
            return True
        # ataukah targetnya di sebelah kirinya?
        elif target < kumpulan[mid]:
            high = mid -1
        # ataukah targetnya di sebelah kanannya?
        else:
            low = mid +1
    # Jika runtutnya tidak bisa dibelah lagi, berarti targetnya tidak ada
    return False
```

SOAL

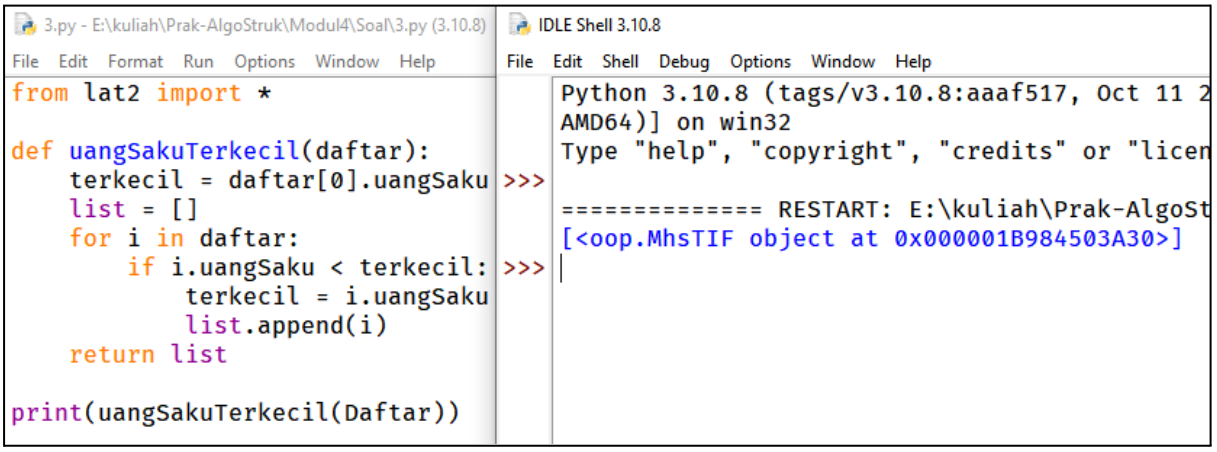
1.


1.py - E:\kuliah\Prak-AlgoStruk\Modul4\Soal\1.py (3.10.8)
File Edit Format Run Options Window Help
1 from lat2 import *
2
3 def cari_mahasiswa(daftar, kota):
4 list_index = []
5 for i in range(len(daftar)):
6 if daftar[i].kotaTinggal == kota:
7 list_index.append(i)
8 return list_index
9
10 print(cari_mahasiswa(Daftar, 'Klaten'))
11
IDLE Shell 3.10.8
File Edit Shell Debug Options
Python 3.10.8 (tag
AMD64)] on win32
Type "help", "copy
>>>
========== RES
[6, 8]
>>>

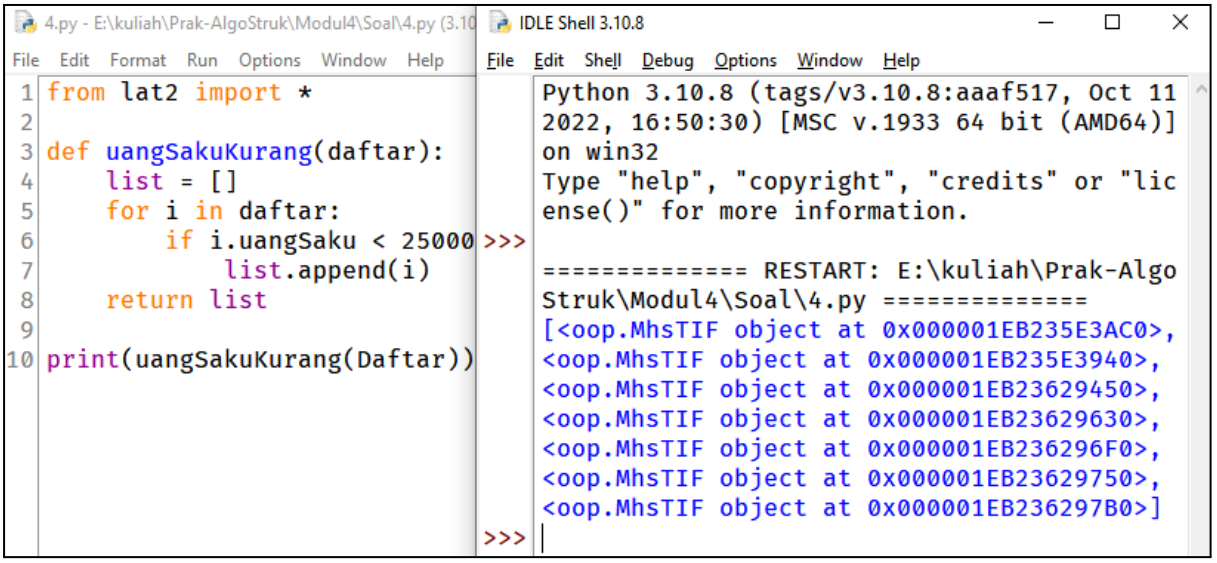
2.


