Modul 3

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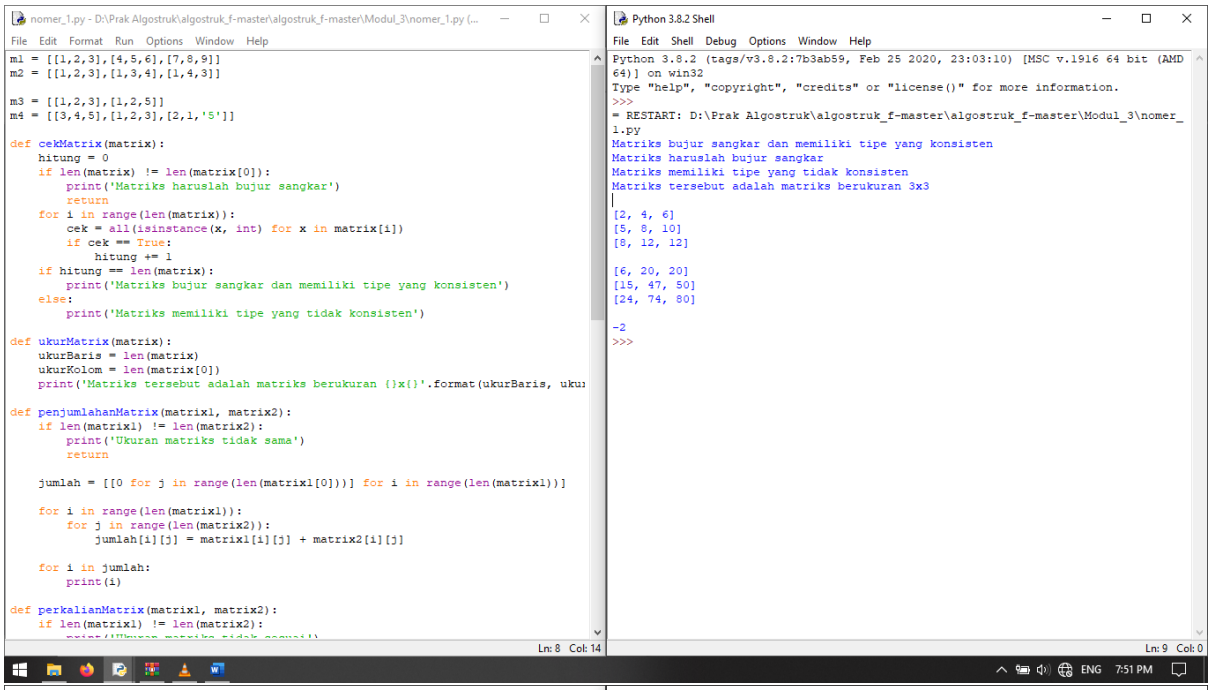
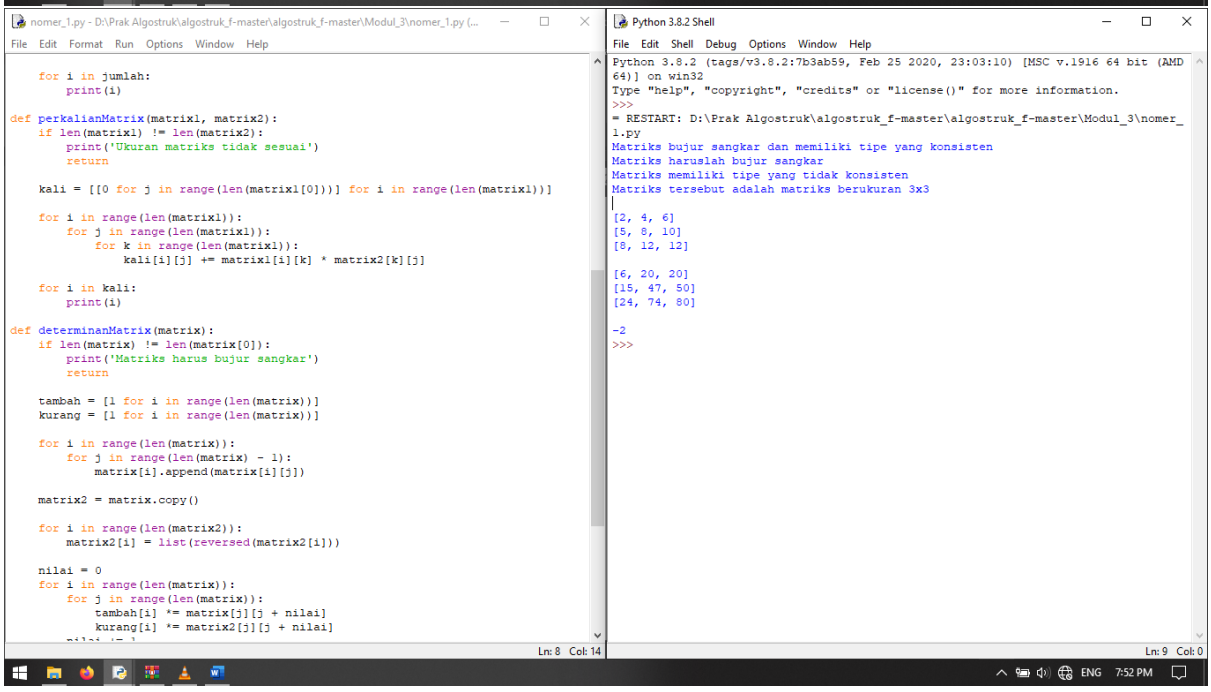
Kelas : E

No 1



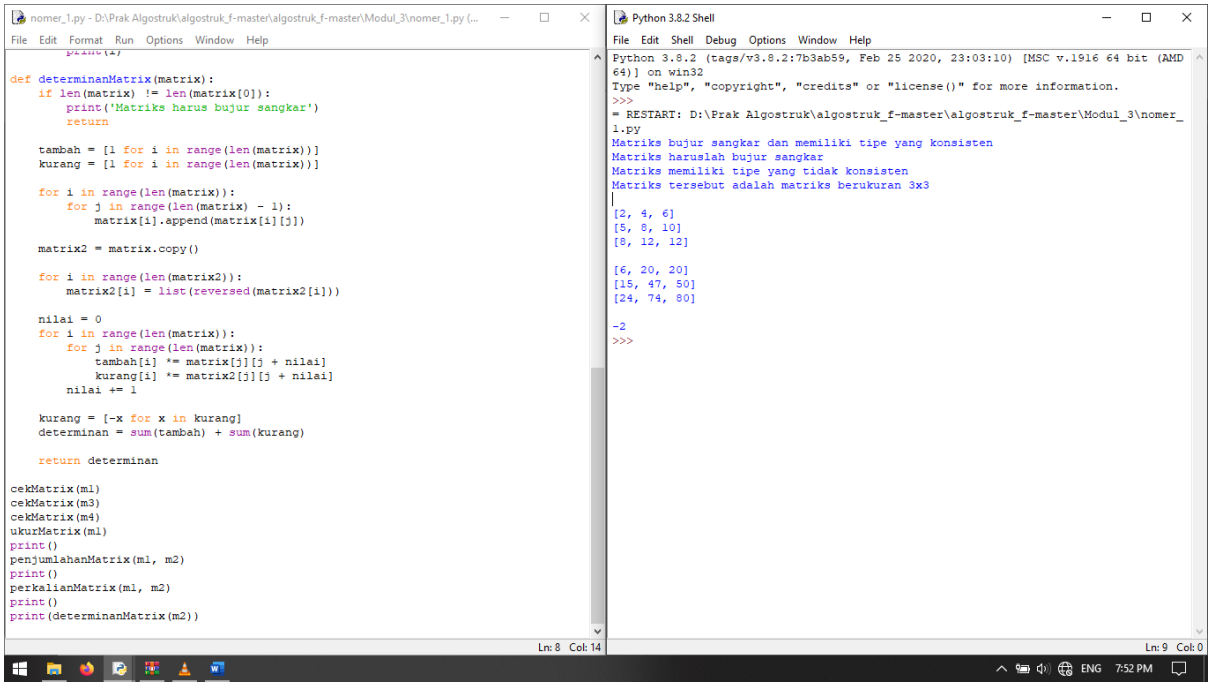
```
m1 = [[1,2,3],[4,5,6],[7,8,9]]
m2 = [[1,2,3],[1,3,4],[1,4,3]]

m3 = [[1,2,3],[1,2,5]]
m4 = [[3,4,5],[1,2,3],[2,1,'5']]

def cekMatrix(matrix):
    hitung = 0
    if len(matrix) != len(matrix[0]):
        print('Matriks haruslah bujur sangkar')
        return
    for i in range(len(matrix)):
        cek = all(isinstance(x, int) for x in matrix[i])
        if cek == True:
            hitung += 1
    if hitung == len(matrix):
        print('Matriks bujur sangkar dan memiliki tipe yang konsisten')
    else:
        print('Matriks memiliki tipe yang tidak konsisten')

def ukurMatrix(matrix):
    ukurBaris = len(matrix)
    ukurKolom = len(matrix[0])
    print('Matriks tersebut adalah matriks berukuran {}x{}'.format(ukurBaris, ukuı

