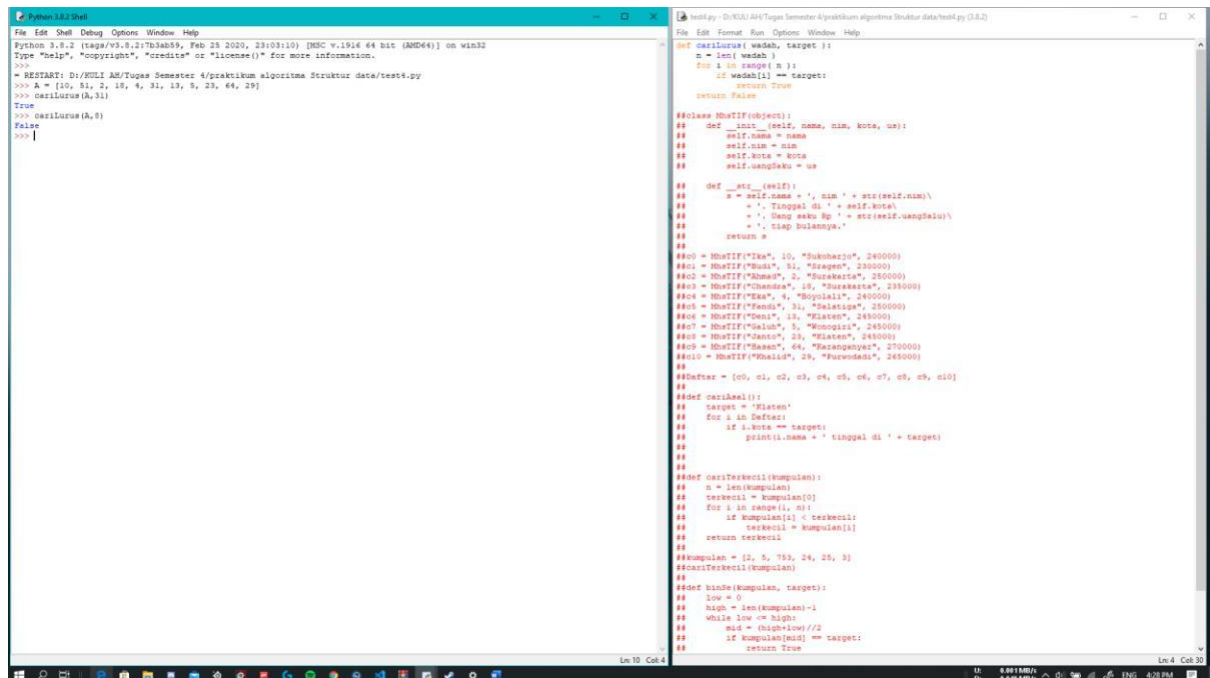


Nama : Muhammad Masykur  
Nim : L200150018  
Kelas : A

## Laporan Kegiatan Praktikum Modul 4

### Linear Search



```
Python 3.8.2 Shell
File Edit Shell Debug Options Window Help
Python 3.8.2 (tags/v3.8.2:17b3ab59, Feb 23 2020, 23:03:10) [MSC v.1916 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: D:/MULI AM/Tugas Semester 4/praktikum algoritma Struktur data/test4.py
>>> A = [10, 51, 2, 18, 4, 31, 13, 5, 23, 64, 29]
>>> carilurus(A,31)
True
>>> carilurus(A,9)
False
>>>

test4.py - D:/MULI AM/Tugas Semester 4/praktikum algoritma Struktur data/test4.py (3.8.2)
File Edit Format Run Options Window Help
def carilurus(wadah, target):
    n = len(wadah)
    for i in range(n):
        if wadah[i] == target:
            return True
    return False

class Mahasiswa(object):
    def __init__(self, nama, nim, kota, us):
        self.nama = nama
        self.nim = nim
        self.kota = kota
        self.usangSaku = us

    def __str__(self):
        s = self.nama + ', nim ' + str(self.nim) + \
            ' , Tinggal di ' + self.kota + \
            ' , Uang saku Rp ' + str(self.usangSaku) + \
            ' tiap bulannya.'
        return s

