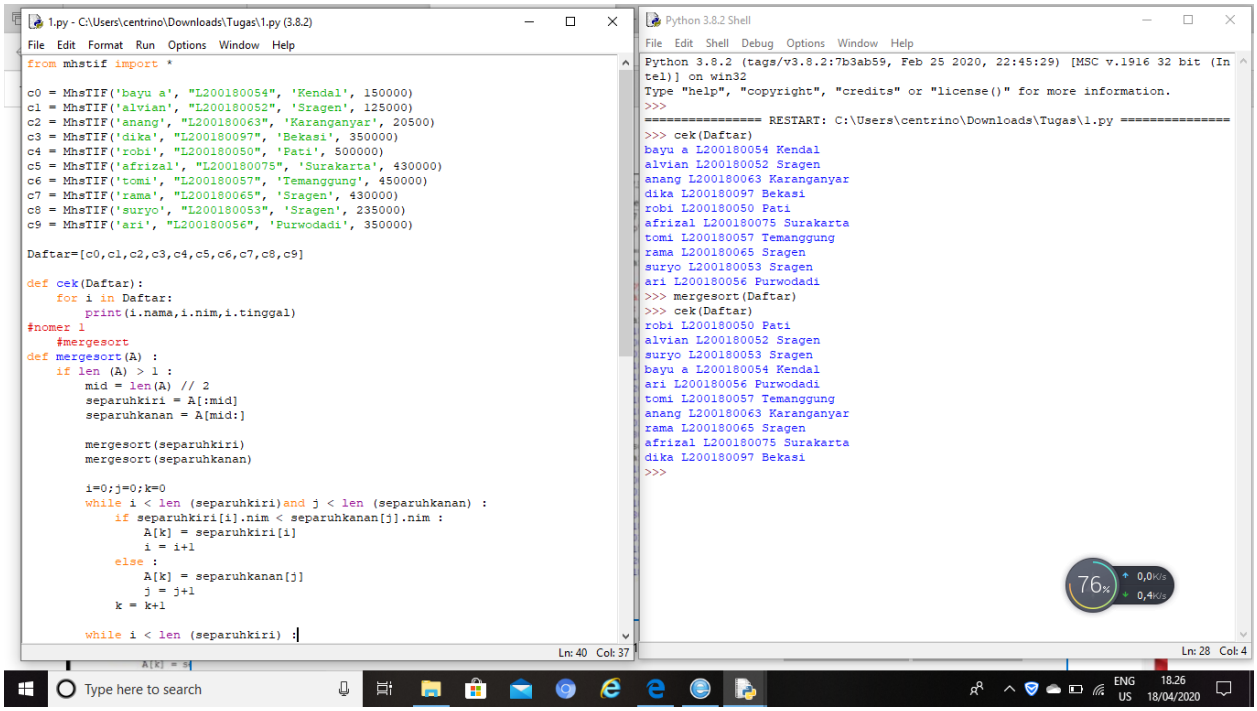
Nama : Ari wibowo

Nim : L200180056

Kelas : C

Tugas

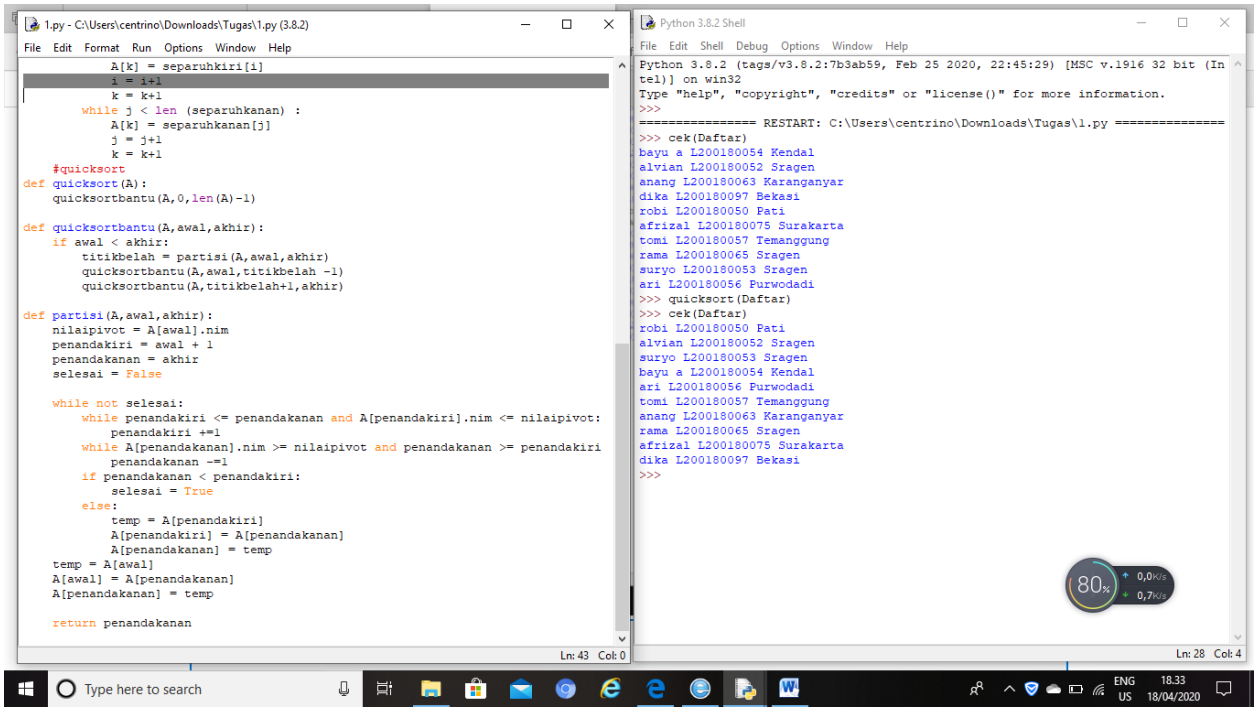
1. A) Mergesort (mengurutkan mhstif)



```
from mhstif import *

c0 = MhsTIF('bayu a', "L200180054", 'Kendal', 150000)
c1 = MhsTIF('alvian', "L200180052", 'Sragen', 125000)
c2 = MhsTIF('anang', "L200180063", 'Karanganyar', 20500)
c3 = MhsTIF('dika', "L200180097", 'Bekasi', 350000)
c4 = MhsTIF('robi', "L200180050", 'Pati', 500000)
c5 = MhsTIF('afrizal', "L200180075", 'Surakarta', 430000)
c6 = MhsTIF('tomi', "L200180057", 'Temanggung', 450000)
c7 = MhsTIF('rama', "L200180065", 'Sragen', 430000)
c8 = MhsTIF('suryo', "L200180053", 'Sragen', 235000)
c9 = MhsTIF('ari', "L200180056", 'Purwodadi', 350000)

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

def cek(Daftar):
    for i in Daftar:
        print(i.nama,i.nim,i.tinggal)
#nomer 1
    #mergesort
def mergesort(A) :
    if len (A) > 1 :
        mid = len(A) // 2
        separuhkiri = A[:mid]
        separuhkanan = A[mid:]

        mergesort(separuhkiri)
        mergesort(separuhkanan)

        i=0;j=0;k=0
        while i < len (separuhkiri)and j < len (separuhkanan) :
            if separuhkiri[i].nim < separuhkanan[j].nim :
                A[k] = separuhkiri[i]
                i = i+1
            else :
                A[k] = separuhkanan[j]
                j = j+1
            k = k+1

        while i < len (separuhkiri) :
```

```
Python 3.8.2 (tags/v3.8.2:7b3ab59, Feb 25 2020, 22:45:29) [MSC v.1916 32 bit (In
tel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
========== RESTART: C:\Users\centrino\Downloads\Tugas\1.py ==========
>>> cek(Daftar)
bayu a L200180054 Kendal
alvian L200180052 Sragen
anang L200180063 Karanganyar
dika L200180097 Bekasi
robi L200180050 Pati
afrizal L200180075 Surakarta
tomi L200180057 Temanggung
rama L200180065 Sragen
suryo L200180053 Sragen
ari L200180056 Purwodadi
>>> mergesort(Daftar)
>>> cek(Daftar)
robi L200180050 Pati
alvian L200180052 Sragen
suryo L200180053 Sragen
bayu a L200180054 Kendal
ari L200180056 Purwodadi
tomi L200180057 Temanggung
anang L200180063 Karanganyar
rama L200180065 Sragen
afrizal L200180075 Surakarta
dika L200180097 Bekasi
>>>
```

B) Quicksort (mengurutkan mhstif)

