Nama : Yusrina Khairin Rusydina

NIM : L200180025

Kelas : B

MODUL 6

Kelas Mahasiswa

mahasiswa.py - C:\Users\ACER\Documents\COOLYAH\SEMESTER 4\PRAKTIKUM ASD\MODUL - 06\mahasiswa.py (3.4.3)

File Edit Format Run Options Window Help

```
class mahasiswa():
    """ class mahsiswa yang dibangun dai class manusia """
    def __init__(self,nama,NIM,kota,us):
        self.Nama=nama
        self.NIM=NIM
        self.kota=kota
        self.uang=us
    def __str__(self):
        s=self.nama+',NIM '+str(self.NIM)\
           +'. tinggal di '+self.kota\
           +'. uang saku Rp '+str(self.uang)\
           +'. tiap bulan'
        return s
    def ambilin(self):
        return self.Nama
    def ambilnim(self):
        return self.NIM
    def ambiluang(self):
        return self.uang
    def makan(self,s):
        print ("saya makan",s)
        self.keadaan='kenyang'
    def pkota(self):
        return self.kota
    def perbarui(self,x):
        self.kota=x
    def tambah(self,x):
        self.uang=self.uang+x

class mhsTIF(mahasiswa):
    def katakan(self):
        print('hallo')
```

Nomor 1

1.py - C:\Users\ACER\Documents\COOLYAH\SEMESTER 4\PRAKTIKUM ASD\MODUL - 06\1.py (3.4.3)

File Edit Format Run Options Window Help

```
import mahasiswa as mhs

c1=mhs.mhsTIF("Rina",21,"Boyolali",240000)
c2=mhs.mhsTIF("Dina",22,"Klaten",220000)
c3=mhs.mhsTIF("Airin",23,"Jogja",260000)
c4=mhs.mhsTIF("Nabila",24,"Klaten",250000)
c5=mhs.mhsTIF("Himeyi",25,"Magelang",240000)
c6=mhs.mhsTIF("Kokura",26,"Jakarta",250000)
c7=mhs.mhsTIF("Momura",27,"Solo",220000)

x = [c1, c2, c3, c4, c5, c6, c7]


def merge(a):
    if len(a) > 1:
        mid = len(a) // 2
        kiri = a[:mid]
        kanan = a[mid:]

        merge(kiri)
        merge(kanan)

        i = 0;
        j = 0;
        k = 0
        while (i < len(kiri) and j < len(kanan)):
            if kiri[i].uang < kanan[j].uang:
                a[k] = kiri[i]
                i = i + 1
            else:
                a[k] = kanan[j]
                j = j + 1
            k = k + 1

        while i < len(kiri):
            a[k] = kiri[i]
            i = i + 1
            k = k + 1

        while j < len(kanan):
            a[k] = kanan[j]
```