2.py - E:\kuliah\Prak-AlgoStruk\Modul4\Soal\2.py (3.10.8)
File Edit Format Run Options Window Help
1 from lat2 import *
2
3 def uangSakuTerkecil(daftar):
4 terkecil = daftar[0].uangSaku
5 for i in daftar:
6 if i.uangSaku < terkecil:
7 terkecil = i.uangSaku
8 return terkecil
9
10 print(uangSakuTerkecil(Daftar))
IDLE Shell 3.10.8
File Edit Shell Debug
Python 3.10
AMD64)] on
Type "help"
>>>
==========
230000
>>>

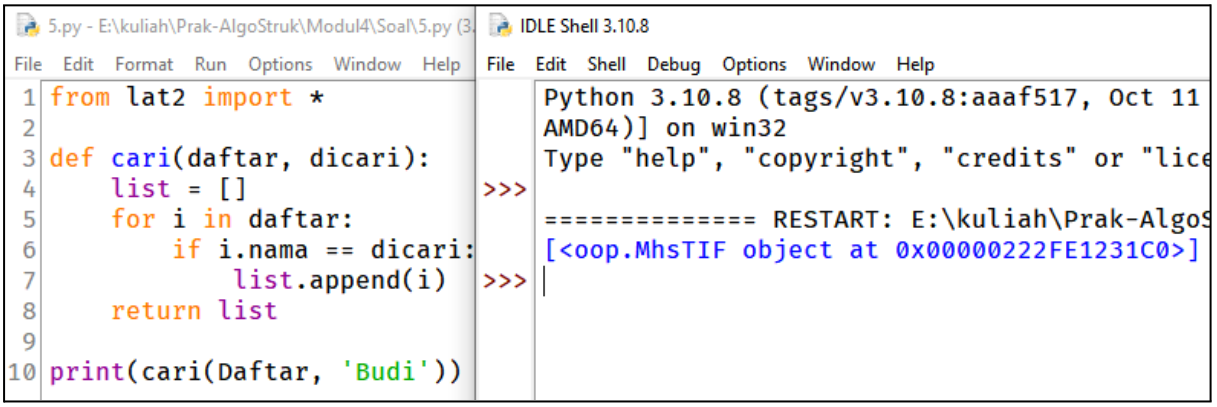
3.


3.py - E:\kuliah\Prak-AlgoStruk\Modul4\Soal\3.py (3.10.8)
File Edit Format Run Options Window Help
from lat2 import *
def uangSakuTerkecil(daftar):
terkecil = daftar[0].uangSaku
list = []
for i in daftar:
if i.uangSaku < terkecil:
terkecil = i.uangSaku
list.append(i)
return list
print(uangSakuTerkecil(Daftar))
IDLE Shell 3.10.8
File Edit Shell Debug Options Window Help
Python 3.10.8 (tags/v3.10.8:aaaf517, Oct 11 2
AMD64)] on win32
Type "help", "copyright", "credits" or "licen
>>>
========== RESTART: E:\kuliah\Prak-AlgoSt
[<oop.MhsTIF object at 0x000001B984503A30>]
>>>

4.


4.py - E:\kuliah\Prak-AlgoStruk\Modul4\Soal\4.py (3.10
File Edit Format Run Options Window Help
1 from lat2 import *
2
3 def uangSakuKurang(daftar):
4 list = []
5 for i in daftar:
6 if i.uangSaku < 25000
7 list.append(i)
8 return list
9
10 print(uangSakuKurang(Daftar))
IDLE Shell 3.10.8
File Edit Shell Debug Options Window Help
Python 3.10.8 (tags/v3.10.8:aaaf517, Oct 11
2022, 16:50:30) [MSC v.1933 64 bit (AMD64)]
on win32
Type "help", "copyright", "credits" or "lic
ense()" for more information.
>>>
========== RESTART: E:\kuliah\Prak-Algo
Struk\Modul4\Soal\4.py ==========
[<oop.MhsTIF object at 0x000001EB235E3AC0>,
<oop.MhsTIF object at 0x000001EB235E3940>,
<oop.MhsTIF object at 0x000001EB23629450>,
<oop.MhsTIF object at 0x000001EB23629630>,
<oop.MhsTIF object at 0x000001EB236296F0>,
<oop.MhsTIF object at 0x000001EB23629750>,
<oop.MhsTIF object at 0x000001EB236297B0>]
>>>

5.


5.py - E:\kuliah\Prak-AlgoStruk\Modul4\Soal\5.py (3
File Edit Format Run Options Window Help
1 from lat2 import *
2
3 def cari(daftar, dicari):
4 list = []
5 for i in daftar:
6 if i.nama == dicari:
7 list.append(i)
8 return list
9
10 print(cari(Daftar, 'Budi'))
IDLE Shell 3.10.8
File Edit Shell Debug Options Window Help
Python 3.10.8 (tags/v3.10.8:aaaf517, Oct 11
AMD64)] on win32
Type "help", "copyright", "credits" or "lice
>>>
========== RESTART: E:\kuliah\Prak-AlgoS
[<oop.MhsTIF object at 0x00000222FE1231C0>]
>>>

6.

6.py - E:\kuliah\Prak-AlgoStruk\Modul4\Soal\6.py (3.10.8)

File Edit Format Run Options Window Help

```
def binSe2(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

```

7.

7.py - E:\kuliah\Prak-AlgoStruk\Modul4\Soal\7.py (3.10.8)

File Edit Format Run Options Window Help

```
def binSe3(kumpulan,target):
    low = 0
    high = len(kumpulan) -1
    list = []
    while low <= high:
        mid = (high + low) //2
        if kumpulan[mid] == target:
            list.append(mid)
            i = mid + 1
            while kumpulan[i] == target:
                list.append(i)
                i += 1
            i = mid - 1
            while kumpulan[i] == target:
                list.append(i)
                i -= 1
            return list
        elif target < kumpulan[mid]:
            high = mid -1
        else:
            low = mid +1
    return False
```

Ln: 22 Col: 16

8. Karena 2^7 = 128 dan 2^10 = 1024. Jadi, 7 dan 10 adalah logaritma basis 2 dari 128 dan 1024.