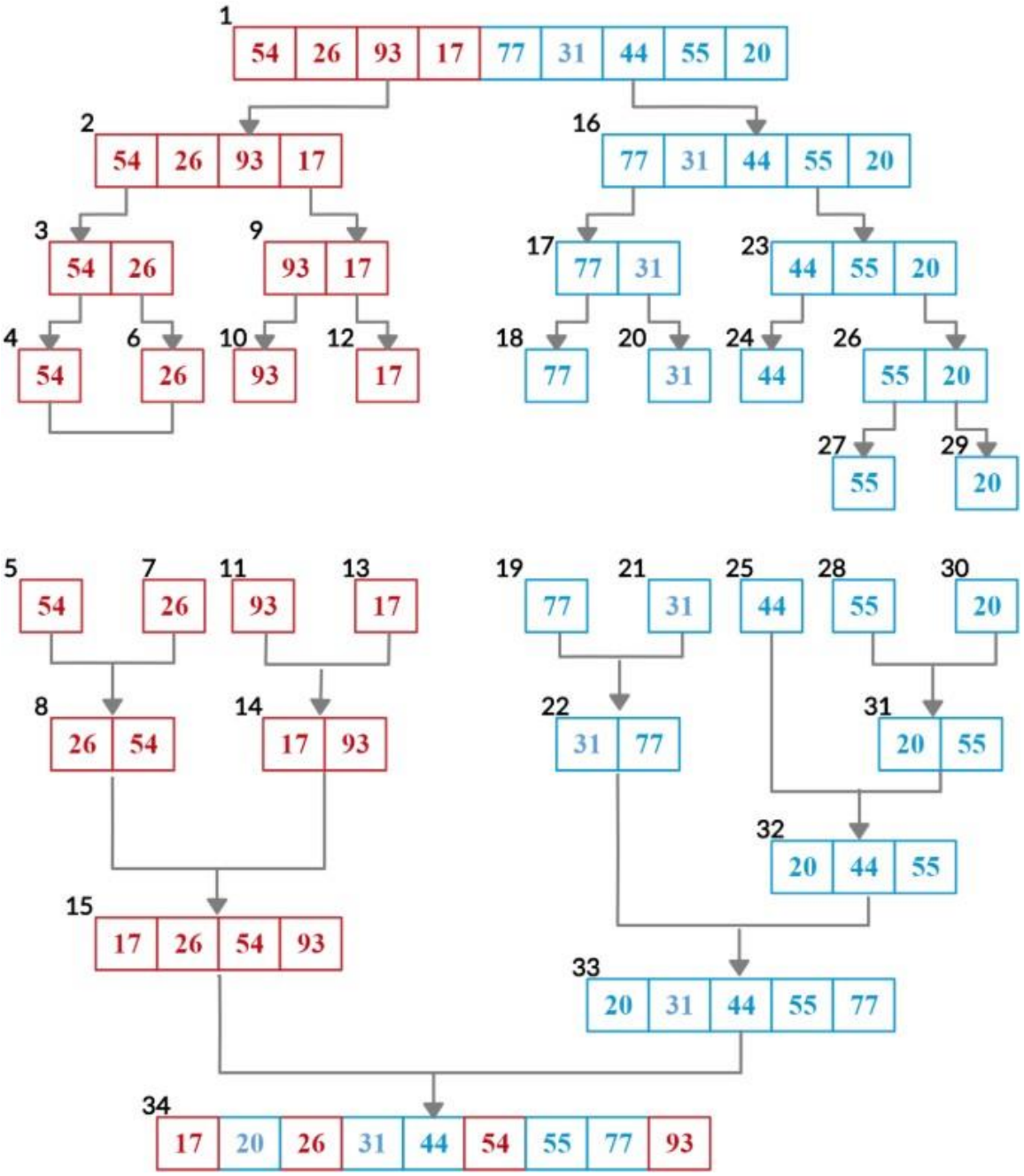


```
            A[k] = separuhkiri[i]
            i = i+1
            k = k+1
        while j < len (separuhkanan) :
            A[k] = separuhkanan[j]
            j = j+1
            k = k+1
    #quicksort
def quicksort(A):
    quicksortbantu(A,0,len(A)-1)

def quicksortbantu(A,awal,akhir):
    if awal < akhir:
        titikbelah = partisi(A,awal,akhir)
        quicksortbantu(A,awal,titikbelah -1)
        quicksortbantu(A,titikbelah+1,akhir)

def partisi(A,awal,akhir):
    nilaipivot = A[awal].nim
    penandakiri = awal + 1
    penandakanan = akhir
    selesai = False

    while not selesai:
        while penandakiri <= penandakanan and A[penandakiri].nim <= nilaipivot:
            penandakiri +=1
        while A[penandakanan].nim >= nilaipivot and penandakanan >= penandakiri
            penandakanan -=1
        if penandakanan < penandakiri:
            selesai = True
        else:
            temp = A[penandakiri]
