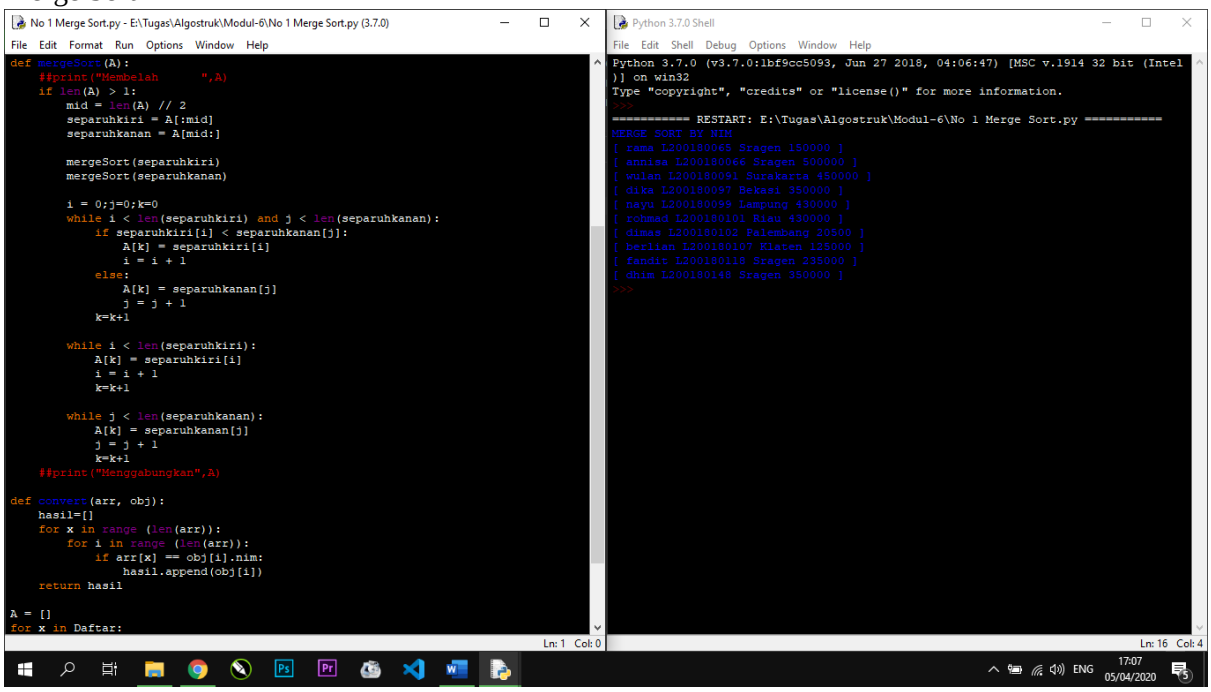
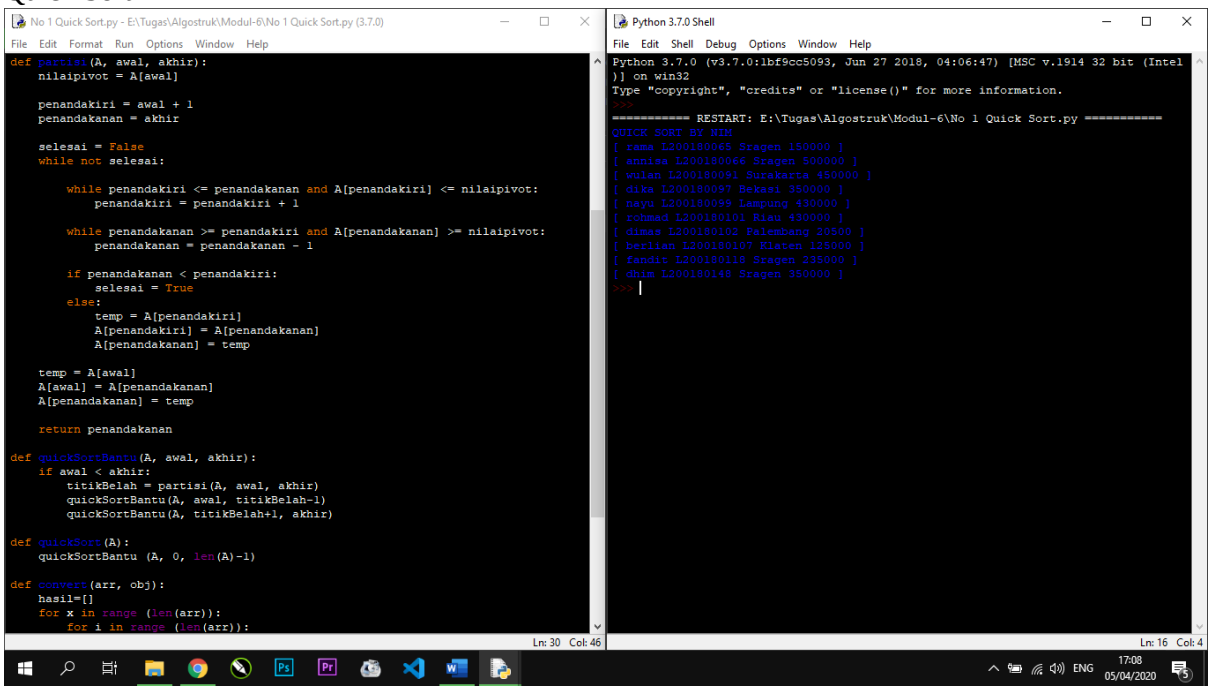
Nama : Wahyu Setyaji Rama Dwijaya
NIM : L200180065
Kelas : C