c0 = Mahasiswa("Ika", 10, "Sukoharjo", 240000)
c1 = Mahasiswa("Budi", 51, "Sragen", 230000)
c2 = Mahasiswa("Ahmad", 2, "Surakarta", 250000)
c3 = Mahasiswa("Chandra", 18, "Surakarta", 235000)
c4 = Mahasiswa("Eka", 4, "Bojonegara", 240000)
c5 = Mahasiswa("Fandi", 31, "Salatiga", 250000)
c6 = Mahasiswa("Dena", 13, "Klaten", 245000)
c7 = Mahasiswa("Galuh", 5, "Wonorejo", 245000)
c8 = Mahasiswa("Janto", 23, "Klaten", 245000)
c9 = Mahasiswa("Hana", 64, "Karanganyar", 270000)
c10 = Mahasiswa("Shaila", 29, "Purwodadi", 265000)

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

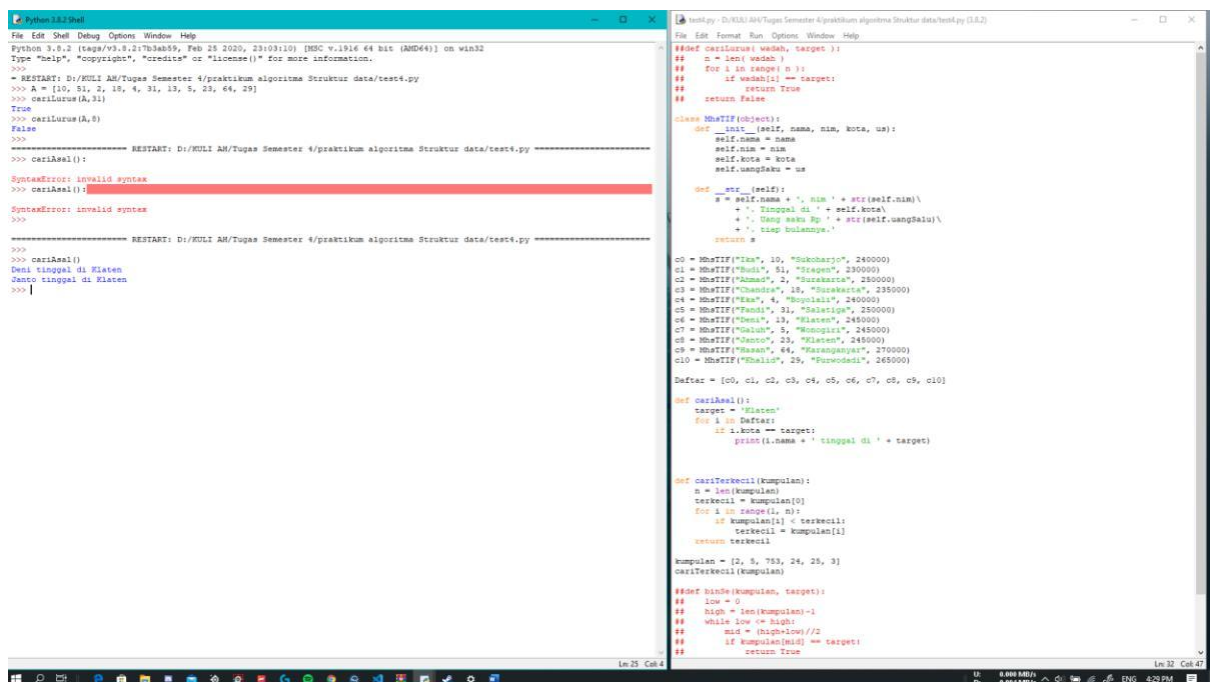
def cariKelas():
    target = 'Klaten'
    for i in Daftar:
        if i.kota == target:
            print(i.nama + ' tinggal di ' + target)
    return

def cariTerkecil(kumpulan):
    n = len(kumpulan)
    terkecil = kumpulan[0]
    for i in range(1, n):
        if kumpulan[i] < terkecil:
            terkecil = kumpulan[i]
    return terkecil

kumpulan = [2, 5, 753, 24, 25, 3]
cariterkecil(kumpulan)

def binde(kumpulan, target):
    low = 0
    high = len(kumpulan)-1
    while low <= high:
        mid = (high+low)//2
        if kumpulan[mid] == target:
            return True
```