            A[penandakiri] = A[penandakanan]
            A[penandakanan] = temp
    temp = A[awal]
    A[awal] = A[penandakanan]
    A[penandakanan] = temp

    return penandakanan
```

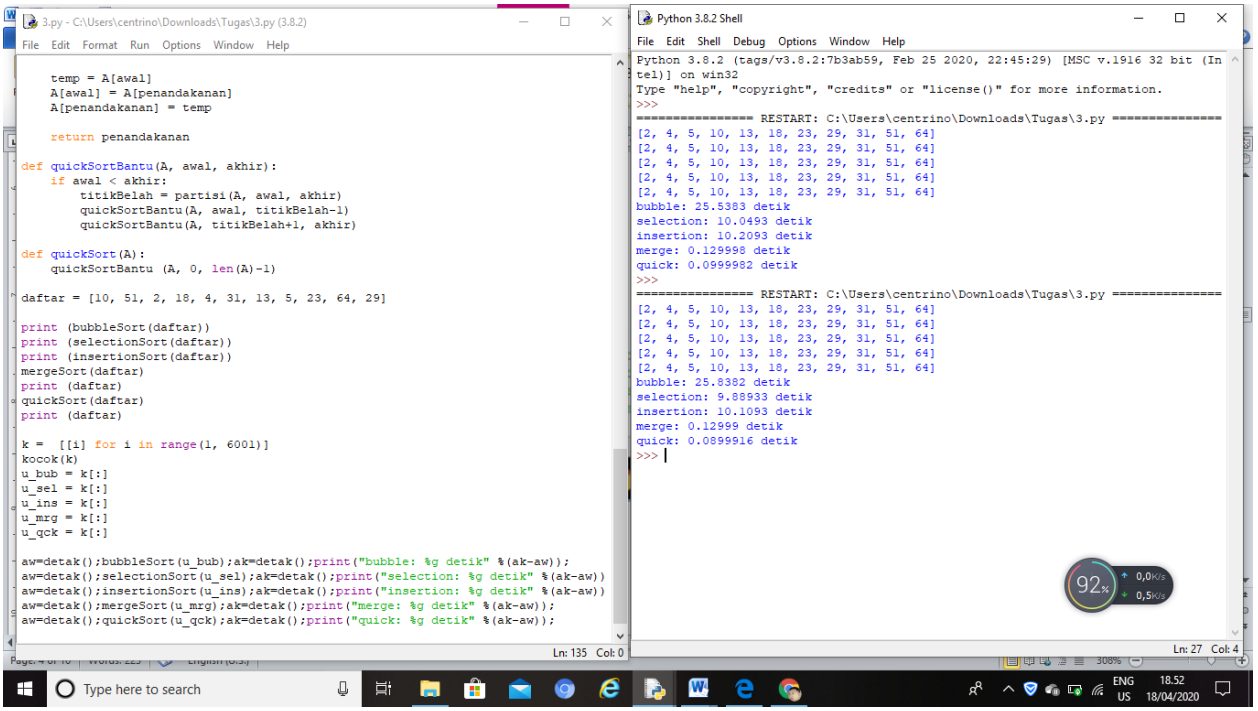
```
Python 3.8.2 (tags/v3.8.2:7b3ab59, Feb 25 2020, 22:45:29) [MSC v.1916 32 bit (In
tel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
========== RESTART: C:\Users\centrino\Downloads\Tugas\1.py ==========
>>> cek(Daftar)
bayu a L200180054 Kendal
alvian L200180052 Sragen
anang L200180063 Karanganyar
dika L200180097 Bekasi
robi L200180050 Pati
afrizal L200180075 Surakarta
tomi L200180057 Temanggung
rama L200180065 Sragen
suryo L200180053 Sragen
ari L200180056 Purwodadi
>>> quicksort(Daftar)
>>> cek(Daftar)
robi L200180050 Pati
alvian L200180052 Sragen
suryo L200180053 Sragen
bayu a L200180054 Kendal
ari L200180056 Purwodadi
tomi L200180057 Temanggung
anang L200180063 Karanganyar
rama L200180065 Sragen
afrizal L200180075 Surakarta
dika L200180097 Bekasi
>>>
```