Ln: 3 Col: 0

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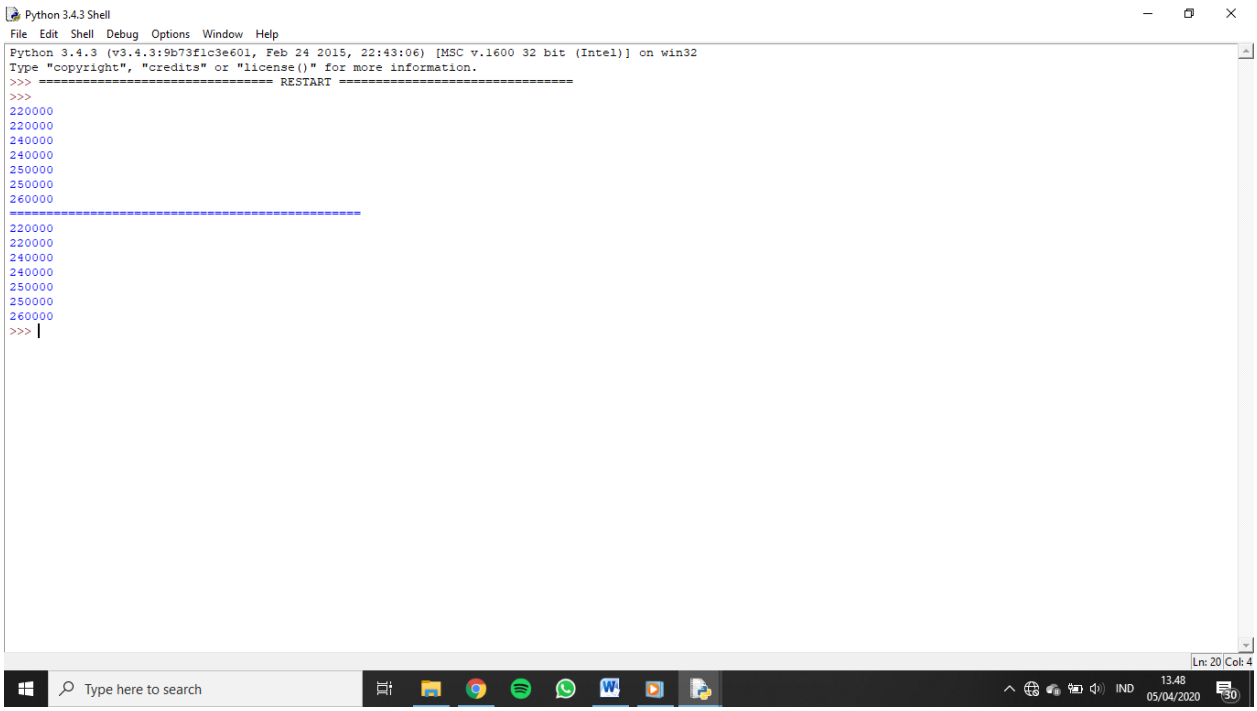
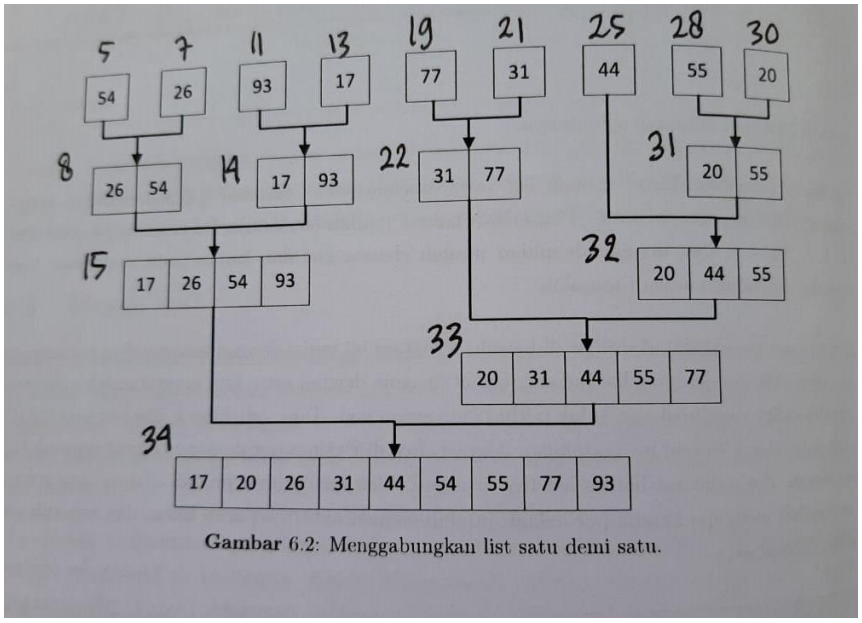
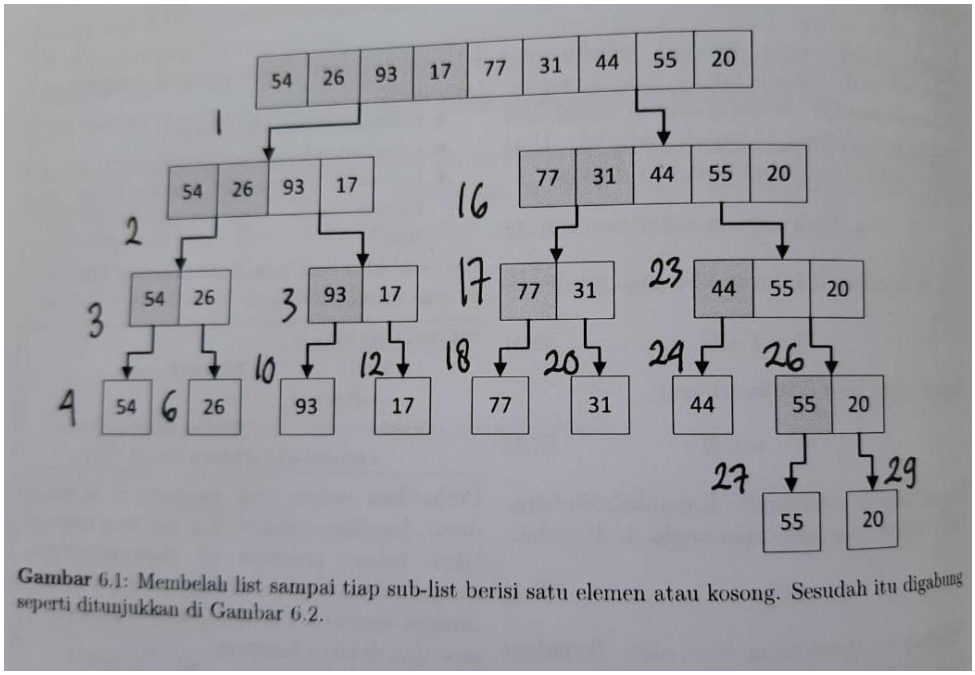


Nomor 2



Gambar 6.2: Menggabungkan list satu demi satu.



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

Nomor 3

3.py - C:\Users\ACER\Documents\COOLYAH\SEMESTER 4\PRAKTIKUM ASD\MODUL - 06\3.py (3.4.3)

File Edit Format Run Options Window Help

```
from time import time as detak
from random import shuffle as kocok
import time

k = [i for i in range(1, 6001)]
kocok(k)


def bubb(arr):
    n = len(arr)
    for i in range(n):
        for j in range(0, n - i - 1):
            if arr[j] > arr[j + 1]:
                arr[j], arr[j + 1] = arr[j + 1], arr[j]


def sele(A):
    for i in range(len(A)):
        min_idx = i
        for j in range(i + 1, len(A)):
            if A[min_idx] > A[j]:
                min_idx = j
        A[i], A[min_idx] = A[min_idx], A[i]

def inse(arr):
    for i in range(1, len(arr)):
        key = arr[i]
        j = i - 1
        while j >= 0 and key < arr[j]:
            arr[j + 1] = arr[j]
            j -= 1
        arr[j + 1] = key


def mergeSort(arr):
    if len(arr) > 1:
        mid = len(arr) // 2
        L = arr[:mid]
        R = arr[mid:]
        mergeSort(L)
```

