

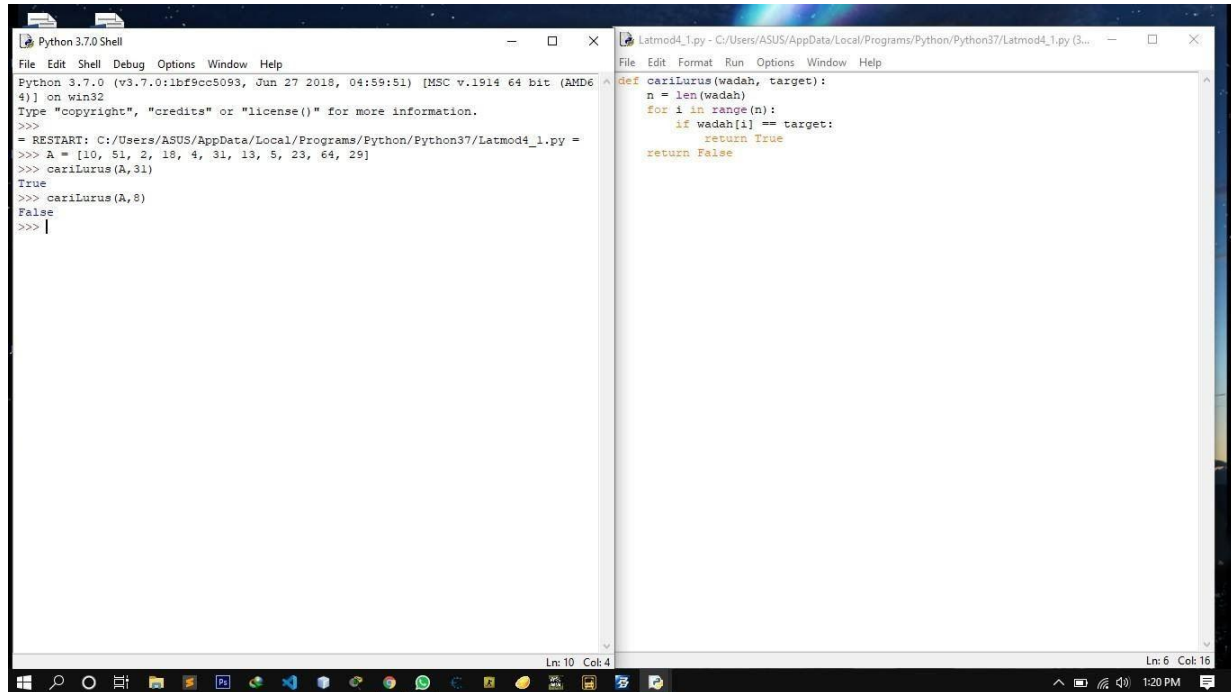
Nama : Hasan Ali

NIM : L200180077

Kelas : C

## Kegiatan Praktikum Modul 4

### A.Linear Search



The screenshot shows two windows from a Windows desktop. The left window is a 'Python 3.7.0 Shell' with a menu bar (File, Edit, Shell, Debug, Options, Window, Help). It displays the following text:

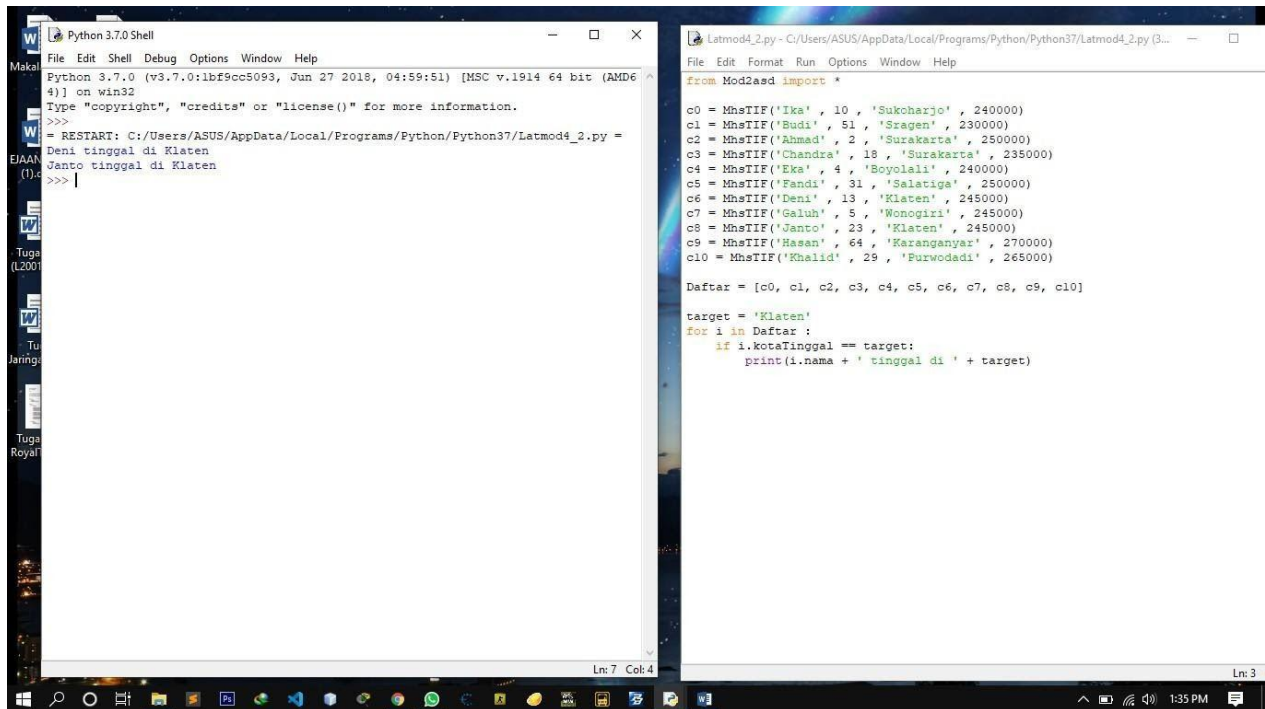
```
Python 3.7.0 (tags/v3.7.0:1bf9cc5093, Jun 27 2018, 04:59:51) [MSC v.1914 64 bit (AMD64)] on win32
Type "copyright", "credits" or "license()" for more information.
>>>
= RESTART: C:/Users/ASUS/AppData/Local/Programs/Python/Python37/Latmod4_1.py =
>>> A = [10, 51, 2, 18, 4, 31, 13, 5, 23, 64, 29]
>>> cariLurus(A, 31)
True
>>> cariLurus(A, 8)
False
>>> |
```

The right window is a text editor titled 'Latmod4\_1.py - C:/Users/ASUS/AppData/Local/Programs/Python/Python37/Latmod4\_1.py (3...)' with a menu bar (File, Edit, Format, Run, Options, Window, Help). It contains the following Python code:

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

The Windows taskbar at the bottom shows the time as 1:20 PM.