2. Beri nomor urut eksekusi proses gambar 6.1 dan 6.2 mengacu pada output di halaman 59

halaman 58

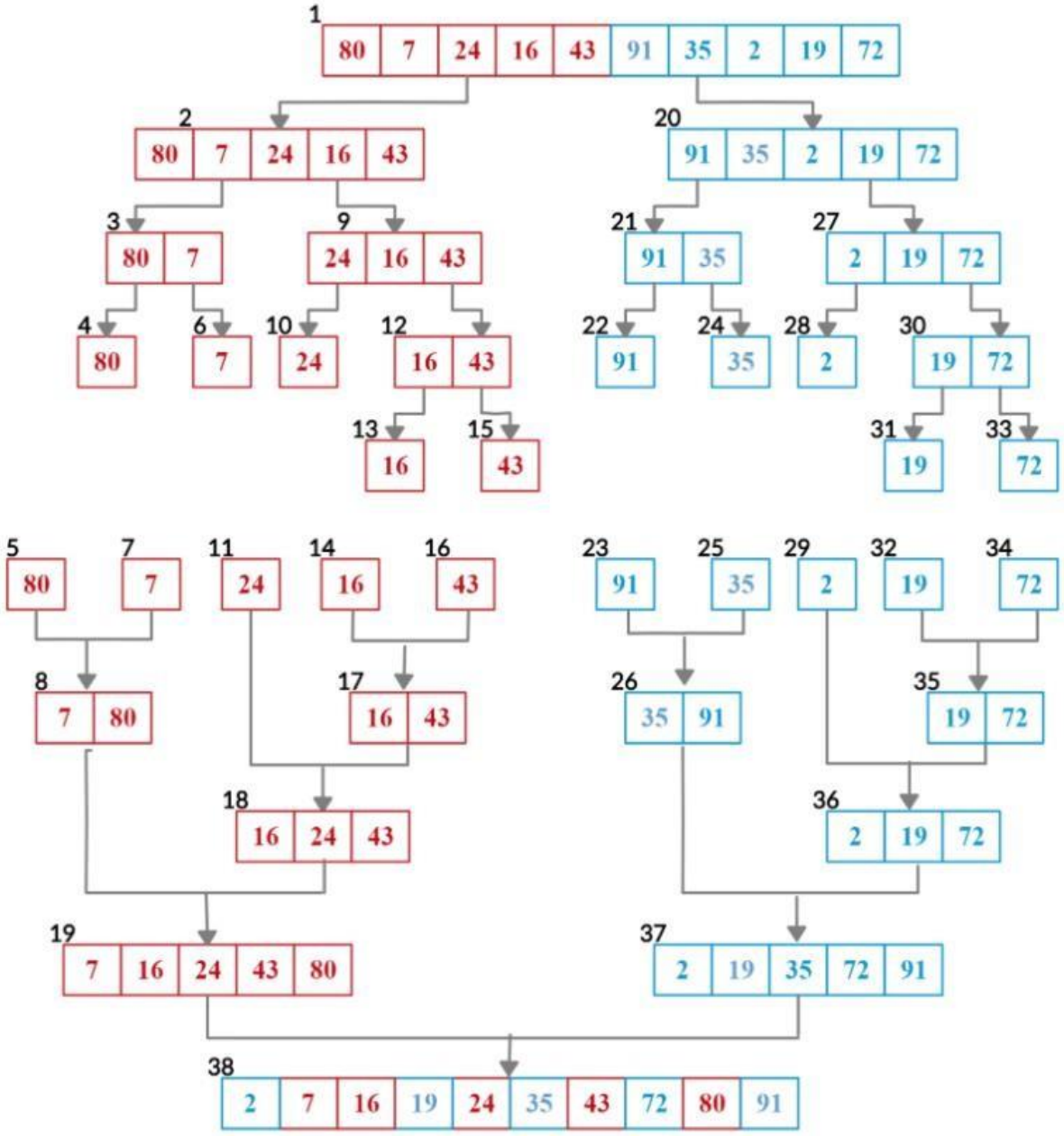


3. Uji kecepatan bubblesort,selectionsort,insertionsort,mergesort dan quicksort



4. A) Diberikan List = [80,7,24,16,43,91,35,2,19,72] ,gambarlah trace pengurutan algoritmanya (Mergesort)