### Pencarian Lurus Objek Buatan Sendiri



```
Python 3.8.2 Shell
File Edit Shell Debug Options Window Help
Python 3.8.2 (tags/v3.8.2:17b3ab59, Feb 23 2020, 23:03:10) [MSC v.1916 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: D:/MULI AM/Tugas Semester 4/praktikum algoritma Struktur data/test4.py
>>> A = [10, 51, 2, 18, 4, 31, 13, 5, 23, 64, 29]
>>> carilurus(A,31)
True
>>> carilurus(A,9)
False
>>>
===== RESTART: D:/MULI AM/Tugas Semester 4/praktikum algoritma Struktur data/test4.py =====
>>> cariKelas()
SyntaxError: invalid syntax
>>> cariKelas()
SyntaxError: invalid syntax
>>>
===== RESTART: D:/MULI AM/Tugas Semester 4/praktikum algoritma Struktur data/test4.py =====
>>> cariKelas()
Dena tinggal di Klaten
Janto tinggal di Klaten
>>>

test4.py - D:/MULI AM/Tugas Semester 4/praktikum algoritma Struktur data/test4.py (3.8.2)
File Edit Format Run Options Window Help
def carilurus(wadah, target):
    n = len(wadah)
    for i in range(n):
        if wadah[i] == target:
            return True
    return False

class Mahasiswa(object):
    def __init__(self, nama, nim, kota, us):
        self.nama = nama
        self.nim = nim
        self.kota = kota
        self.usangSaku = us

    def __str__(self):
        s = self.nama + ', nim ' + str(self.nim) + \
            ' , Tinggal di ' + self.kota + \
            ' , Uang saku Rp ' + str(self.usangSaku) + \
            ' tiap bulannya.'
        return s

c0 = Mahasiswa("Ika", 10, "Sukoharjo", 240000)
c1 = Mahasiswa("Budi", 51, "Sragen", 230000)
c2 = Mahasiswa("Ahmad", 2, "Surakarta", 250000)
c3 = Mahasiswa("Chandra", 18, "Surakarta", 235000)
c4 = Mahasiswa("Eka", 4, "Bojonegara", 240000)
c5 = Mahasiswa("Fandi", 31, "Salatiga", 250000)
c6 = Mahasiswa("Dena", 13, "Klaten", 245000)
c7 = Mahasiswa("Galuh", 5, "Wonorejo", 245000)
c8 = Mahasiswa("Janto", 23, "Klaten", 245000)
c9 = Mahasiswa("Hana", 64, "Karanganyar", 270000)
c10 = Mahasiswa("Shaila", 29, "Purwodadi", 265000)

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

def cariKelas():
    target = 'Klaten'
    for i in Daftar:
        if i.kota == target:
            print(i.nama + ' tinggal di ' + target)
    return

def cariTerkecil(kumpulan):
    n = len(kumpulan)
    terkecil = kumpulan[0]
    for i in range(1, n):
        if kumpulan[i] < terkecil:
            terkecil = kumpulan[i]
    return terkecil

kumpulan = [2, 5, 753, 24, 25, 3]
cariterkecil(kumpulan)

def binde(kumpulan, target):
    low = 0
    high = len(kumpulan)-1
    while low <= high:
        mid = (high+low)//2
        if kumpulan[mid] == target:
            return True
```