Ln: 24 Col: 0

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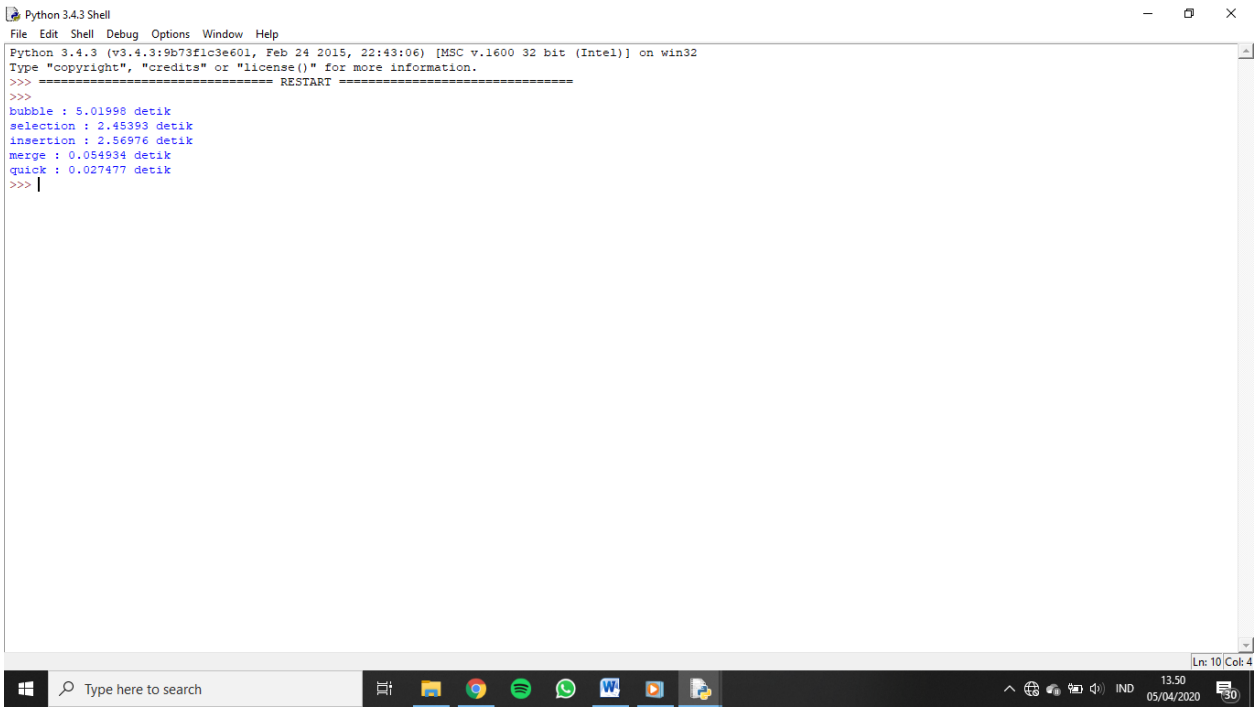
Python 3.4.3 Shell
File Edit Shell Debug Options Window Help
Python 3.4.3 (v3.4.3:9b73f1c3e601, Feb 24 2015, 22:43:06) [MSC v.1600 32 bit (Intel)] on win32
Type "copyright", "credits" or "license()" for more information.
>>> ========== RESTART ==========
>>>
bubble : 5.01998 detik
selection : 2.45393 detik
insertion : 2.56976 detik
merge : 0.054934 detik
quick : 0.027477 detik
>>>
Ln: 10 Col: 4
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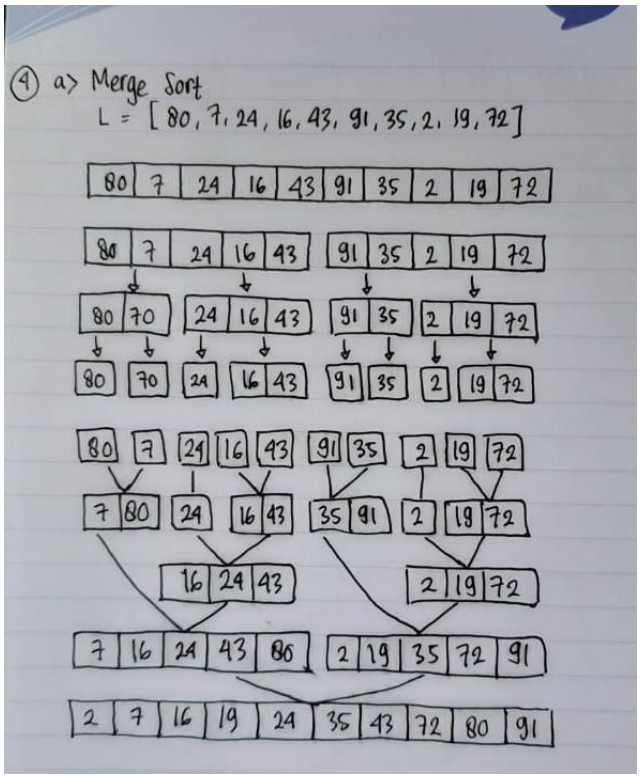
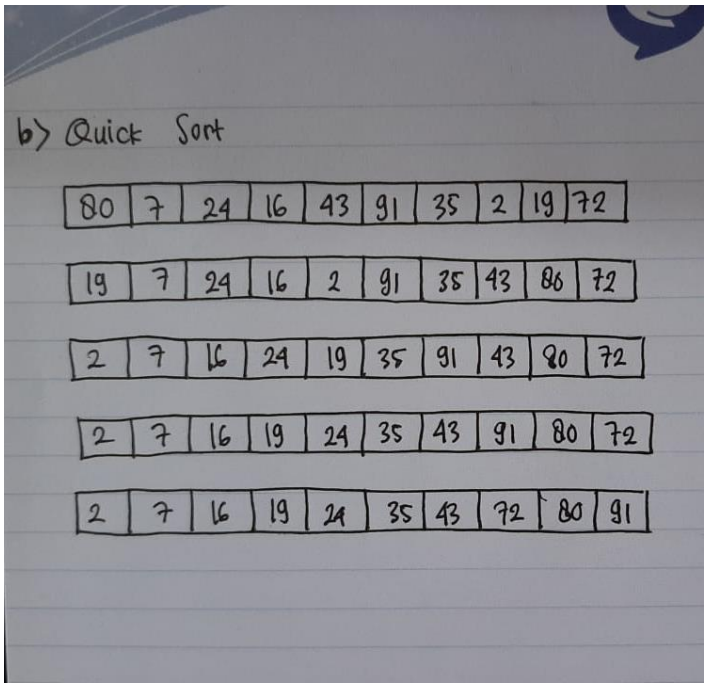
Nomor 4