def penjumlahanMatrix(matrix1, matrix2):
    if len(matrix1) != len(matrix2):
        print('Ukuran matriks tidak sama')
        return

    jumlah = [[0 for j in range(len(matrix1[0]))] for i in range(len(matrix1))]

    for i in range(len(matrix1)):
        for j in range(len(matrix2)):
            jumlah[i][j] = matrix1[i][j] + matrix2[i][j]

    for i in jumlah:
        print(i)

def perkalianMatrix(matrix1, matrix2):
    if len(matrix1) != len(matrix2):
```

```
Python 3.8.2 (tags/v3.8.2:7b3ab59, Feb 25 2020, 23:03:10) [MSC v.1916 64 bit (AMD
64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: D:\Prak Algostruk\algostruk_f-master\algostruk_f-master\Modul_3\nomer_
1.py
Matriks bujur sangkar dan memiliki tipe yang konsisten
Matriks haruslah bujur sangkar
Matriks memiliki tipe yang tidak konsisten
Matriks tersebut adalah matriks berukuran 3x3
[2, 4, 6]
[5, 8, 10]
[8, 12, 12]

[6, 20, 20]
[15, 47, 50]
[24, 74, 80]

-2
>>>
```

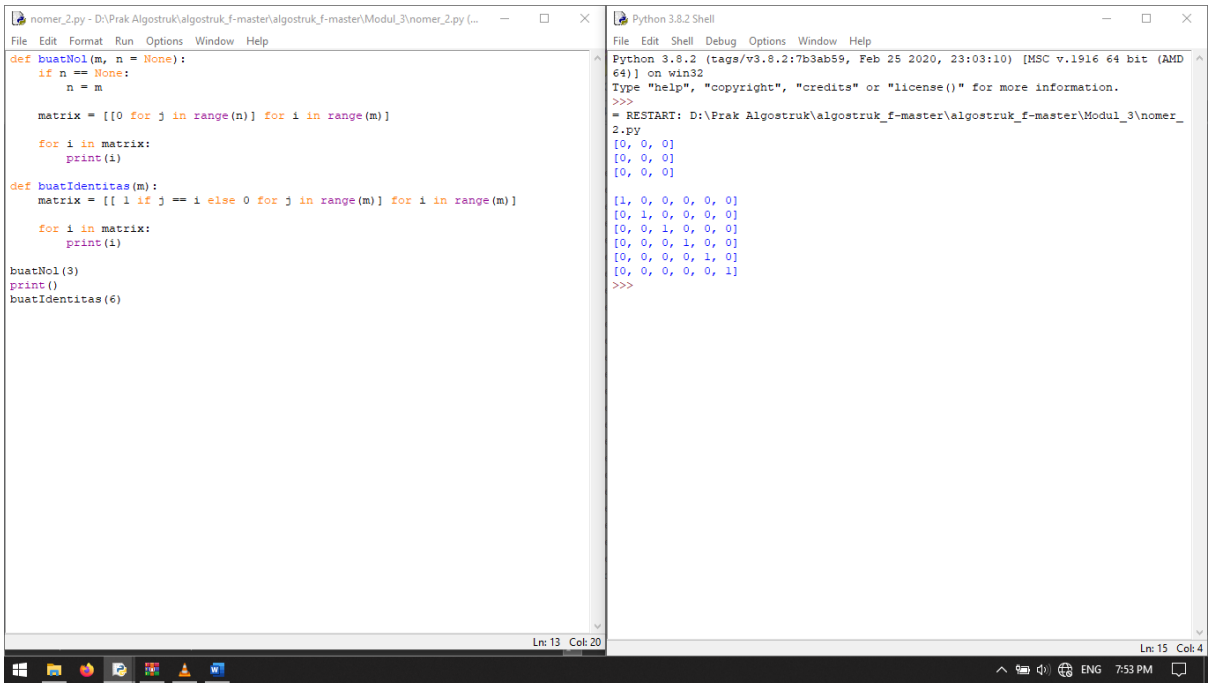


```
    for i in jumlah:
        print(i)

def perkalianMatrix(matrix1, matrix2):
    if len(matrix1) != len(matrix2):
        print('Ukuran matriks tidak sesuai')
        return

    kali = [[0 for j in range(len(matrix1[0]))] for i in range(len(matrix1))]

    for i in range(len(matrix1)):
        for j in range(len(matrix1)):
            for k in range(len(matrix1)):
                kali[i][j] += matrix1[i][k] * matrix2[k][j]

    for i in kali:
        print(i)

def determinanMatrix(matrix):
    if len(matrix) != len(matrix[0]):
        print('Matriks harus bujur sangkar')
        return

    tambah = [1 for i in range(len(matrix))]
    kurang = [1 for i in range(len(matrix))]

    for i in range(len(matrix)):
        for j in range(len(matrix) - 1):
            matrix[i].append(matrix[i][j])