## B. Pencarian Langsung untuk Objek Buatan Sendiri



```
Python 3.7.0 Shell
File Edit Shell Debug Options Window Help
Python 3.7.0 (v3.7.0:1bf9cc5093, Jun 27 2018, 04:59:51) [MSC v.1914 64 bit (AMD64)] on win32
Type "copyright", "credits" or "license()" for more information.
>>>
= RESTART: C:/Users/ASUS/AppData/Local/Programs/Python/Python37/Latmod4_2.py =
Deni tinggal di Klaten
Janto tinggal di Klaten
>>>

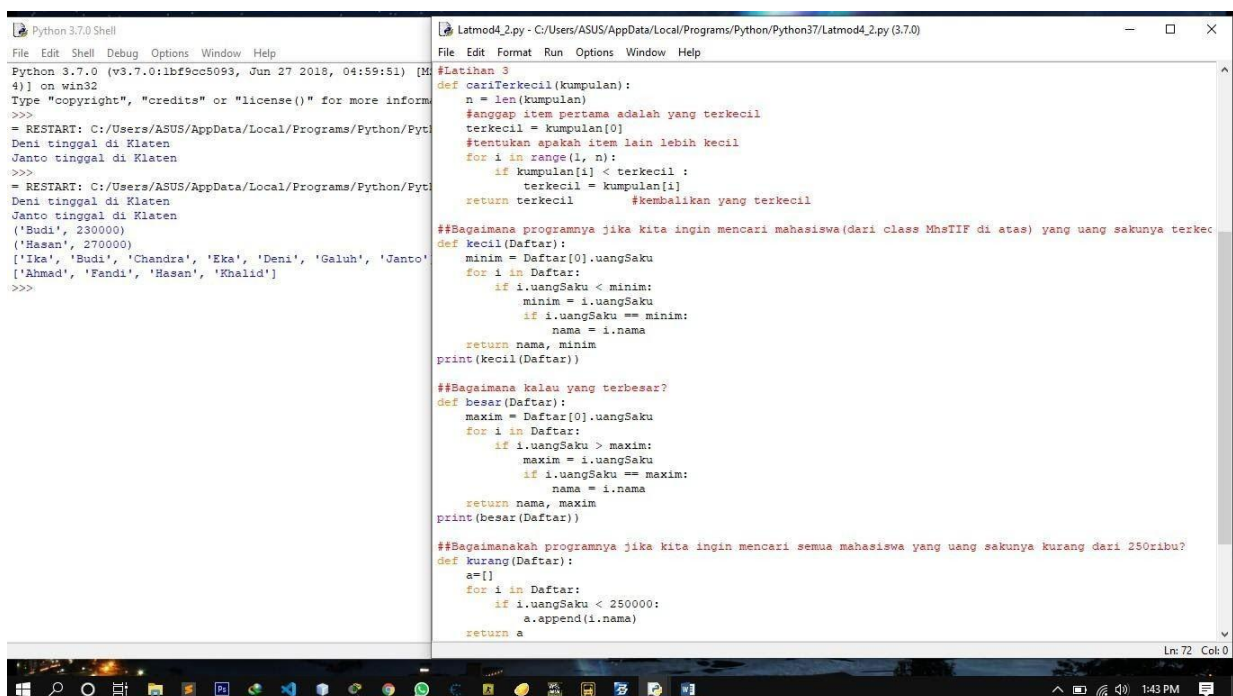
Latmod4_2.py - C:/Users/ASUS/AppData/Local/Programs/Python/Python37/Latmod4_2.py (3.7.0)
File Edit Format Run Options Window Help
from Mod2asas import *

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)

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)
```

## C. Pencarian Langsung di Linked List



```
Python 3.7.0 Shell
File Edit Shell Debug Options Window Help
Python 3.7.0 (v3.7.0:1bf9cc5093, Jun 27 2018, 04:59:51) [MSC v.1914 64 bit (AMD64)] on win32
Type "copyright", "credits" or "license()" for more information.
>>>
= RESTART: C:/Users/ASUS/AppData/Local/Programs/Python/Python37/Latmod4_2.py =
Deni tinggal di Klaten
Janto tinggal di Klaten
>>>

Latmod4_2.py - C:/Users/ASUS/AppData/Local/Programs/Python/Python37/Latmod4_2.py (3.7.0)
File Edit Format Run Options Window Help
#Latihan 3
def cariTerkecil(kumpulan):
    n = len(kumpulan)
    #anggap item pertama adalah yang terkecil
    terkecil = kumpulan[0]
    #tentukan apakah item lain lebih kecil
    for i in range(1, n):
        if kumpulan[i] < terkecil:
            terkecil = kumpulan[i]
    return terkecil #kembalikan yang terkecil

##Bagaimana programnya jika kita ingin mencari mahasiswa(dari class MhsTIF di atas) yang uang sakunya terkecil
def kecil(Daftar):
    minim = Daftar[0].uangSaku
    for i in Daftar:
        if i.uangSaku < minim:
            minim = i.uangSaku
            nama = i.nama
    return nama, minim
print(kecil(Daftar))

##Bagaimana kalau yang terbesar?
def besar(Daftar):
    maxim = Daftar[0].uangSaku
    for i in Daftar:
        if i.uangSaku > maxim:
            maxim = i.uangSaku
            nama = i.nama
    return nama, maxim
print(besar(Daftar))

##Bagaimana jika kita ingin mencari semua mahasiswa yang uang sakunya kurang dari 250ribu?
def kurang(Daftar):
    a=[]
    for i in Daftar:
        if i.uangSaku < 250000:
            a.append(i.nama)
    return a
```

```
Python 3.7.0 Shell
File Edit Shell Debug Options Window Help
Python 3.7.0 (v3.7.0:1bf9cc5093, Jun 27 2018, 04:59:51) [MSC v.1914 64 bit (AMD64)] on win32
Type "copyright", "credits" or "license()" for more information.
>>>
= RESTART: C:/Users/ASUS/AppData/Local/Programs/Python/Python37/Latmod4_2.py
Deni tinggal di Klaten
Janto tinggal di Klaten
>>>
= RESTART: C:/Users/ASUS/AppData/Local/Programs/Python/Python37/Latmod4_2.py
Deni tinggal di Klaten
Janto tinggal di Klaten
('Budi', 230000)
('Hasan', 270000)
['Ika', 'Budi', 'Chandra', 'Eka', 'Deni', 'Galuh', 'Janto', 'Ahmad', 'Fandi', 'Hasan', 'Khalid']
>>>

Latmod4_2.py - C:/Users/ASUS/AppData/Local/Programs/Python/Python37/Latmod4_2.py (3.7.0)
File Edit Format Run Options Window Help
def kecil(Daftar):
    minim = Daftar[0].uangSaku
    for i in Daftar:
        if i.uangSaku < minim:
            minim = i.uangSaku
        if i.uangSaku == minim:
            nama = i.nama
    return nama, minim
print(kecil(Daftar))

##Bagaimana kalau yang terbesar?
def besar(Daftar):
    maxim = Daftar[0].uangSaku
    for i in Daftar:
        if i.uangSaku > maxim:
            maxim = i.uangSaku
        if i.uangSaku == maxim:
            nama = i.nama
    return nama, maxim
print(besar(Daftar))

##Bagaimanakah programnya jika kita ingin mencari semua mahasiswa yang uang sakunya kurang dari 250ribu?
def kurang(Daftar):
    a = []
    for i in Daftar:
        if i.uangSaku < 250000:
            a.append(i.nama)
    return a
print(kurang(Daftar))

##Bagaimana kalau lebih dari 250 ribu?
def lebih(Daftar):
    a = []
    for i in Daftar:
        if i.uangSaku >= 250000:
            a.append(i.nama)
    return a
print(lebih(Daftar))

Ln: 72 Col: 0
```