4) a) Merge Sort
L = [80, 7, 24, 16, 43, 91, 35, 2, 19, 72]



Nomor 5

5.py - C:\Users\ACER\Documents\COOLYAH\SEMESTER 4\PRAKTIKUM ASD\MODUL - 06\5.py (3.4.3)

File Edit Format Run Options Window Help

```
def _merge_sort(indices, the_list):
    start = indices[0]
    end = indices[1]
    half_way = (end - start) // 2 + start
    if start < half_way:
        _merge_sort((start, half_way), the_list)
    if half_way + 1 <= end and end - start != 1:
        _merge_sort((half_way + 1, end), the_list)

    sort_sub_list(the_list, indices[0], indices[1])
    return the_list


def sort_sub_list(the_list, start, end):
    orig_start = start
    initial_start_second_list = (end - start) // 2 + start + 1
    list2_first_index = initial_start_second_list
    new_list = []
    while start < initial_start_second_list and list2_first_index <= end:
        first1 = the_list[start]
        first2 = the_list[list2_first_index]
        if first1 > first2:
            new_list.append(first2)
            list2_first_index += 1
        else:
            new_list.append(first1)
            start += 1
    while start < initial_start_second_list:
        new_list.append(the_list[start])
        start += 1

    while list2_first_index <= end:
        new_list.append(the_list[list2_first_index])
        list2_first_index += 1
    for i in new_list:
        the_list[orig_start] = i
        orig_start += 1
    return the_list


def merge_sort(the_list):
```