    matrix2 = matrix.copy()

    for i in range(len(matrix2)):
        matrix2[i] = list(reversed(matrix2[i]))

    nilai = 0
    for i in range(len(matrix)):
        for j in range(len(matrix)):
            tambah[i] *= matrix[j][j + nilai]
            kurang[i] *= matrix2[j][j + nilai]
```

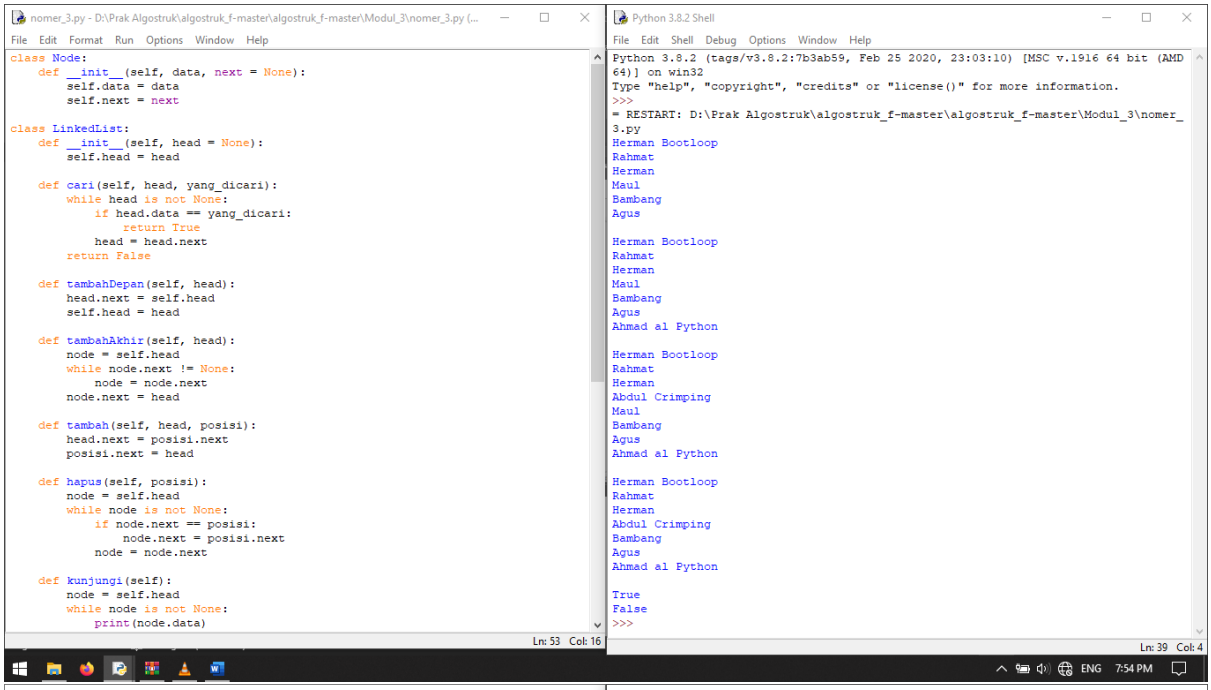
```
Python 3.8.2 (tags/v3.8.2:7b3ab59, Feb 25 2020, 23:03:10) [MSC v.1916 64 bit (AMD
64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: D:\Prak Algostruk\algostruk_f-master\algostruk_f-master\Modul_3\nomer_
1.py
Matriks bujur sangkar dan memiliki tipe yang konsisten
Matriks haruslah bujur sangkar
Matriks memiliki tipe yang tidak konsisten
Matriks tersebut adalah matriks berukuran 3x3
[2, 4, 6]
[5, 8, 10]
[8, 12, 12]

[6, 20, 20]
[15, 47, 50]
[24, 74, 80]

-2
>>>
```


nomer_1.py - D:\Prak Algostruk\algostruk_f-master\algostruk_f-master\Modul_3\nomer_1.py (...