TUGAS MODUL 6

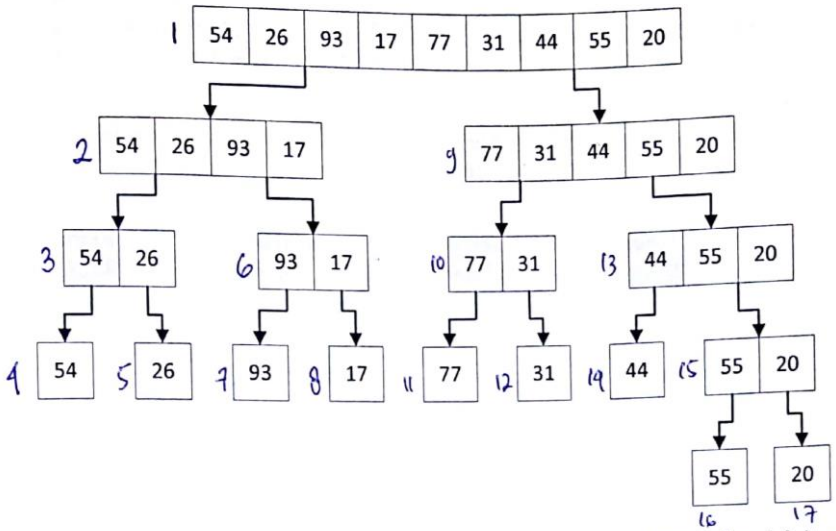
No 1
Merge Sort



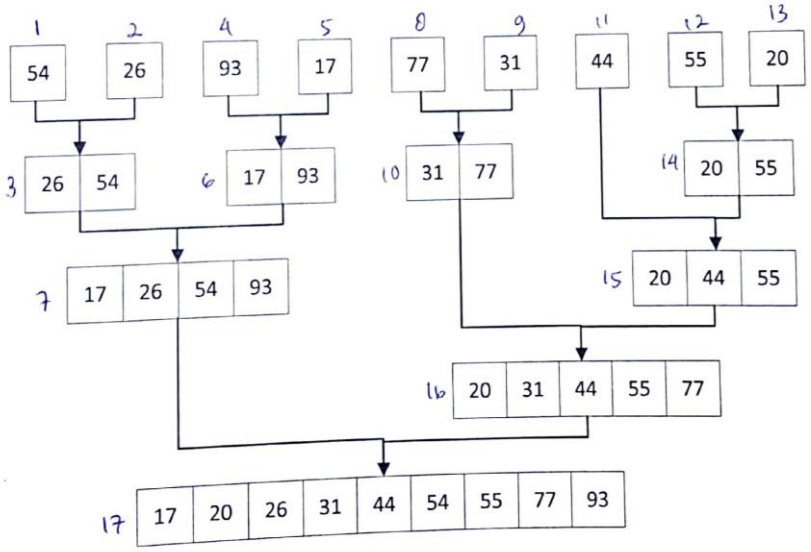
Quick Sort



No 2

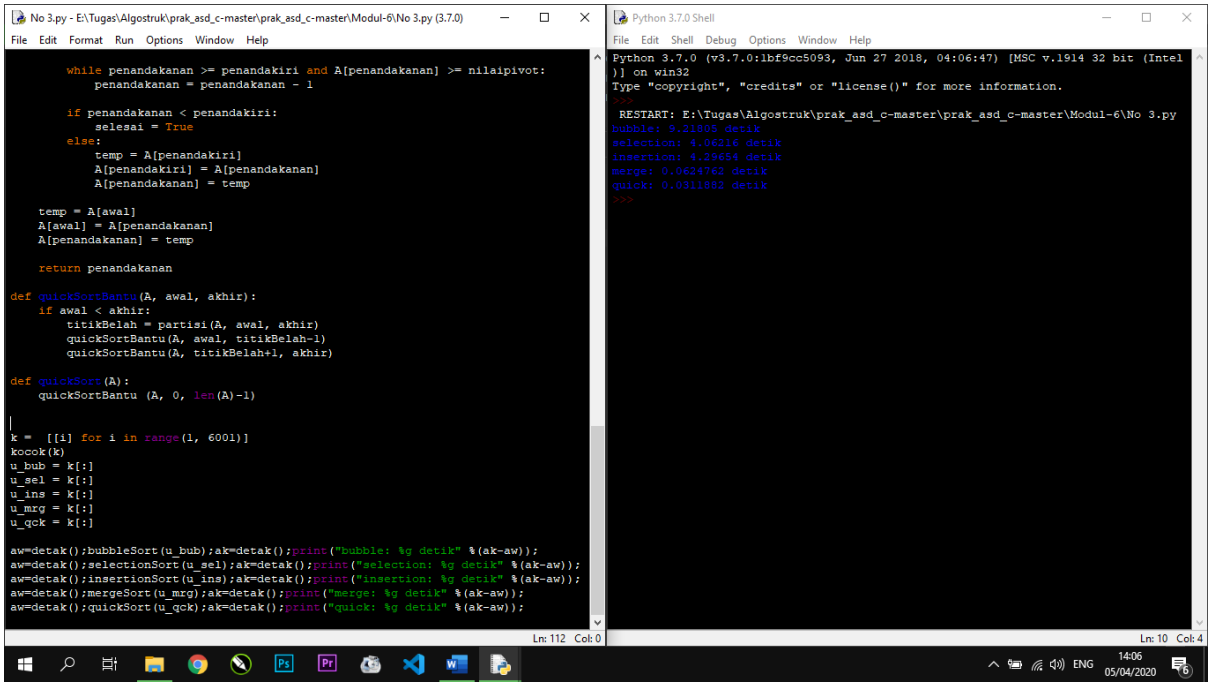


Gambar 6.1: Membelah list sampai tiap sub-list berisi satu elemen atau kosong. Sesudah itu digabung seperti ditunjukkan di Gambar 6.2.



Gambar 6.2: Menggabungkan list satu demi satu.

No 3



No 4

Merge Sort:

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

80	7	24	16	43	91	35	2	19	72

Proses 1

7	80	26	24	43	91	2	35	19	72

Proses 2

7	16	24	80	2	35	43	91	19	72

Proses 3

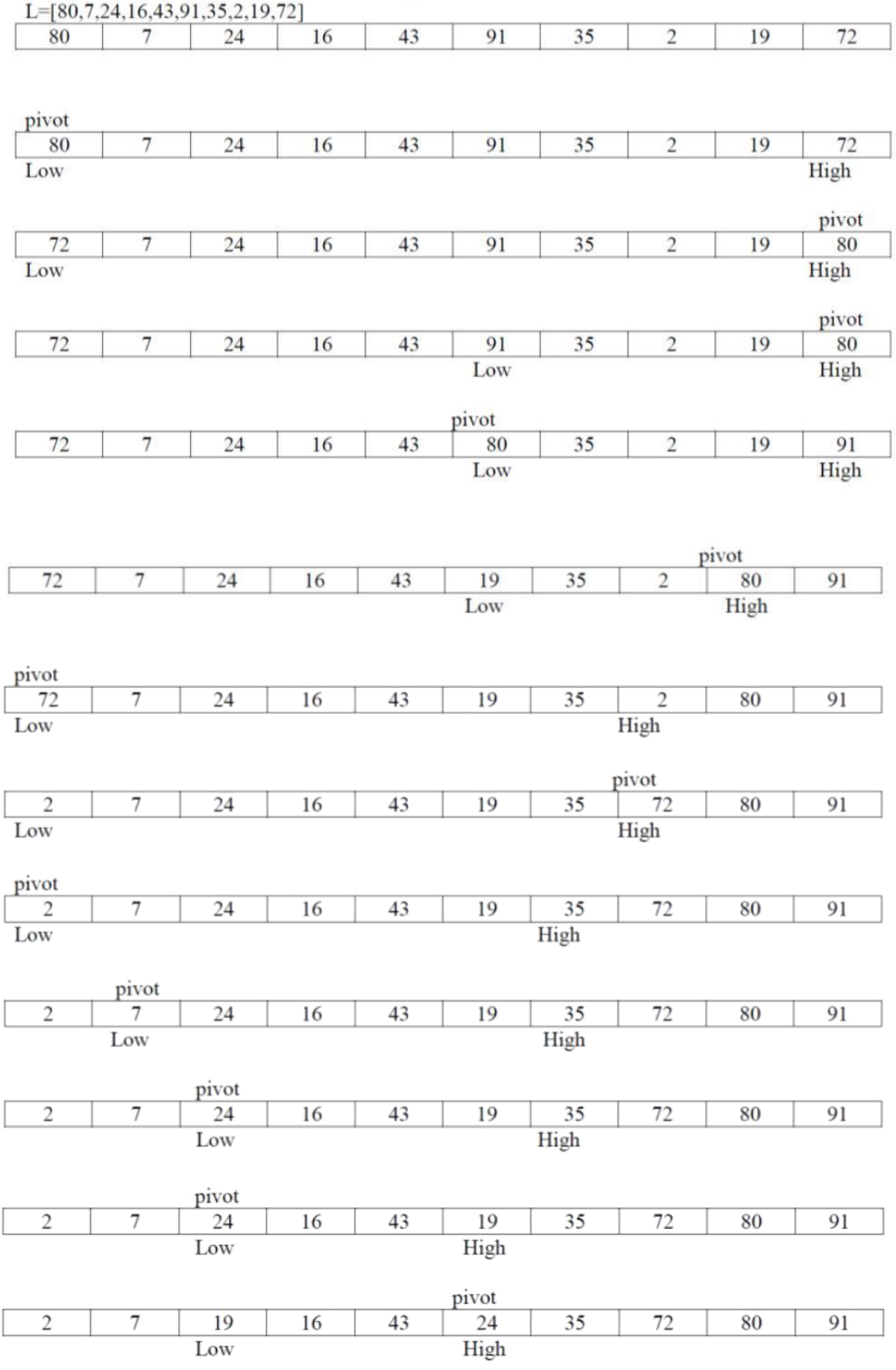
2	7	16	24	35	43	80	91	19	72

Proses 4

2	7	16	19	24	35	43	72	80	91

Quick Sort

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