Ln: 29 Col: 40

Type here to search

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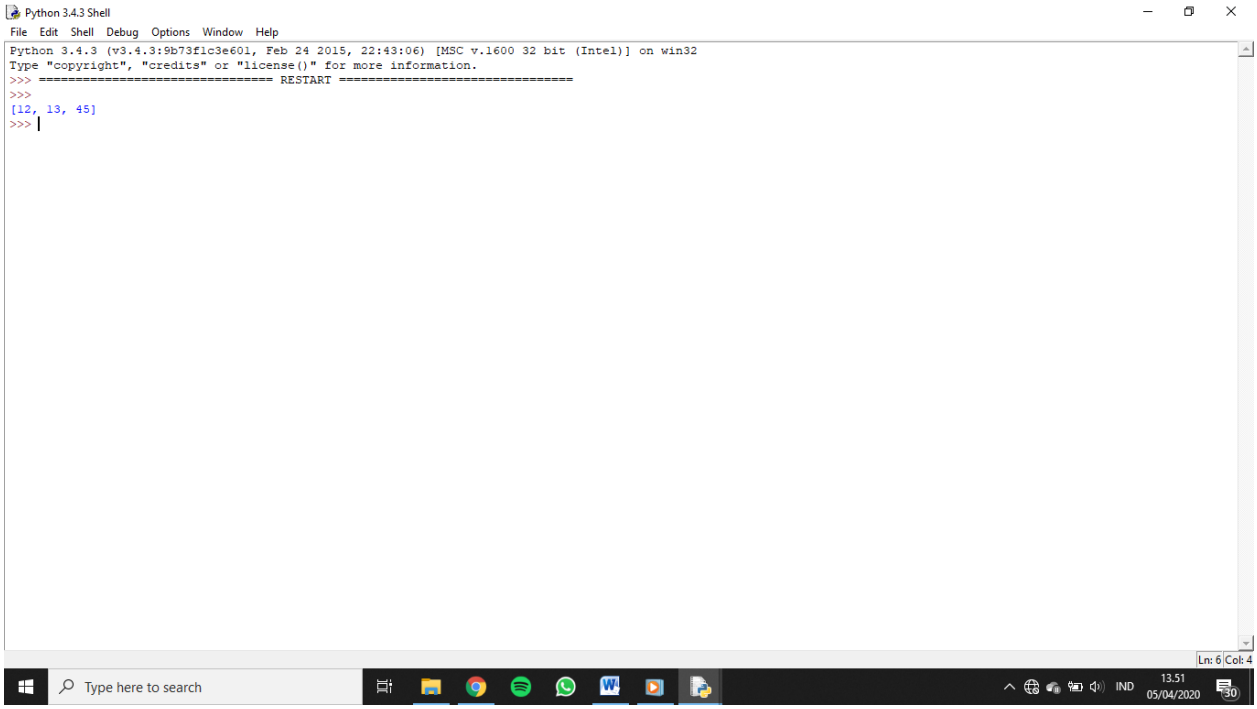
Python 3.4.3 Shell
File Edit Shell Debug Options Window Help
Python 3.4.3 (v3.4.3:9b73f1c3e601, Feb 24 2015, 22:43:06) [MSC v.1600 32 bit (Intel)] on win32
Type "copyright", "credits" or "license()" for more information.
>>> ========== RESTART ==========
>>>
[12, 13, 45]
>>>
Ln: 6 Col: 4
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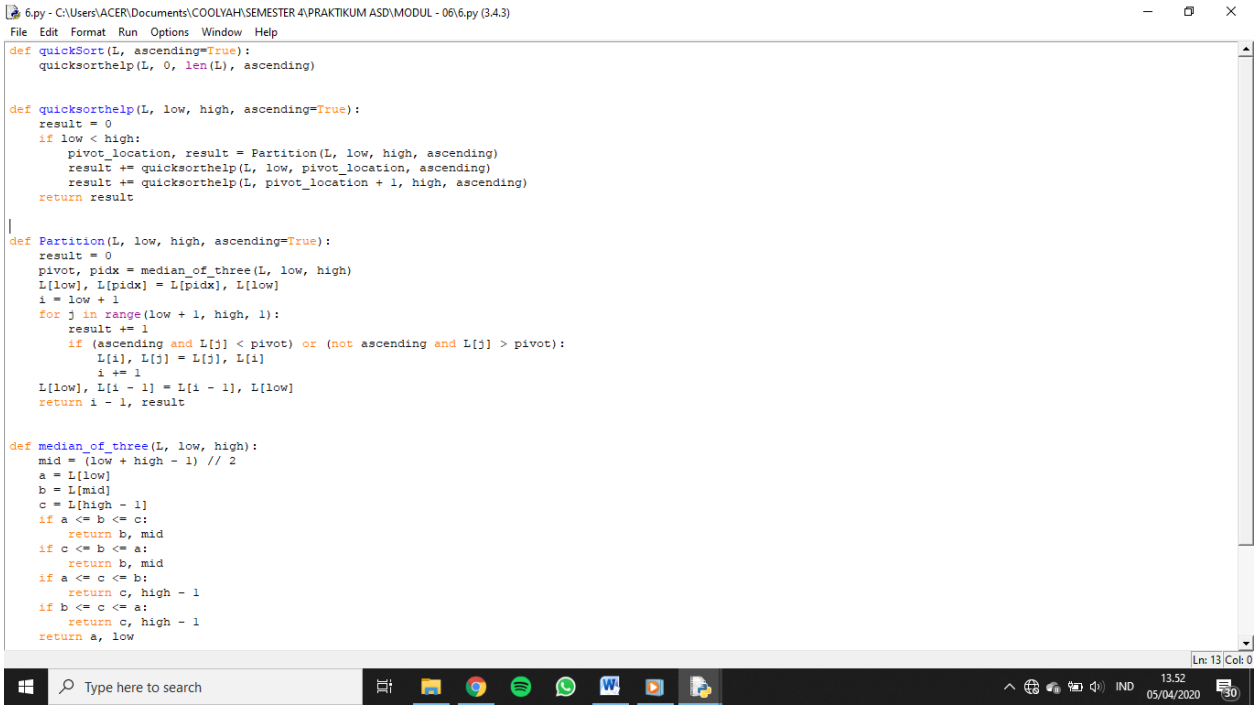
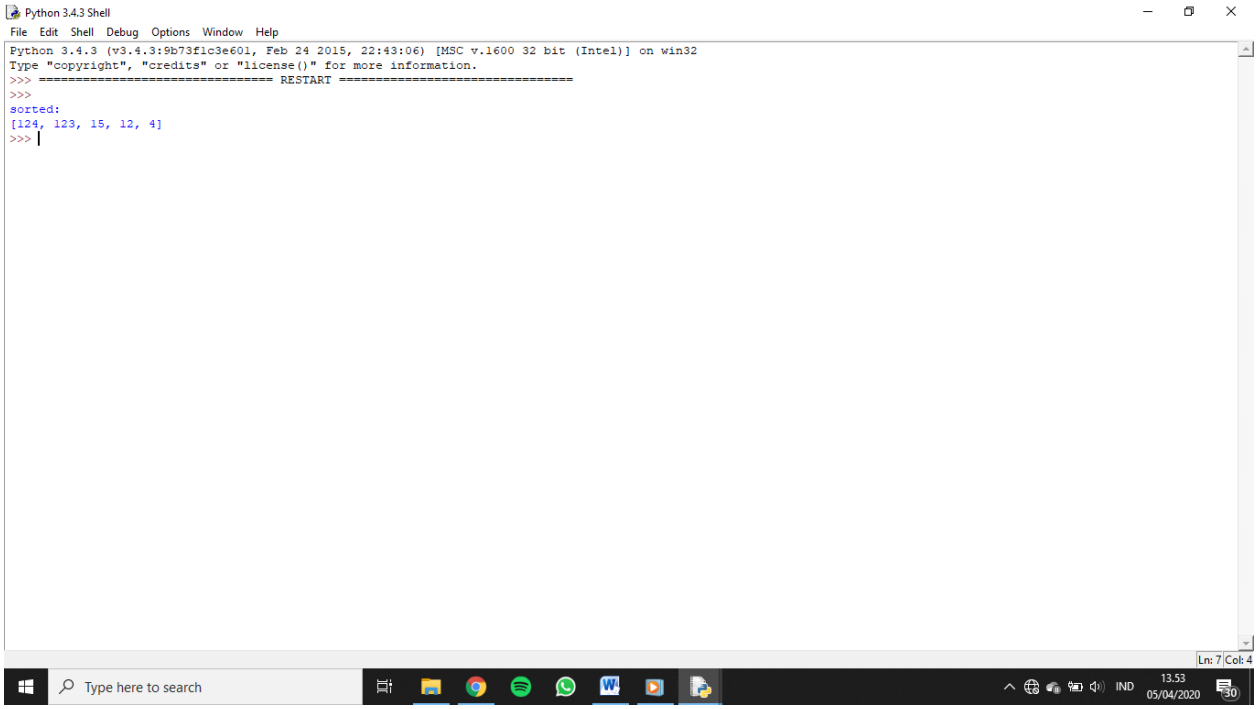
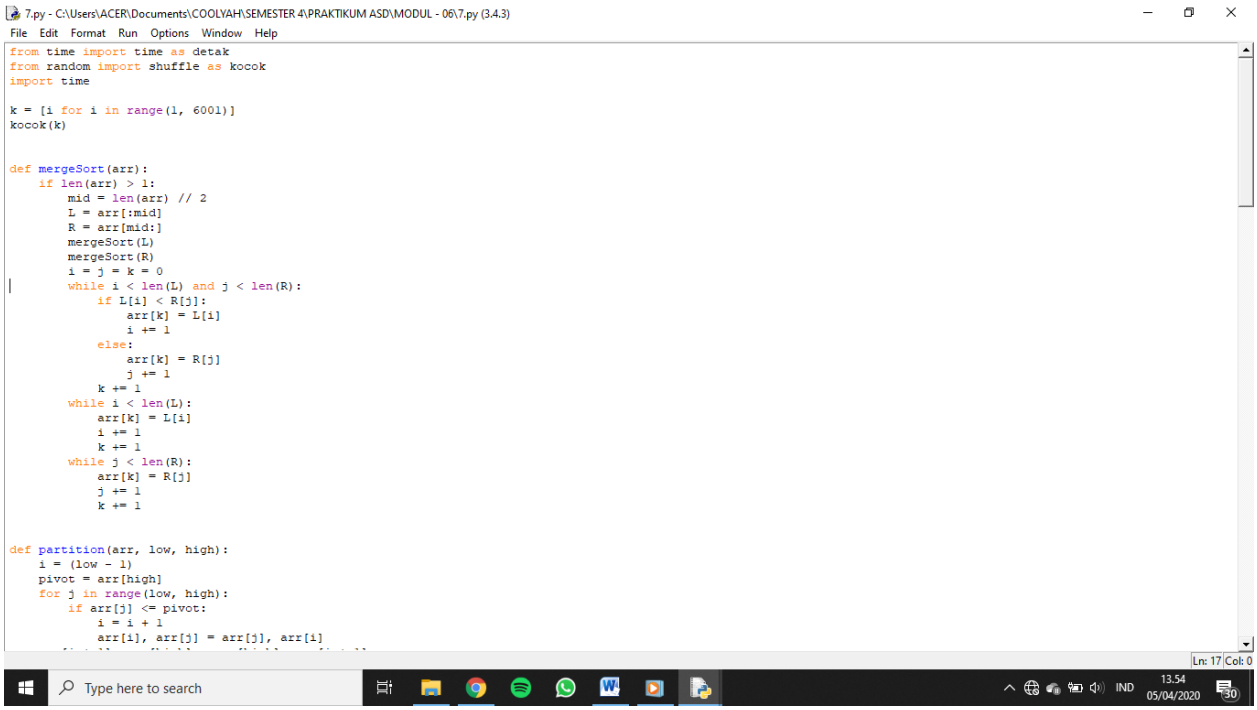
05/04/2020