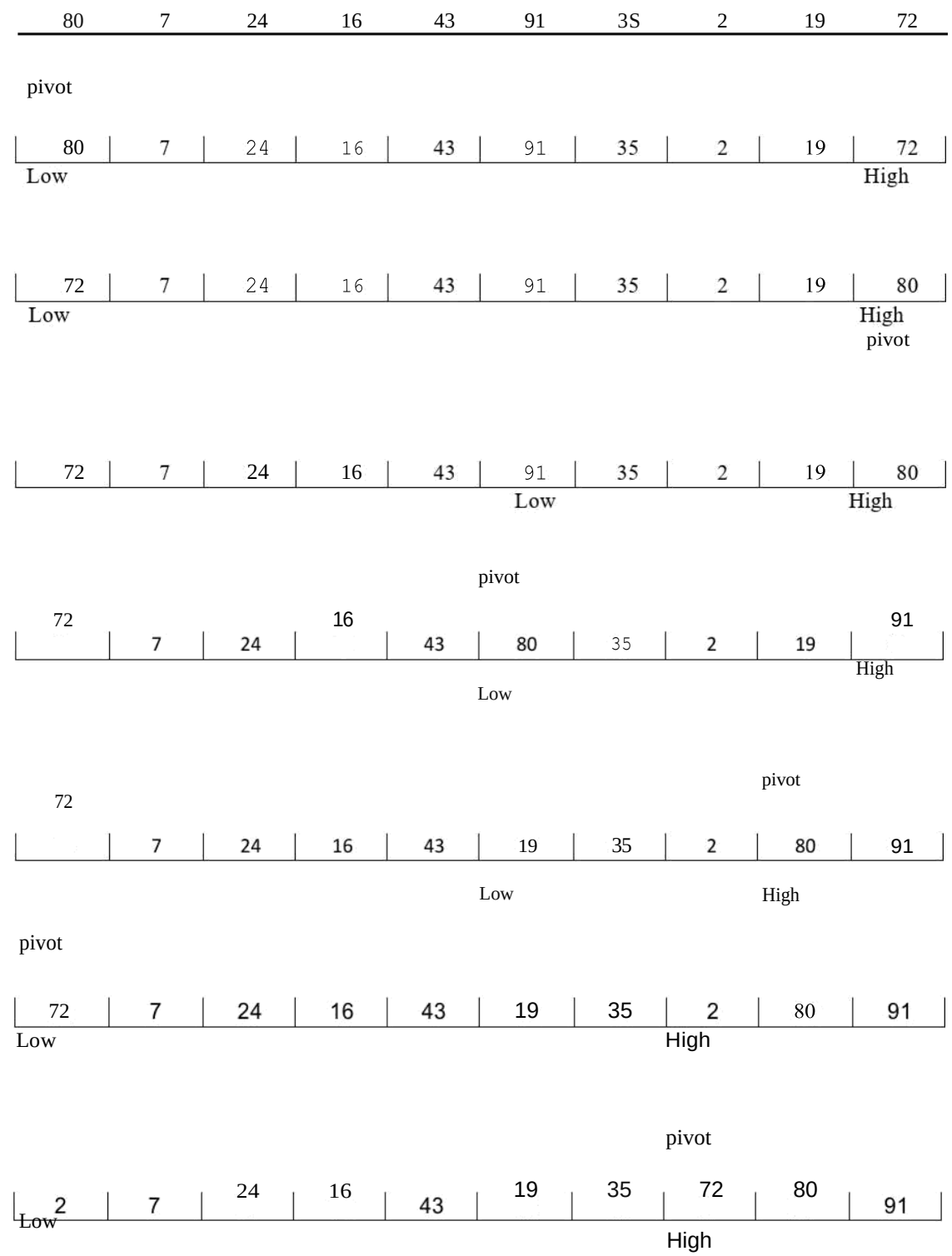
nomer 4 . merge sort



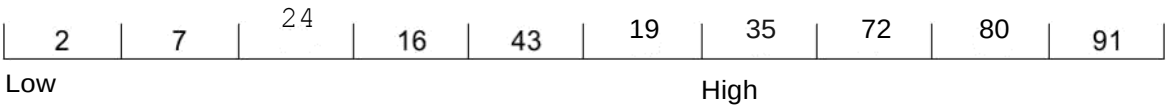
a. Diberikan List = [80,7,24,16,43,91,35,2,19,72] ,gambarlah trace pengurutan algoritmanya (quicksort)

QuickSort

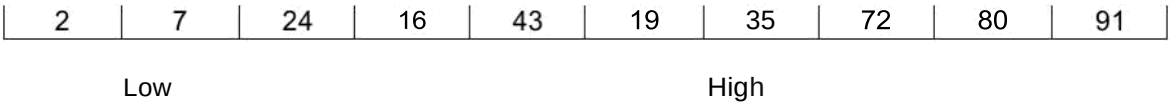
List = [80,7,24,16,43,91,35,2,19,72]