pivot

2	7	19	16	43	24	35	72	80	91
				Low	High				

pivot

2	7	19	16	24	43	35	72	80	91
				Low	High				

pivot

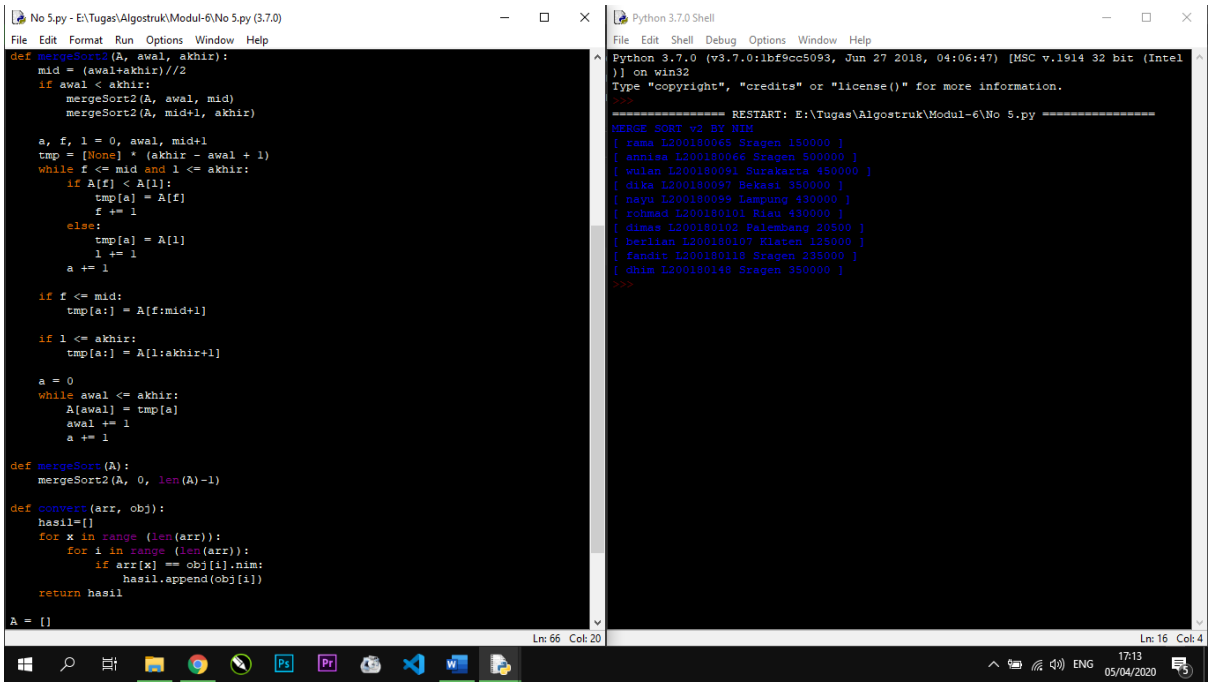
2	7	19	16	24	43	35	72	80	91
		Low	High						

pivot

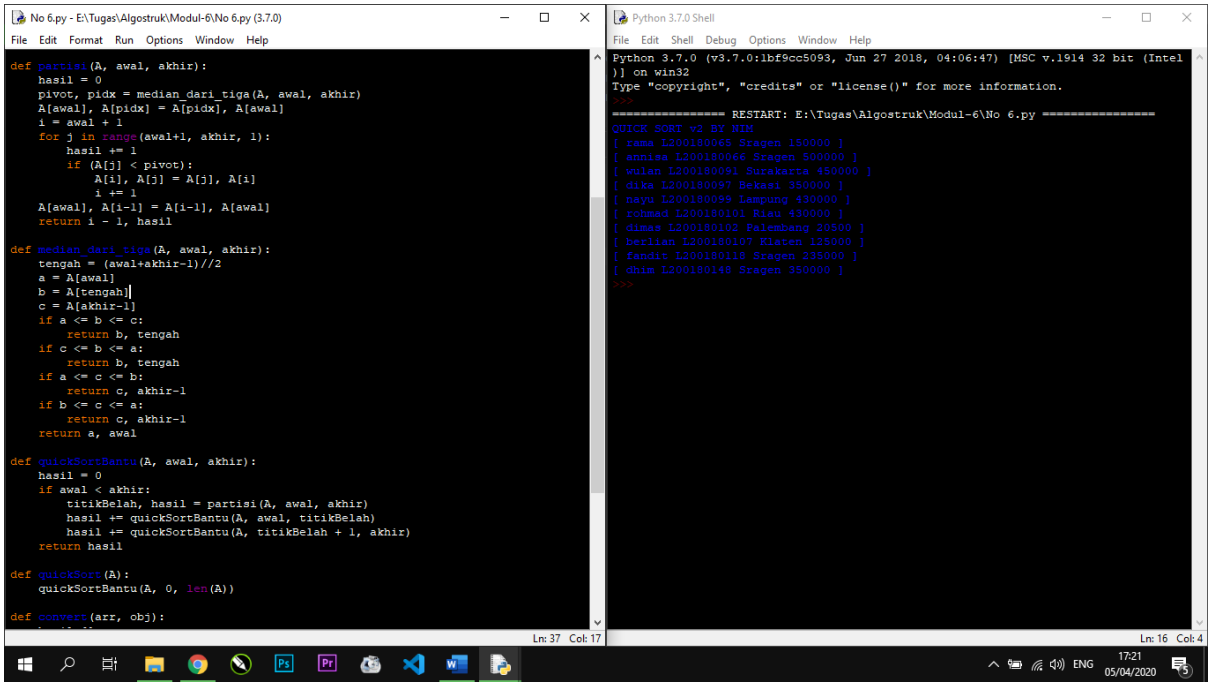
2	7	16	19	24	35	43	72	80	91
					Low	High			