Nomor 6


6.py - C:\Users\ACER\Documents\COOLYAH\SEMESTER 4\PRAKTIKUM ASD\MODUL - 06\6.py (3.4.3)
File Edit Format Run Options Window Help
def quickSort(L, ascending=True):
quicksorthelp(L, 0, len(L), ascending)
def quicksorthelp(L, low, high, ascending=True):
result = 0
if low < high:
pivot_location, result = Partition(L, low, high, ascending)
result += quicksorthelp(L, low, pivot_location, ascending)
result += quicksorthelp(L, pivot_location + 1, high, ascending)
return result
def Partition(L, low, high, ascending=True):
result = 0
pivot, pidx = median_of_three(L, low, high)
L[low], L[pidx] = L[pidx], L[low]
i = low + 1
for j in range(low + 1, high, 1):
result += 1
if (ascending and L[j] < pivot) or (not ascending and L[j] > pivot):
L[i], L[j] = L[j], L[i]
i += 1
L[low], L[i - 1] = L[i - 1], L[low]
return i - 1, result
def median_of_three(L, low, high):
mid = (low + high - 1) // 2
a = L[low]
b = L[mid]
c = L[high - 1]
if a <= b <= c:
return b, mid
if c <= b <= a:
return b, mid
if a <= c <= b:
return c, high - 1
if b <= c <= a:
return c, high - 1
return a, low
Ln: 13 Col: 0
Type here to search
IND
13.52
05/04/2020


Python 3.4.3 Shell
File Edit Shell Debug Options Window Help
Python 3.4.3 (v3.4.3:9b73f1c3e601, Feb 24 2015, 22:43:06) [MSC v.1600 32 bit (Intel)] on win32
Type "copyright", "credits" or "license()" for more information.
>>> ========== RESTART ==========
>>>
sorted:
[124, 123, 15, 12, 4]
>>>
Ln: 7 Col: 4
Type here to search
IND
13.53
05/04/2020