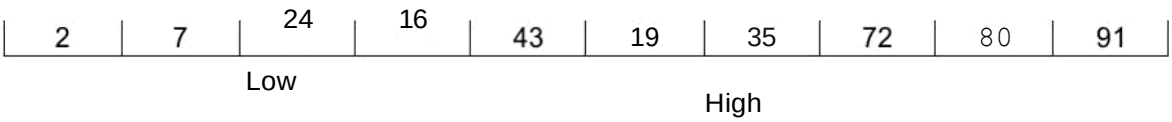
pivot

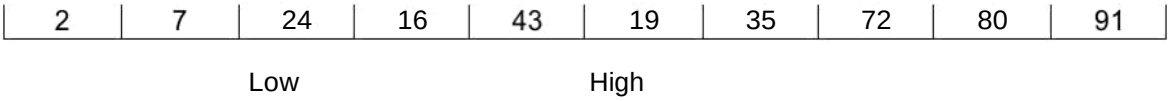


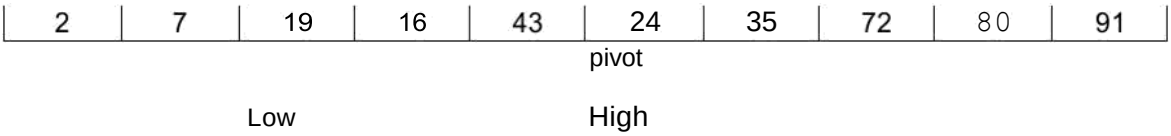
pivot



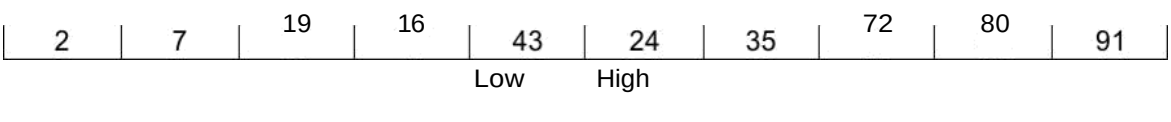
pivot



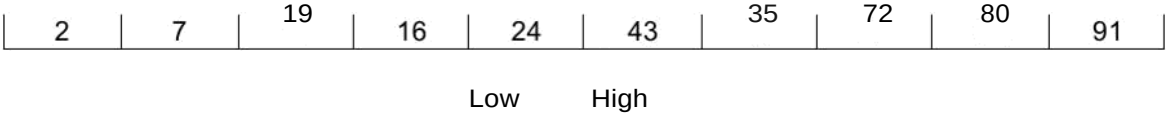




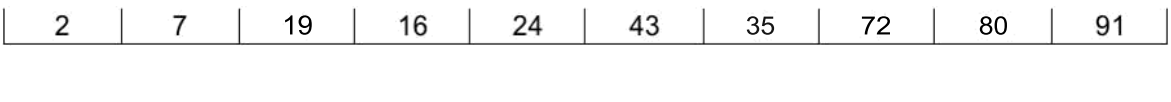
pivot