2	7	16	19	24	35	43	72	80	91

No 5



No 6



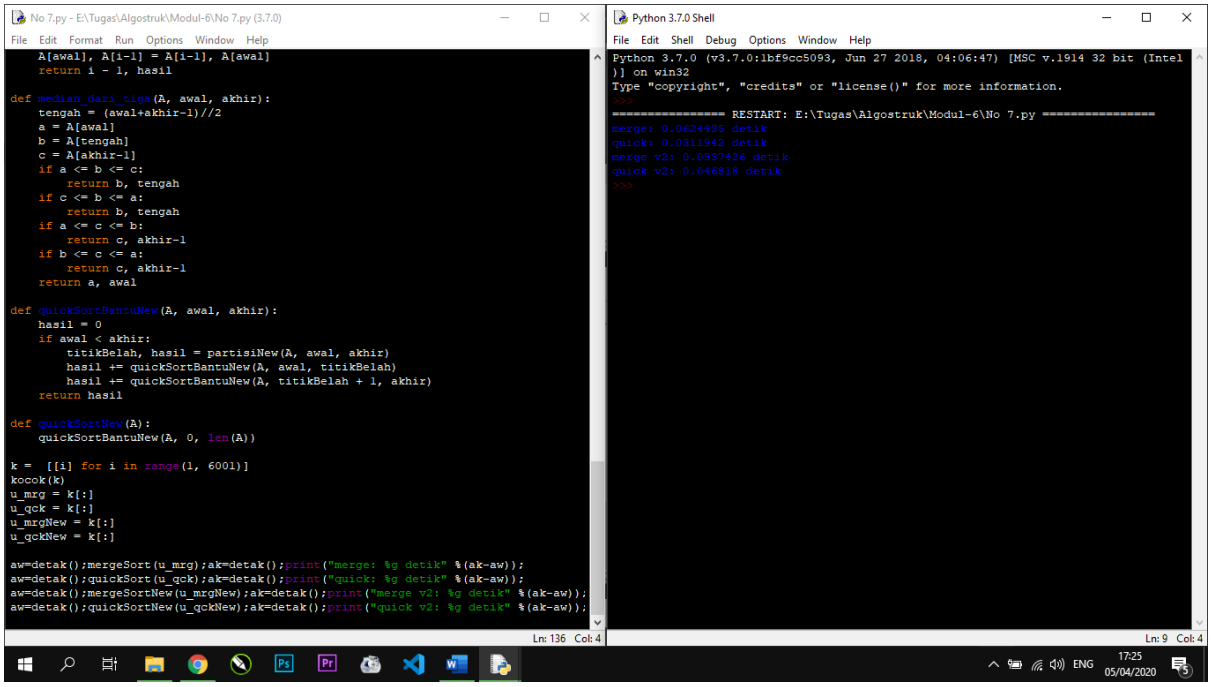
```
No 6.py - E:\Tugas\Algostruk\Modul-6\No 6.py (3.7.0)
File  Edit  Format  Run  Options  Window  Help

def partisi(A, awal, akhir):
    hasil = 0
    pivot, pidx = median_dari_tiga(A, awal, akhir)
    A[awal], A[pidx] = A[pidx], A[awal]
    i = awal + 1
    for j in range(awal+1, akhir, 1):
        hasil += 1
        if (A[j] < pivot):
            A[i], A[j] = A[j], A[i]
            i += 1
    A[awal], A[i-1] = A[i-1], A[awal]
    return i - 1, hasil

def median_dari_tiga(A, awal, akhir):
    tengah = (awal+akhir-1)//2
    a = A[awal]
    b = A[tengah]
    c = A[akhir-1]
    if a <= b <= c:
        return b, tengah
    if c <= b <= a:
        return b, tengah
    if a <= c <= b:
        return c, akhir-1
    if b <= c <= a:
        return c, akhir-1
    return a, awal

def quickSortBantu(A, awal, akhir):
    hasil = 0
    if awal < akhir:
        titikBelah, hasil = partisi(A, awal, akhir)
        hasil += quickSortBantu(A, awal, titikBelah)
        hasil += quickSortBantu(A, titikBelah + 1, akhir)
    return hasil

def quickSort(A):
    quickSortBantu(A, 0, len(A))

def convert(arr, obj):
```

```
Ln: 37   Col: 17
```

```
Python 3.7.0 Shell
File  Edit  Shell  Debug  Options  Window  Help
Python 3.7.0 (v3.7.0:1bf9cc5093, Jun 27 2018, 04:06:47) [MSC v.1914 32 bit (Intel
)] on win32
Type "copyright", "credits" or "license()" for more information.
>>>
========== RESTART: E:\Tugas\Algostruk\Modul-6\No 6.py ==========
QUICK SORT v2 BY NIM
[ rama L20180065 Sragen 150000 ]
[ annisa L20180066 Sragen 500000 ]
[ wulan L20180091 Surakarta 450000 ]
[ dika L20180097 Bekasi 350000 ]
[ nayu L20180099 Lampung 430000 ]
[ rohmad L20180101 Riau 430000 ]
[ dimas L20180102 Palembang 20500 ]
[ berlian L20180107 Klaten 125000 ]
[ fandit L20180118 Sragen 235000 ]
[ dhim L20180148 Sragen 350000 ]
>>>
```

```
Ln: 16   Col: 4
```