## Pencarian Lurus di Linked List

```
Python 3.8.2 Shell
File Edit Shell Debug Options Window Help
Python 3.8.2 (tags/v3.8.2:7b3ab59, Feb 25 2020, 23:03:10) [MSC v.1916 64 bit (AMD64)] on win32
Type "help", "copyright()", "credits()" or "license()" for more information.
>>>
===== RESTART: D:/NULI AM/Tugas Semester 4/praktikum algoritma Struktur data/test4.py =====
>>> A = [10, 51, 2, 18, 4, 31, 13, 5, 25, 64, 29]
>>> cariLurus(A, 51)
True
>>> cariLurus(A, 5)
False
>>>
===== RESTART: D:/NULI AM/Tugas Semester 4/praktikum algoritma Struktur data/test4.py =====
>>> cariAral():
SyntaxError: invalid syntax
>>> cariAral():
SyntaxError: invalid syntax
>>>
===== RESTART: D:/NULI AM/Tugas Semester 4/praktikum algoritma Struktur data/test4.py =====
>>> cariAral()
Demi tinggal di Klaten
Janto tinggal di Klaten
>>> kumpulan = [2, 5, 753, 24, 25, 3, 5, 7, 12]
>>> cariTerkecil(kumpulan)
2
>>>
```

```
test4.py - D:/NULI AM/Tugas Semester 4/praktikum algoritma Struktur data/test4.py (3.8.2)
File Edit Format Run Options Window Help
##### cariLurus(wadah, target):
n = len(wadah)
for i in range(0, n):
    if wadah[i] == target:
        return True
    return False

class Node(object):
    def __init__(self, nama, nim, kota, us):
        self.nama = nama
        self.nim = nim
        self.kota = kota
        self.usangSaku = us

    def __str__(self):
        s = self.nama + ', nim ' + str(self.nim) + \
            '\n\tTinggal di ' + self.kota + \
            '\n\tDang saku Rp ' + str(self.usangSaku) + \
            '\n\ttiap bulannya.'
        return s

c0 = Node("Ika", 10, "Sukoharjo", 240000)
c1 = Node("Budi", 51, "Sragen", 230000)
c2 = Node("Ahmad", 2, "Surakarta", 250000)
c3 = Node("Chandra", 18, "Surakarta", 235000)
c4 = Node("Eka", 4, "Bojonegara", 240000)
c5 = Node("Fandi", 31, "Selatupa", 250000)
c6 = Node("Gani", 13, "Klaten", 245000)
c7 = Node("Galuh", 5, "Wonorejo", 245000)
c8 = Node("Hana", 25, "Klaten", 245000)
c9 = Node("Hani", 64, "Karangsari", 270000)
c10 = Node("Hani", 29, "Purwodadi", 245000)

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

def cariAral():
    target = "Klaten"
    for i in Daftar:
        if i.kota == target:
            print(i.nama + ' tinggal di ' + target)

def cariTerkecil(kumpulan):
    n = len(kumpulan)
    terkecil = kumpulan[0]
    for i in range(1, n):
        if kumpulan[i] < terkecil:
            terkecil = kumpulan[i]
    return terkecil

kumpulan = [2, 5, 753, 24, 25, 3, 5, 7, 12]
cariTerkecil(kumpulan)

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

## Binary Search