File Edit Format Run Options Window Help
def determinanMatrix(matrix):
if len(matrix) != len(matrix[0]):
print('Matriks harus bujur sangkar')
return
tambah = [1 for i in range(len(matrix))]
kurang = [1 for i in range(len(matrix))]
for i in range(len(matrix)):
for j in range(len(matrix) - 1):
matrix[i].append(matrix[i][j])
matrix2 = matrix.copy()
for i in range(len(matrix2)):
matrix2[i] = list(reversed(matrix2[i]))
nilai = 0
for i in range(len(matrix)):
for j in range(len(matrix)):
tambah[i] *= matrix[j][j + nilai]
kurang[i] *= matrix2[j][j + nilai]
nilai += 1
kurang = [-x for x in kurang]
determinan = sum(tambah) + sum(kurang)
return determinan
cekMatrix(m1)
cekMatrix(m3)
cekMatrix(m4)
ukurMatrix(m1)
print()
penjumlahanMatrix(m1, m2)
print()
perkalianMatrix(m1, m2)
print()
print(determinanMatrix(m2))
Ln: 8 Col: 14
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 (AMD 64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: D:\Prak Algostruk\algostruk_f-master\algostruk_f-master\Modul_3\nomer_1.py
Matriks bujur sangkar dan memiliki tipe yang konsisten
Matriks haruslah bujur sangkar
Matriks memiliki tipe yang tidak konsisten
Matriks tersebut adalah matriks berukuran 3x3
[2, 4, 6]
[5, 8, 10]
[8, 12, 12]
[6, 20, 20]
[15, 47, 50]
[24, 74, 80]
-2
>>>
Ln: 9 Col: 0
ENG 7:52 PM

No 2

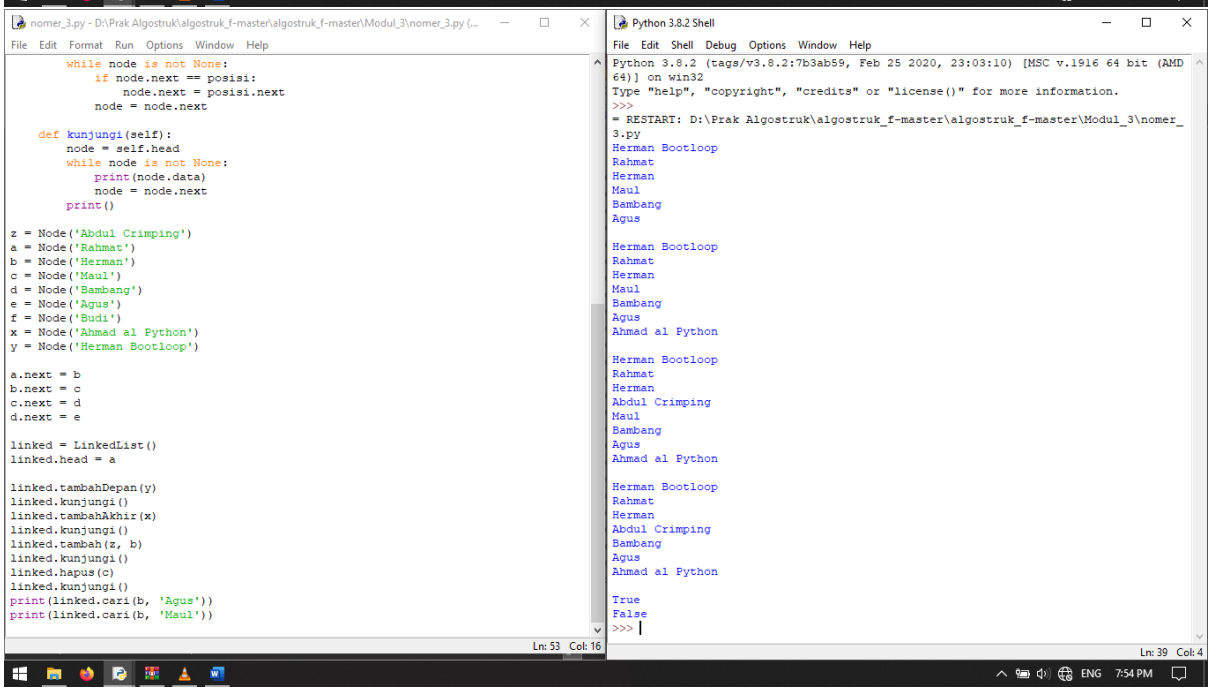

nomer_2.py - D:\Prak Algostruk\algostruk_f-master\algostruk_f-master\Modul_3\nomer_2.py (...
File Edit Format Run Options Window Help
def buatNol(m, n = None):
if n == None:
n = m
matrix = [[0 for j in range(n)] for i in range(m)]
for i in matrix:
print(i)
def buatIdentitas(m):
matrix = [[1 if j == i else 0 for j in range(m)] for i in range(m)]
for i in matrix:
print(i)
buatNol(3)
print()
buatIdentitas(6)
Ln: 13 Col: 20