No 7



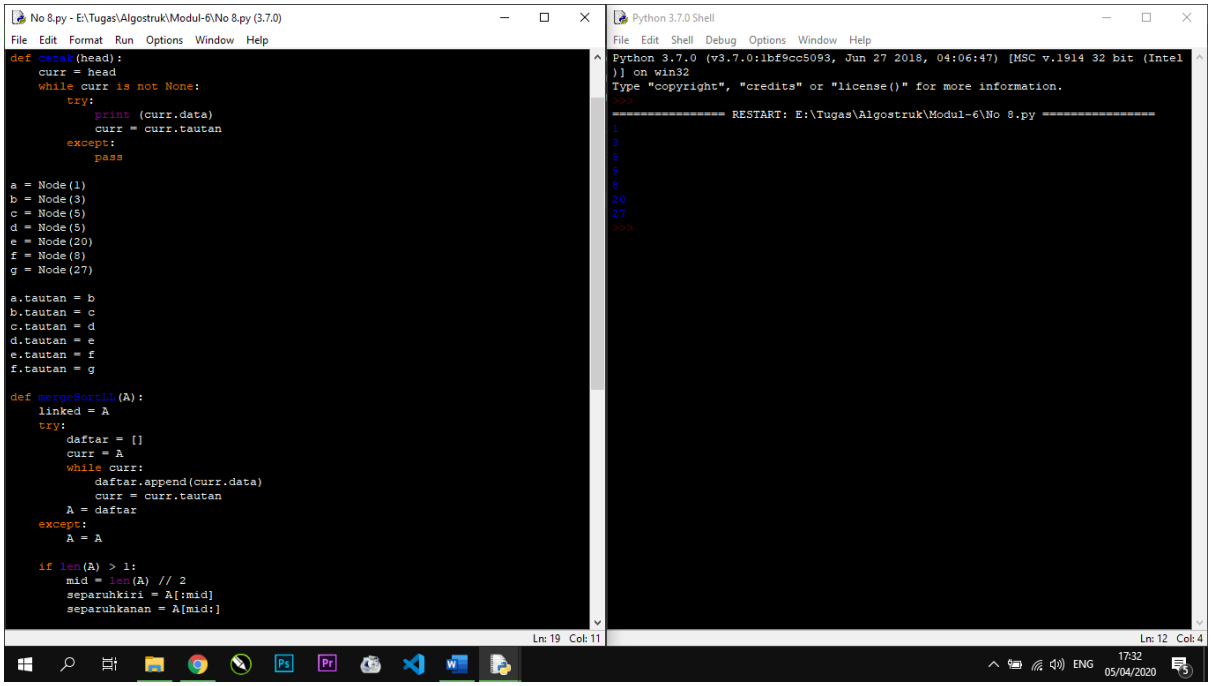
```
No 7.py - E:\Tugas\Algostruk\Modul-6\No 7.py (3.7.0)
File  Edit  Format  Run  Options  Window  Help

    A[awal], A[i-1] = A[i-1], A[awal]
    return i - 1, hasil

def median_dari_tiga(A, awal, akhir):
    tengah = (awal+akhir-1)//2
    a = A[awal]
    b = A[tengah]
    c = A[akhir-1]
    if a <= b <= c:
        return b, tengah
    if c <= b <= a:
        return b, tengah
    if a <= c <= b:
        return c, akhir-1
    if b <= c <= a:
        return c, akhir-1
    return a, awal

def quickSortBantuNew(A, awal, akhir):
    hasil = 0
    if awal < akhir:
        titikBelah, hasil = partisiNew(A, awal, akhir)
        hasil += quickSortBantuNew(A, awal, titikBelah)
        hasil += quickSortBantuNew(A, titikBelah + 1, akhir)
    return hasil

def quickSortNew(A):
    quickSortBantuNew(A, 0, len(A))

k =  [[i] for i in range(1, 6001)]
kocok(k)
u_mrg = k[:]
u_qck = k[:]
u_mrgNew = k[:]
u_qckNew = k[:]

aw=detak();mergeSort(u_mrg);ak=detak();print("merge: %g detik" %(ak-aw));
aw=detak();quickSort(u_qck);ak=detak();print("quick: %g detik" %(ak-aw));
aw=detak();mergeSortNew(u_mrgNew);ak=detak();print("merge v2: %g detik" %(ak-aw));
aw=detak();quickSortNew(u_qckNew);ak=detak();print("quick v2: %g detik" %(ak-aw));
```

```
Ln: 136   Col: 4
```

```
Python 3.7.0 Shell