```
Python 3.8.2 Shell
File Edit Shell Debug Options Window Help
===== RESTART: D:/NULI AM/Tugas Semester 4/praktikum algoritma Struktur data/test4.py =====
>>> kumpulan = [2, 4, 5, 10, 13, 18, 23, 29, 31, 51, 64]
>>> binSe(kumpulan, 18)
Traceback (most recent call last):
  File "pyshell1846.py", line 1, in <module>
    binSe(kumpulan, 18)
  File "D:/NULI AM/Tugas Semester 4/praktikum algoritma Struktur data/test4.py", line 51, in binSe
    return index
NameError: name 'index' is not defined
>>>
===== RESTART: D:/NULI AM/Tugas Semester 4/praktikum algoritma Struktur data/test4.py =====
>>> kumpulan = [2, 4, 5, 10, 13, 18, 23, 29, 31, 51, 64]
>>> binSe(kumpulan, 18)
Traceback (most recent call last):
  File "pyshell1852.py", line 1, in <module>
    binSe(kumpulan, 18)
  File "D:/NULI AM/Tugas Semester 4/praktikum algoritma Struktur data/test4.py", line 51, in binSe
    return list[mid]
AttributeError: type object 'list' has no attribute 'mid'
>>>
===== RESTART: D:/NULI AM/Tugas Semester 4/praktikum algoritma Struktur data/test4.py =====
>>> kumpulan = [2, 4, 5, 10, 13, 18, 23, 29, 31, 51, 64]
>>> binSe(kumpulan, 18)
(18, True)
>>> binSe(kumpulan, 5)
(5, True)
>>> binSe(kumpulan, 10)
(10, True)
>>> binSe(kumpulan, 4)
(4, True)
>>> binSe(kumpulan, 51)
(51, True)
>>> binSe(kumpulan, 64)
(64, True)
>>>
===== RESTART: D:/NULI AM/Tugas Semester 4/praktikum algoritma Struktur data/test4.py =====
>>> kumpulan = [2, 4, 5, 10, 13, 18, 23, 29, 31, 51, 64]
>>> binSe(kumpulan, 18)
True
>>> binSe(kumpulan, 51)
True
>>> binSe(kumpulan, 12)
False
>>> binSe(kumpulan, 10)
True
>>> binSe(kumpulan, 13)
True
>>>
```

```
test4.py - D:/NULI AM/Tugas Semester 4/praktikum algoritma Struktur data/test4.py (3.8.2)
File Edit Format Run Options Window Help
##### cariLurus(wadah, target):
n = len(wadah)
for i in range(0, n):
    if wadah[i] == target:
        return True
    return False

class Node(object):
    def __init__(self, nama, nim, kota, us):
        self.nama = nama
        self.nim = nim
        self.kota = kota
        self.usangSaku = us

    def __str__(self):
        s = self.nama + ', nim ' + str(self.nim) + \
            '\n\tTinggal di ' + self.kota + \
            '\n\tDang saku Rp ' + str(self.usangSaku) + \
            '\n\ttiap bulannya.'
        return s

c0 = Node("Ika", 10, "Sukoharjo", 240000)
c1 = Node("Budi", 51, "Sragen", 230000)
c2 = Node("Ahmad", 2, "Surakarta", 250000)
c3 = Node("Chandra", 18, "Surakarta", 235000)
c4 = Node("Eka", 4, "Bojonegara", 240000)
c5 = Node("Fandi", 31, "Selatupa", 250000)
c6 = Node("Gani", 13, "Klaten", 245000)
c7 = Node("Galuh", 5, "Wonorejo", 245000)
c8 = Node("Hana", 25, "Klaten", 245000)
c9 = Node("Hani", 64, "Karangsari", 270000)
c10 = Node("Hani", 29, "Purwodadi", 245000)

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

def cariAral():
    target = "Klaten"
    for i in Daftar:
        if i.kota == target:
            print(i.nama + ' tinggal di ' + target)

def cariTerkecil(kumpulan):
    n = len(kumpulan)
    terkecil = kumpulan[0]
    for i in range(1, n):
        if kumpulan[i] < terkecil:
            terkecil = kumpulan[i]
    return terkecil

kumpulan = [2, 5, 753, 24, 25, 3, 5, 7, 12]
cariTerkecil(kumpulan)

##### binSe(kumpulan, target):
# Mula: data 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
```