Nomor 7


7.py - C:\Users\ACER\Documents\COOLYAH\SEMESTER 4\PRAKTIKUM ASD\MODUL - 06\7.py (3.4.3)
File Edit Format Run Options Window Help
from time import time as detak
from random import shuffle as kocok
import time
k = [i for i in range(1, 6001)]
kocok(k)
def mergeSort(arr):
if len(arr) > 1:
mid = len(arr) // 2
L = arr[:mid]
R = arr[mid:]
mergeSort(L)
mergeSort(R)
i = j = k = 0
while i < len(L) and j < len(R):
if L[i] < R[j]:
arr[k] = L[i]
i += 1
else:
arr[k] = R[j]
j += 1
k += 1
while i < len(L):
arr[k] = L[i]
i += 1
k += 1
while j < len(R):
arr[k] = R[j]
j += 1
k += 1
def partition(arr, low, high):
i = (low - 1)
pivot = arr[high]
for j in range(low, high):
if arr[j] <= pivot:
i = i + 1
arr[i], arr[j] = arr[j], arr[i]
Ln: 17 Col: 0
Type here to search
IND
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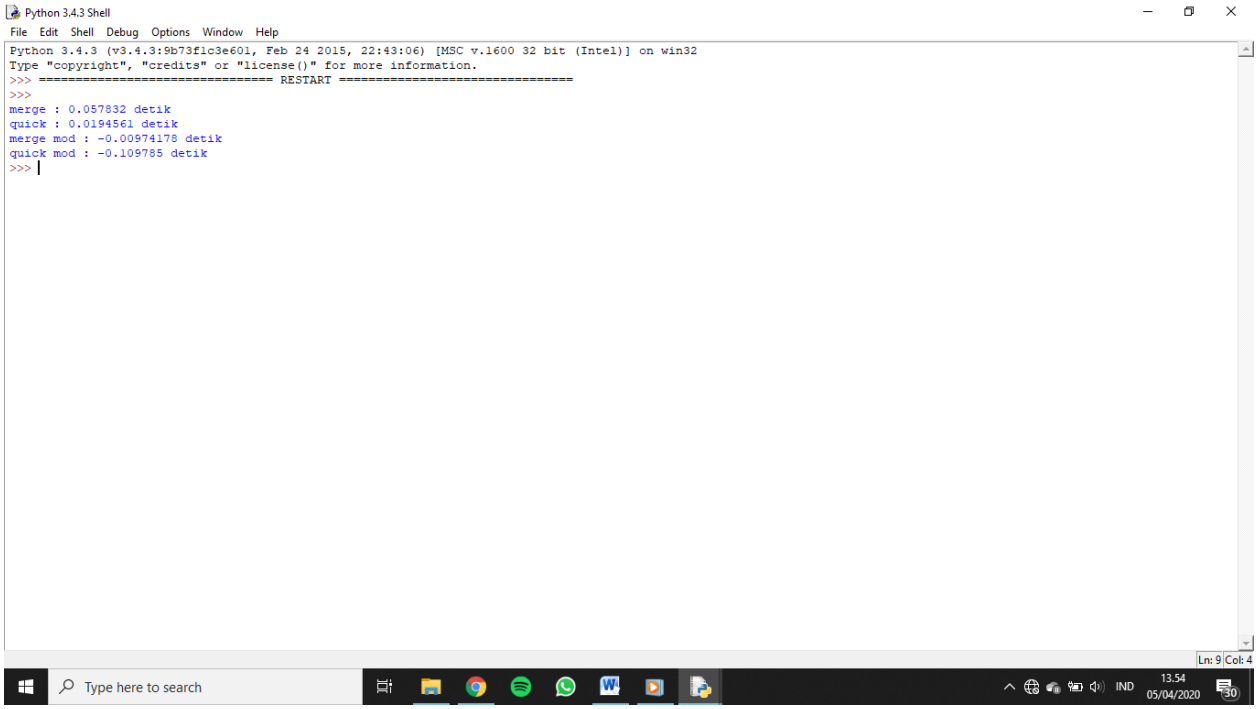
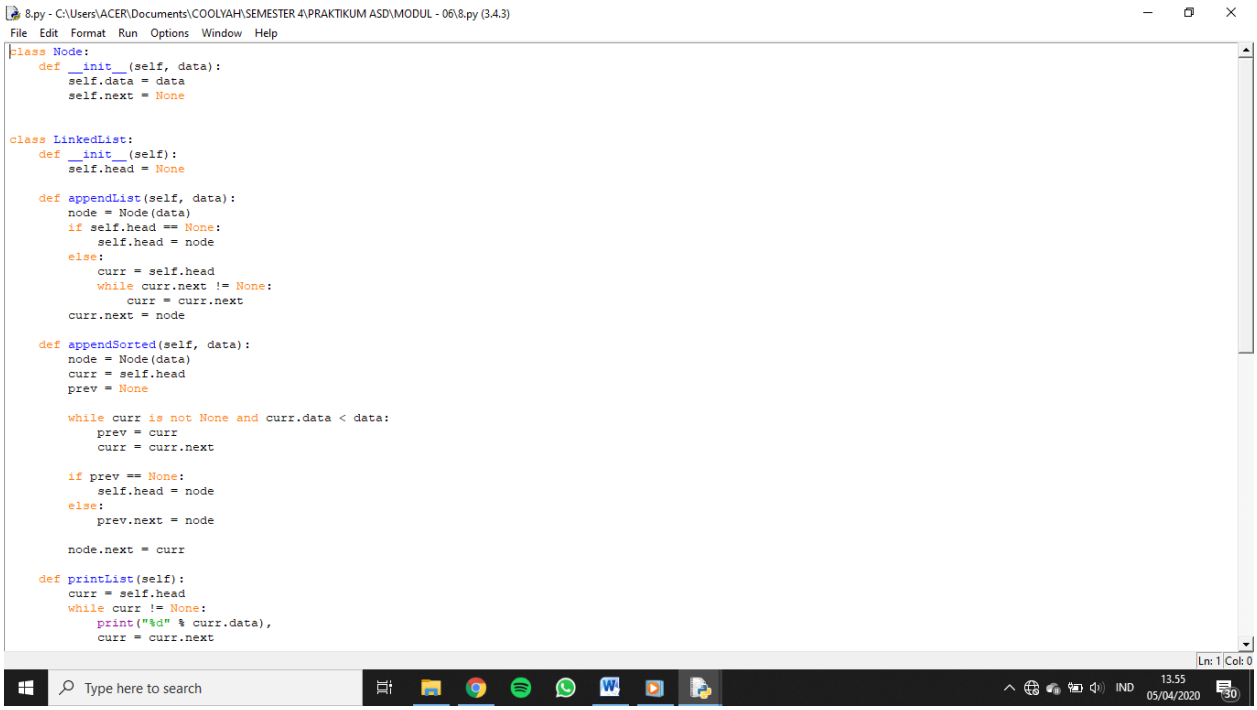
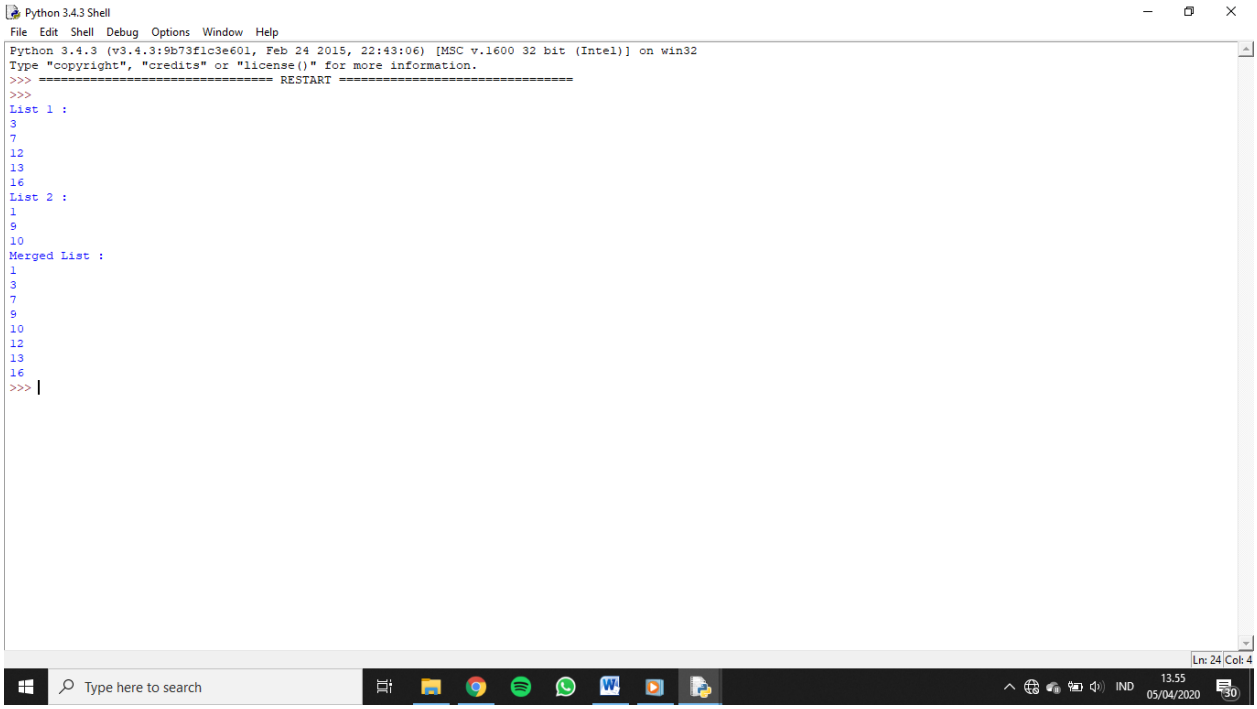
05/04/2020