File  Edit  Shell  Debug  Options  Window  Help
Python 3.7.0 (v3.7.0:1bf9cc5093, Jun 27 2018, 04:06:47) [MSC v.1914 32 bit (Intel
)] on win32
Type "copyright", "credits" or "license()" for more information.
>>>
========== RESTART: E:\Tugas\Algostruk\Modul-6\No 7.py ==========
merge: 0.0634435 detik
quick: 0.0311942 detik
merge v2: 0.0937426 detik
quick v2: 0.046818 detik
>>>
```

```
Ln: 9   Col: 4
```

No 8


No 8.py - E:\Tugas\Algostruk\Modul-6\No 8.py (3.7.0)
File Edit Format Run Options Window Help
def cetak(head):
curr = head
while curr is not None:
try:
print (curr.data)
curr = curr.tautan
except:
pass
a = Node(1)
b = Node(3)
c = Node(5)
d = Node(5)
e = Node(20)
f = Node(8)
g = Node(27)
a.tautan = b
b.tautan = c
c.tautan = d
d.tautan = e
e.tautan = f
f.tautan = g
def mergeSortLL(A):
linked = A
try:
daftar = []
curr = A
while curr:
daftar.append(curr.data)
curr = curr.tautan
A = daftar
except:
A = A
if len(A) > 1:
mid = len(A) // 2
separuhkiri = A[:mid]
separuhkanan = A[mid:]
Ln: 19 Col: 11
Python 3.7.0 Shell
File Edit Shell Debug Options Window Help
Python 3.7.0 (v3.7.0:1bf9cc5093, Jun 27 2018, 04:06:47) [MSC v.1914 32 bit (Intel)] on win32
Type "copyright", "credits" or "license()" for more information.
>>>
========== RESTART: E:\Tugas\Algostruk\Modul-6\No 8.py ==========
1
3
5
5
8
20
27
>>>
Ln: 12 Col: 4
ENG
17:32
05/04/2020