## D. Binar y Search 1.

```
Python 3.7.0 Shell
File Edit Shell Debug Options Window Help
Python 3.7.0 (v3.7.0:1bf9cc5093, Jun 27 2018, 04:59:51) [MSC v.1914 64 bit (AMD64)] on win32
Type "copyright", "credits" or "license()" for more information.
>>>
= RESTART: C:/Users/ASUS/AppData/Local/Programs/Python/Python37/Latmod4_3.py
True
False
>>>

Latmod4_3.py - C:/Users/ASUS/AppData/Local/Programs/Python/Python37/Latmod4_3.py (3.7.0)
File Edit Format Run Options Window Help
#Latihan 4
def binSe(list, target):
    #mulai dari seluruh runtutan elemen
    low = 0
    high = len(list) - 1

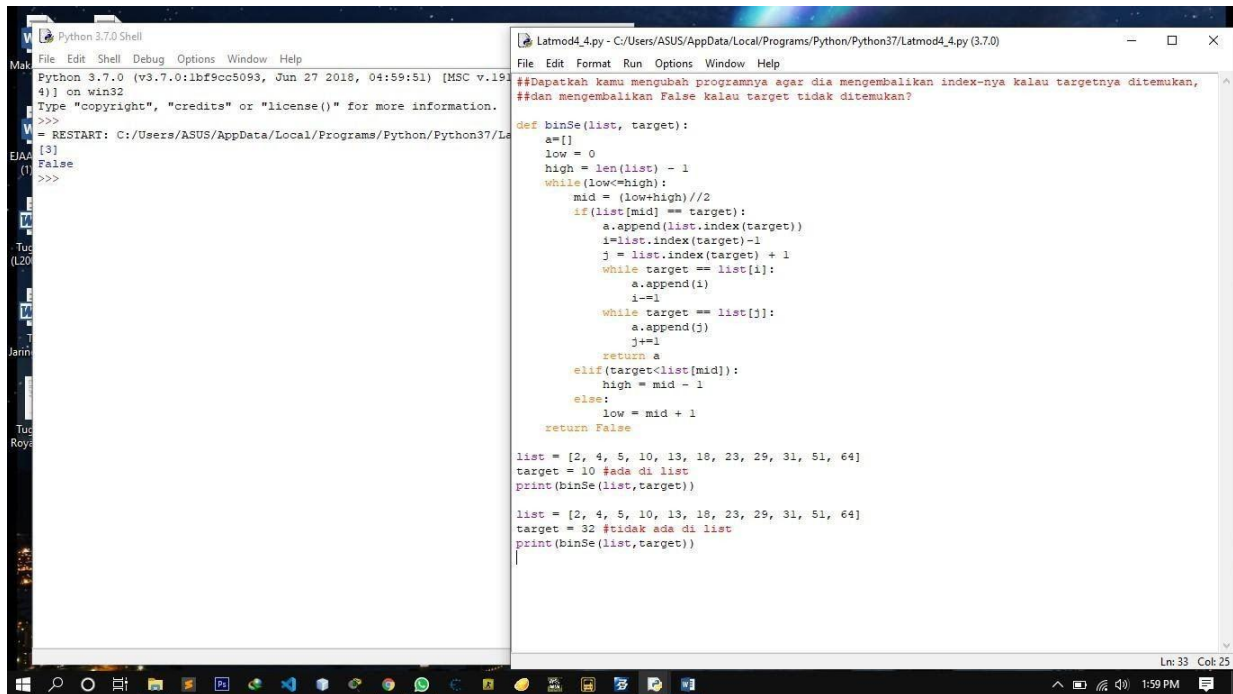
    #secara berulang belah runtutan itu menjadi separuhnya
    # sampai targetnya ditemukan
    while low <= high:
        #temukan pertengahan runtut itu
        mid = (high + low) // 2
        #Apakah pertengahannya semua target?
        if list[mid] == target:
            return True
        #ataukah targetnya di sebelah kirinya?
        elif target < list[mid]:
            high = mid - 1
        #atau targetnya ada di sebelah kananya?
        else:
            low = mid + 1
        #jika runtutnya tidak bisa dibelah lagi, berarti targetnya tidak ada
    return False

list = [2, 4, 5, 10, 13, 18, 23, 29, 31, 51, 64]
target = 10 #ada di list
print(binSe(list, target))

list = [2, 4, 5, 10, 13, 18, 23, 29, 31, 51, 64]
target = 32 #tidak ada di list
print(binSe(list, target))

Ln: 7 Col: 4
Ln: 25 Col: 24
```