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 (AMD 64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: D:\Prak Algostruk\algostruk_f-master\algostruk_f-master\Modul_3\nomer_2.py
[0, 0, 0]
[0, 0, 0]
[0, 0, 0]
[1, 0, 0, 0, 0, 0]
[0, 1, 0, 0, 0, 0]
[0, 0, 1, 0, 0, 0]
[0, 0, 0, 1, 0, 0]
[0, 0, 0, 0, 1, 0]
[0, 0, 0, 0, 0, 1]
>>>
Ln: 15 Col: 4
ENG 7:53 PM

No 3



```
class Node:
    def __init__(self, data, next = None):
        self.data = data
        self.next = next

class LinkedList:
    def __init__(self, head = None):
        self.head = head

    def cari(self, head, yang_dicari):
        while head is not None:
            if head.data == yang_dicari:
                return True
            head = head.next
        return False

    def tambahDepan(self, head):
        head.next = self.head
        self.head = head

    def tambahAkhir(self, head):
        node = self.head
        while node.next != None:
            node = node.next
        node.next = head

    def tambah(self, head, posisi):
        head.next = posisi.next
        posisi.next = head

    def hapus(self, posisi):
        node = self.head
        while node is not None:
            if node.next == posisi:
                node.next = posisi.next
            node = node.next

    def kunjungi(self):
        node = self.head
        while node is not None:
            print(node.data)
```

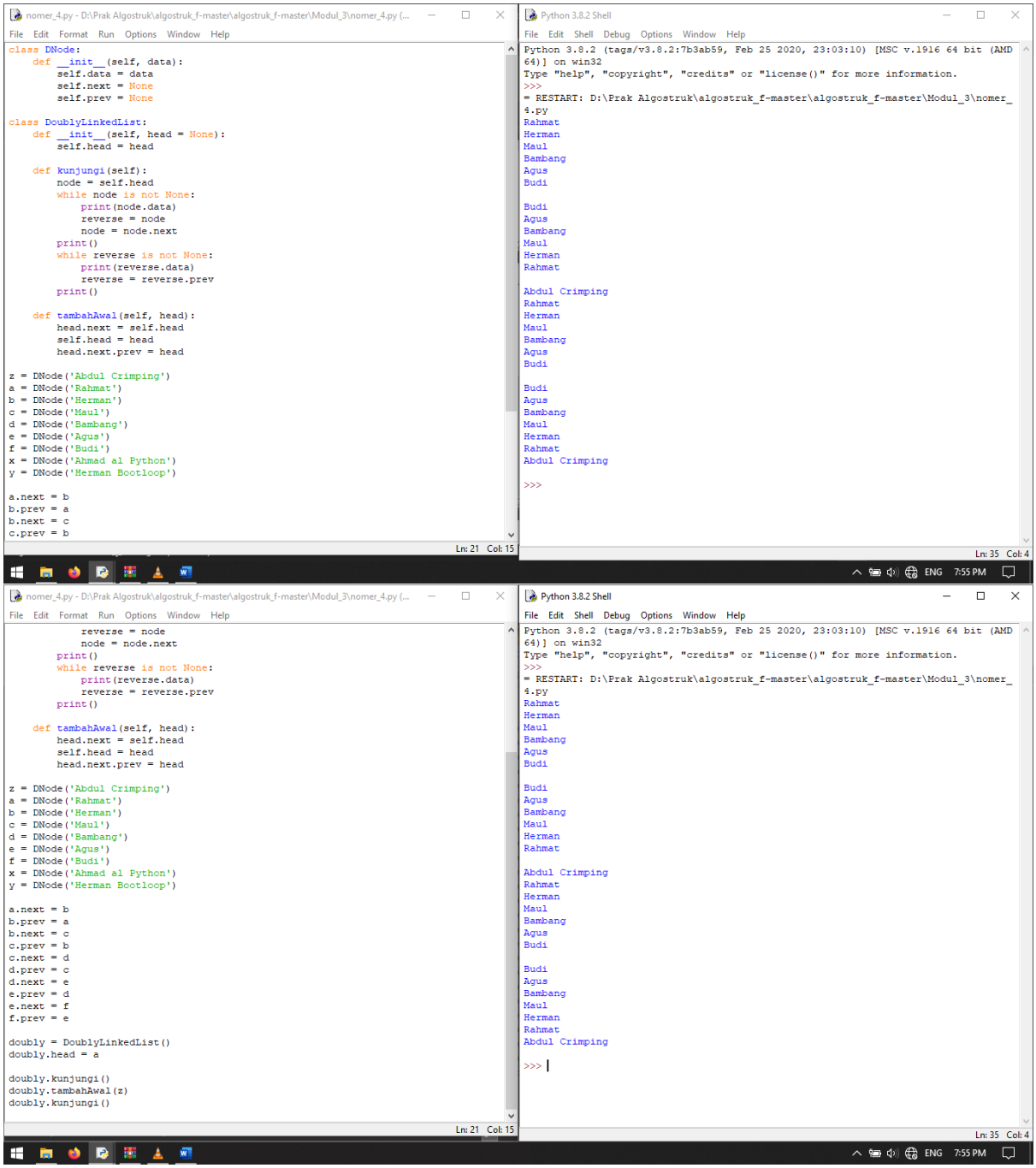
```
Python 3.8.2 (tags/v3.8.2:7b3ab59, Feb 25 2020, 23:03:10) [MSC v.1916 64 bit (AMD
64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: D:\Prak Algostruk\algostruk_f-master\algostruk_f-master\Modul_3\nomer_
3.py
Herman Bootloop
Rahmat
Herman
Maul
Bambang
Agus

Herman Bootloop
Rahmat
Herman
Maul
Bambang
Agus
Ahmad al Python

Herman Bootloop
Rahmat
Herman
Abdul Crimping
Maul
Bambang
Agus
Ahmad al Python

Herman Bootloop
Rahmat
Herman
Abdul Crimping
Bambang
Agus
Ahmad al Python

True
False
>>>
```