Python 3.4.3 Shell
File Edit Shell Debug Options Window Help
Python 3.4.3 (v3.4.3:9b73f1c3e601, Feb 24 2015, 22:43:06) [MSC v.1600 32 bit (Intel)] on win32
Type "copyright", "credits" or "license()" for more information.
>>> ========== RESTART ==========
>>>
merge : 0.057832 detik
quick : 0.0194561 detik
merge mod : -0.00974178 detik
quick mod : -0.109785 detik
>>>
Ln: 9 Col: 4
Type here to search
IND
13.54
05/04/2020

Nomor 8


8.py - C:\Users\ACER\Documents\COOLYAH\SEMESTER 4\PRAKTIKUM ASD\MODUL - 06\8.py (3.4.3)
File Edit Format Run Options Window Help
class Node:
def __init__(self, data):
self.data = data
self.next = None
class LinkedList:
def __init__(self):
self.head = None
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
def printList(self):
curr = self.head
while curr != None:
print("%d" % curr.data),
curr = curr.next
Ln: 1 Col: 0
Type here to search
IND
13.55
05/04/2020


Python 3.4.3 Shell
File Edit Shell Debug Options Window Help
Python 3.4.3 (v3.4.3:9b73f1c3e601, Feb 24 2015, 22:43:06) [MSC v.1600 32 bit (Intel)] on win32
Type "copyright", "credits" or "license()" for more information.
>>> ========== RESTART ==========
>>>
List 1 :
3
7
12
13
16
List 2 :
1
9
10
Merged List :
1
3
7
9
10
12
13
16
>>>
Ln: 24 Col: 4
Type here to search
IND
13.55
05/04/2020