2.



The image shows two overlapping windows from a Python IDE. The left window is a 'Python 3.7.0 Shell' with a menu bar (File, Edit, Shell, Debug, Options, Window, Help) and a command prompt interface. It shows the execution of a script, with the output 'False' visible. The right window is a script editor titled 'Latmod4\_4.py - C:/Users/ASUS/AppData/Local/Programs/Python/Python37/Latmod4\_4.py (3.7.0)'. It contains a Python function 'binSe' that implements a binary search algorithm. The function takes a list and a target as input and returns a list of indices where the target is found. Comments in Indonesian are present at the top of the script. At the bottom, two test cases are shown: one where the target 10 is found in the list [2, 4, 5, 10, 13, 18, 23, 29, 31, 51, 64], and another where the target 32 is not found, resulting in an empty list.

```
File Edit Shell Debug Options Window Help
Python 3.7.0 (v3.7.0:1bf9cc5093, Jun 27 2018, 04:59:51) [MSC v.191
4)] on win32
Type "copyright", "credits" or "license()" for more information.
>>>
= RESTART: C:/Users/ASUS/AppData/Local/Programs/Python/Python37/La
[3]
False
>>>
```

```
File Edit Format Run Options Window Help
Latmod4_4.py - C:/Users/ASUS/AppData/Local/Programs/Python/Python37/Latmod4_4.py (3.7.0)
##Dapatkan kamu mengubah programnya agar dia mengembalikan index-nya kalau targetnya ditemukan,
##dan mengembalikan False kalau target tidak ditemukan?

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

list = [2, 4, 5, 10, 13, 18, 23, 29, 31, 51, 64]
target = 10 #ada di list
print(binSe(list,target))

list = [2, 4, 5, 10, 13, 18, 23, 29, 31, 51, 64]
target = 32 #tidak ada di list
print(binSe(list,target))
```

Ln: 33 Col: 25