```
        while node is not None:
            if node.next == posisi:
                node.next = posisi.next
            node = node.next

    def kunjungi(self):
        node = self.head
        while node is not None:
            print(node.data)
            node = node.next
        print()

z = Node('Abdul Crimping')
a = Node('Rahmat')
b = Node('Herman')
c = Node('Maul')
d = Node('Bambang')
e = Node('Agus')
f = Node('Budi')
x = Node('Ahmad al Python')
y = Node('Herman Bootloop')

a.next = b
b.next = c
c.next = d
d.next = e

linked = LinkedList()
linked.head = a

linked.tambahDepan(y)
linked.kunjungi()
linked.tambahAkhir(x)
linked.kunjungi()
linked.tambah(z, b)
linked.kunjungi()
linked.hapus(c)
linked.kunjungi()
print(linked.cari(b, 'Agus'))
print(linked.cari(b, 'Maul'))
```

```
Python 3.8.2 (tags/v3.8.2:7b3ab59, Feb 25 2020, 23:03:10) [MSC v.1916 64 bit (AMD
64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: D:\Prak Algostruk\algostruk_f-master\algostruk_f-master\Modul_3\nomer_
3.py
Herman Bootloop
Rahmat
Herman
Maul
Bambang
Agus

Herman Bootloop
Rahmat
Herman
Maul
Bambang
Agus
Ahmad al Python

Herman Bootloop
Rahmat
Herman
Abdul Crimping
Maul
Bambang
Agus
Ahmad al Python

Herman Bootloop
Rahmat
Herman
Abdul Crimping
Bambang
Agus
Ahmad al Python

True
False
>>>
```

No 4


nomer_4.py - D:\Prak Algostruk\algostruk_f-master\algostruk_f-master\Modul_3\nomer_4.py (...
File Edit Format Run Options Window Help
class DNode:
def __init__(self, data):
self.data = data
self.next = None
self.prev = None
class DoublyLinkedList:
def __init__(self, head = None):
self.head = head
def kunjungi(self):
node = self.head
while node is not None:
print(node.data)
reverse = node
node = node.next
print()
while reverse is not None:
print(reverse.data)
reverse = reverse.prev
print()
def tambahAwal(self, head):
head.next = self.head