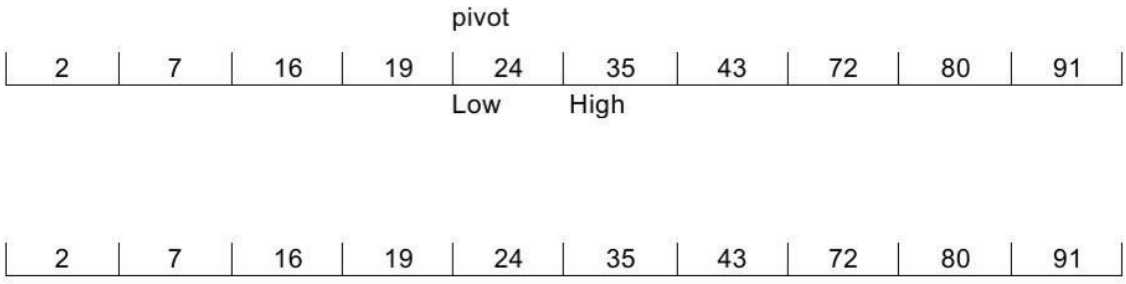
pivot



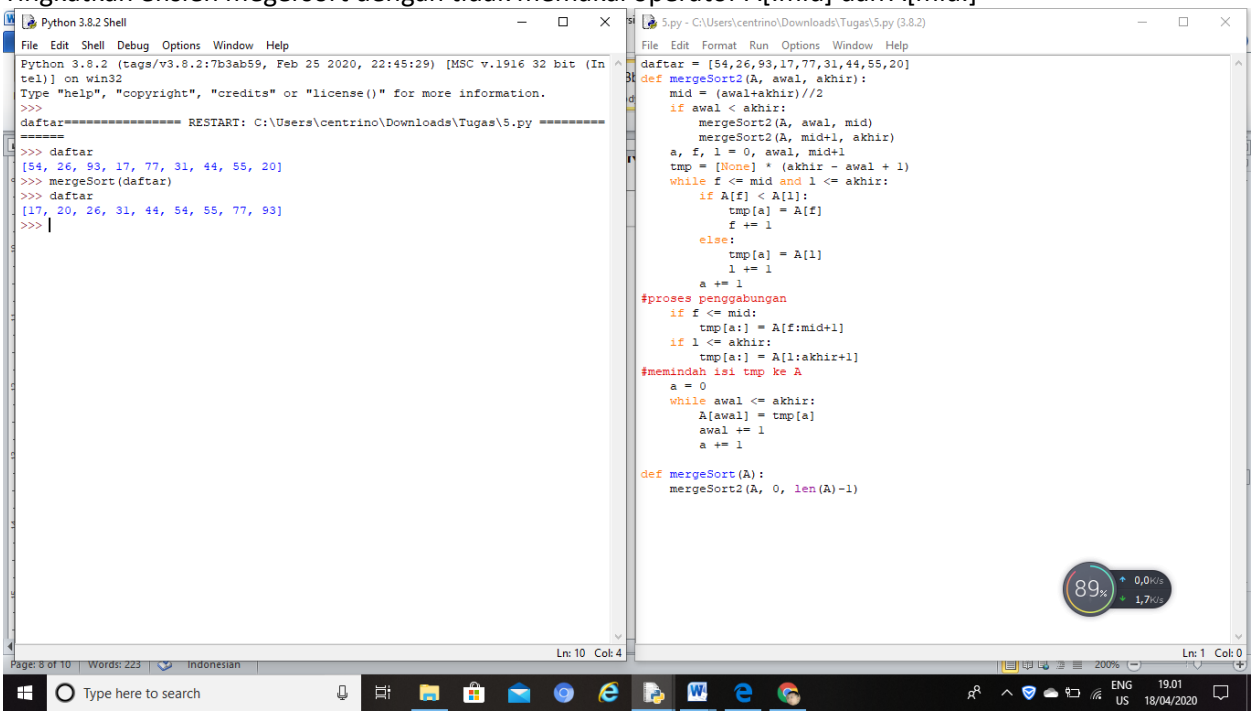
pivot



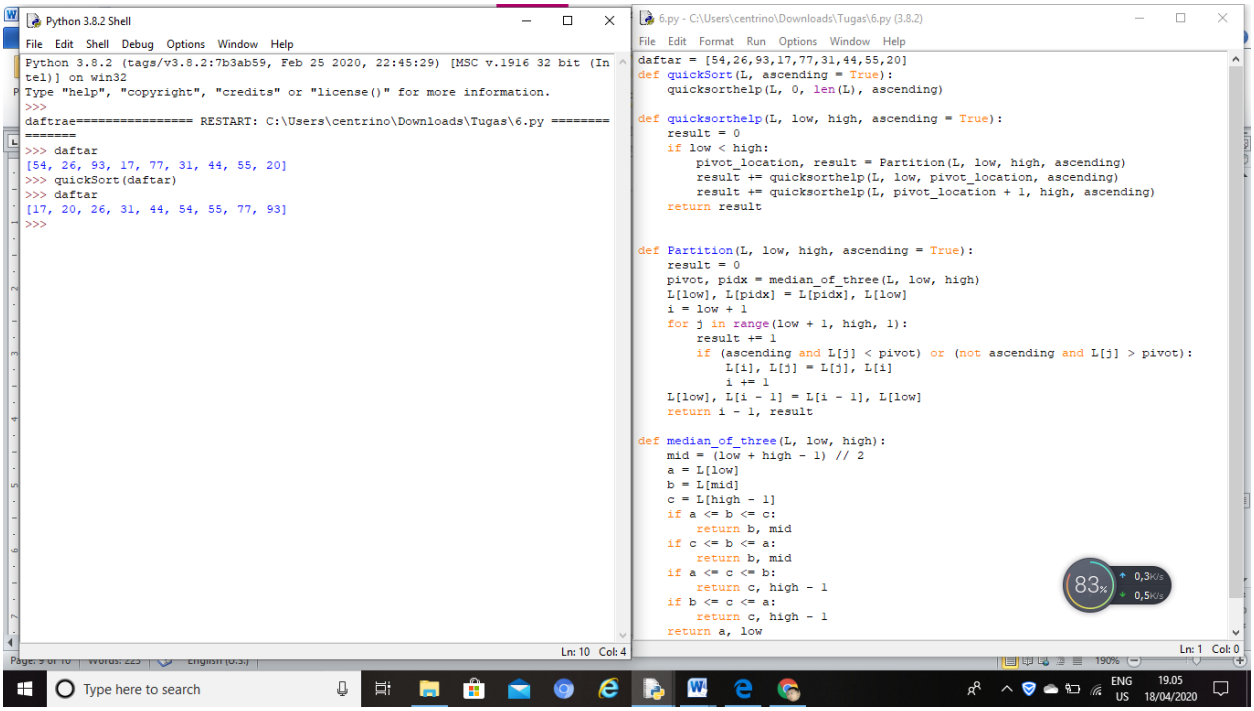
Low High



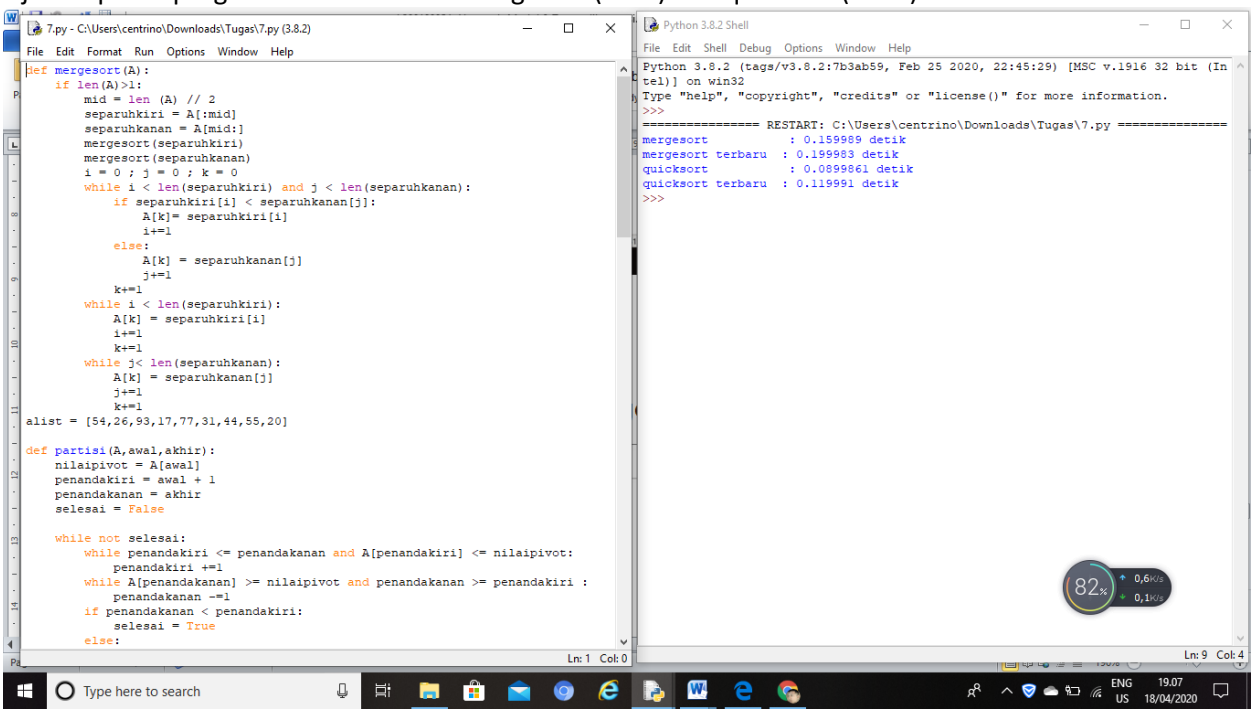
5. Tingkatkan efisien megersort dengan tidak memakai operator A[:mid] dan A[mid:]



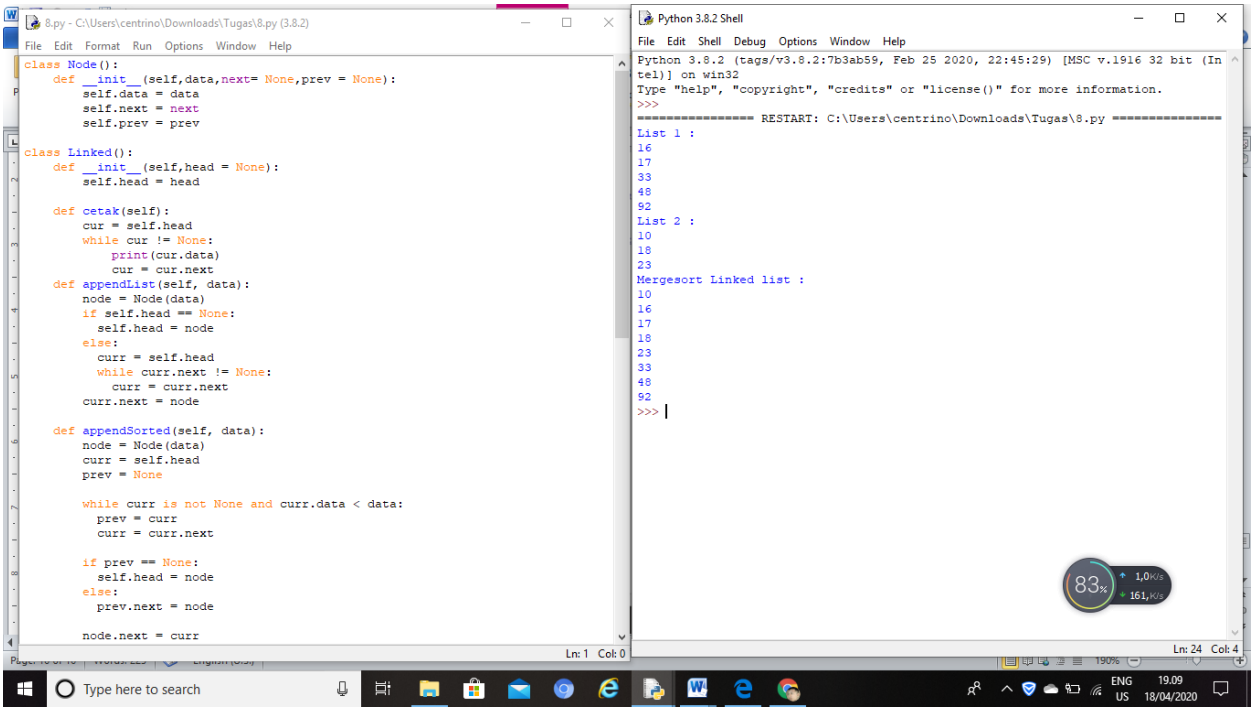
6. Quicksort dengan memakai metode median-dari-tiga



7. Uji kecepatan program nomor 5 dan 6 mergesort (awal) dan quicksort (akhir)



8. Versi linked list mergesort


8.py - C:\Users\centrino\Downloads\Tugas\8.py (3.8.2)
File Edit Format Run Options Window Help
class Node():
def __init__(self,data,next= None,prev = None):
self.data = data
self.next = next
self.prev = prev
class Linked():
def __init__(self,head = None):
self.head = head
def cetak(self):
cur = self.head
while cur != None:
print(cur.data)
cur = cur.next
def appendList(self, data):
node = Node(data)
if self.head == None:
self.head = node
else:
curr = self.head
while curr.next != None:
curr = curr.next
curr.next = node
def appendSorted(self, data):
node = Node(data)
curr = self.head
prev = None
while curr is not None and curr.data < data:
prev = curr
curr = curr.next
if prev == None:
self.head = node
else:
prev.next = node
node.next = curr
Ln: 1 Col: 0
Python 3.8.2 Shell
File Edit Shell Debug Options Window Help
Python 3.8.2 (tags/v3.8.2:7b3ab59, Feb 25 2020, 22:45:29) [MSC v.1916 32 bit (Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
========== RESTART: C:\Users\centrino\Downloads\Tugas\8.py ==========
List 1 :
16
17
33
48
92
List 2 :
10
18
23
Mergesort Linked list :
10
16
17
18
23
33
48
92
>>>
Ln: 24 Col: 4
83%
1,0K/s
161,K/s
Type here to search
ENG
US
19.09
18/04/2020