self.head = head
head.next.prev = head
z = DNode('Abdul Crimping')
a = DNode('Rahmat')
b = DNode('Herman')
c = DNode('Maul')
d = DNode('Bambang')
e = DNode('Agus')
f = DNode('Budi')
x = DNode('Ahmad al Python')
y = DNode('Herman Bootloop')
a.next = b
b.prev = a
b.next = c
c.prev = b
Ln: 21 Col: 15
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 (AMD 64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: D:\Prak Algostruk\algostruk_f-master\algostruk_f-master\Modul_3\nomer_4.py
Rahmat
Herman
Maul
Bambang
Agus
Budi
Budi
Agus
Bambang
Maul
Herman
Rahmat
Abdul Crimping
Rahmat
Herman
Maul
Bambang
Agus
Budi
Budi
Agus
Bambang
Maul
Herman
Rahmat
Abdul Crimping
>>>
Ln: 35 Col: 4
ENG 7:55 PM

nomer_4.py - D:\Prak Algostruk\algostruk_f-master\algostruk_f-master\Modul_3\nomer_4.py (...
File Edit Format Run Options Window Help
reverse = node
node = node.next
print()
while reverse is not None:
print(reverse.data)
reverse = reverse.prev
print()
def tambahAwal(self, head):
head.next = self.head
self.head = head
head.next.prev = head
z = DNode('Abdul Crimping')
a = DNode('Rahmat')
b = DNode('Herman')
c = DNode('Maul')
d = DNode('Bambang')
e = DNode('Agus')
f = DNode('Budi')
x = DNode('Ahmad al Python')
y = DNode('Herman Bootloop')
a.next = b
b.prev = a
b.next = c
c.prev = b
c.next = d
d.prev = c
d.next = e
e.prev = d
e.next = f
f.prev = e
doubly = DoublyLinkedList()
doubly.head = a
doubly.kunjungi()
doubly.tambahAwal(z)
doubly.kunjungi()
Ln: 21 Col: 15
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 (AMD 64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: D:\Prak Algostruk\algostruk_f-master\algostruk_f-master\Modul_3\nomer_4.py
Rahmat
Herman
Maul
Bambang
Agus
Budi
Budi
Agus
Bambang
Maul
Herman
Rahmat
Abdul Crimping
Rahmat
Herman
Maul
Bambang
Agus
Budi
Budi
Agus
Bambang
Maul
Herman
Rahmat
Abdul Crimping
>>>
Ln: 35 Col: 4
ENG 7:55 PM