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Kelas A

MODUL 3

Nomor 1.

```
*1.py - D:\SEMESTER 4\PRAK ALGOSTRUK\MODUL3_137\1.py (3.6.2)*
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m1 = [[2,3],[4,5]]
m2 = [[10,20],[5,6]]

#1A
def cekMat(matrix):
    """memastikan type data Integer"""
    jum = len(matrix)
    hasil = ""
    for x in matrix:
        for i in x:
            assert isinstance(i, int), "Harus Integer"
        return True

#1B
def Ukuran(matrix):
    """Mengambil ukuran matriks"""
    return "Ukuran Matrix = "+str(len(matrix))+" x "+str(len(matrix[0]))

#1C
def Jumlah(matrix1, matrix2):
    """Penjumlahan 2 Matrix"""
    if Ukuran(matrix1) == Ukuran(matrix2):
        for x in range(0, len(matrix1)):
            for y in range(0, len(matrix1[0])):
                print(matrix1[x][y] + matrix2[x][y], end=' '),
            print()
    else:
        print("Matriks Tidak Sesuai")

#1D
def Kali(matrix1, matrix2):
    """Perkalian 2 Matrix"""
    mat3 = []
    if Ukuran(matrix1) == Ukuran(matrix2):
        for x in range(0, len(matrix1)):
            row = []
            for y in range(0, len(matrix1[0])):
                total = 0
                for z in range(0, len(matrix1)):
                    total = total + (matrix1[x][z] * matrix2[z][y])
                row.append(total)
            mat3.append(row)

    row.append(row)
    mat3.append(row)
    for x in range(0, len(mat3)):
        for y in range(0, len(mat3[0])):
            print(mat3[x][y], end=' ')
        print()
    else:
        print("Matriks Tidak Sesuai")

def determinan(matrix):
    """Menghitung Determinan Matrix"""
    if len(matrix) == len(matrix[0]):
        bil = [x for x in range(len(matrix))]
        jum = 0
        for i in range(len(matrix)):
            total = 1
            for x in range(len(matrix)):
                total *= matrix[x][bil[x]]
            bil += [bil.pop(0)]
            jum += total
        bil2 = [x for x in range(len(matrix))]
        bil.reverse()
        jum2 = 0
        for i in range(len(matrix)):
            total2 = 1
            for x in range(len(matrix)):
                total2 *= matrix[x][bil2[x]]
            bil2 += [bil2.pop(0)]
            jum2 += total2
        print(total-total2)
        return ""
    else:
        print("Matriks Harus Bujursangkar")

print(cekMat(m1))
print(Ukuran(m1))
Jumlah(m1, m2)
Kali(m1, m2)
print(determinan(m1))
print(determinan(m1))
```

```
Python 3.6.2 Shell
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Python 3.6.2 (v3.6.2:5fd33b5, Jul 8 2017, 04:14:34) [MSC v.1900 32 bit (Intel) on win32]
Type "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: D:\SEMESTER 4\PRAK ALGOSTRUK\MODUL3_137\1.py =====
True
Ukuran Matrix = 2 x 2
12 23
9 11
35 58
65 110
2
2
>>>
```

```
*1.py - D:\SEMESTER 4\PRAK ALGOSTRUK\MODUL3_137\1.py (3.6.2)*
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    row.append(row)
    mat3.append(row)
    for x in range(0, len(mat3)):
        for y in range(0, len(mat3[0])):
            print(mat3[x][y], end=' ')
        print()
    else:
        print("Matriks Tidak Sesuai")

def determinan(matrix):
    """Menghitung Determinan Matrix"""
    if len(matrix) == len(matrix[0]):
        bil = [x for x in range(len(matrix))]
        jum = 0
        for i in range(len(matrix)):
            total = 1
            for x in range(len(matrix)):
                total *= matrix[x][bil[x]]
            bil += [bil.pop(0)]
            jum += total
        bil2 = [x for x in range(len(matrix))]
        bil.reverse()
        jum2 = 0
        for i in range(len(matrix)):
            total2 = 1
            for x in range(len(matrix)):
                total2 *= matrix[x][bil2[x]]
            bil2 += [bil2.pop(0)]
            jum2 += total2
        print(total-total2)
        return ""
    else:
        print("Matriks Harus Bujursangkar")

print(cekMat(m1))
print(Ukuran(m1))
Jumlah(m1, m2)
Kali(m1, m2)
print(determinan(m1))
print(determinan(m1))
```

```
Python 3.6.2 Shell
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Python 3.6.2 (v3.6.2:5fd33b5, Jul 8 2017, 04:14:34) [MSC v.1900 32 bit (Intel) on win32]
Type "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: D:\SEMESTER 4\PRAK ALGOSTRUK\MODUL3_137\1.py =====
True
Ukuran Matrix = 2 x 2
12 23
9 11
35 58
65 110
2
2
>>>
```

Nomor 2.

```
2.py - D:\SEMESTER 4\PRAK ALGOSTRUK\MODUL3_137_2.py (3.6.2)
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#2A
def buatNol(m, n):
    """Menggunakan dua input"""
    matrix = [[0 for x in range(m)] for i in range(n)]
    print(matrix)

def buatNol2(m):
    """Menggunakan satu input"""
    n = m
    matrix = [[0 for x in range(m)] for i in range(n)]
    print(matrix)

#2B
def buatIdentitas(m):
    n = m
    matrix = [[1 if j == i else 0 for j in range(m)] for i in range(n)]
    print(matrix)

#2
buatNol(3,3)
buatNol2(3)
buatIdentitas(4)
```

```
Python 3.6.2 Shell
File Edit Shell Debug Options Window Help
Python 3.6.2 (v3.6.2:5fd33b5, Jul 8 2017, 04:14:34) [MSC v.1900 32 bit (Intel)]
on win32
Type "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: D:\SEMESTER 4\PRAK ALGOSTRUK\MODUL3_137_2.py =====
[[0, 0, 0], [0, 0, 0], [0, 0, 0]]
[[0, 0, 0], [0, 0, 0], [0, 0, 0]]
[[1, 0, 0, 0], [0, 1, 0, 0], [0, 0, 1, 0], [0, 0, 0, 1]]
>>>
```

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Nomor 3.

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3.py - D:\SEMESTER 4\PRAK ALGOSTRUK\MODUL3_137_3.py (3.6.2)
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#3
class Node():
    def __init__(self, data, nextNode=None):
        self.data = data
        self.nextNode = nextNode
    def cetak(head):
        curr = head
        while curr != None:
            print(curr.data)
            curr = curr.nextNode
    def cari(head, cari):
        curr = head
        while curr != None:
            if curr.data == cari:
                print("Data ditemukan!")
            else:
                print("Check data!")
            curr = curr.nextNode
    def tambahDepan(head):
        newNode = Node(1)
        newNode.nextNode = head
        head = newNode
        return head
    def tambahAkhir(head):
        curr = head
        while curr is not None:
            if curr.nextNode == None:
                newNode = Node(25)
                curr.nextNode = newNode
                return curr
            else:
                pass
            curr = curr.nextNode
        return curr
    def tambah(head, posisi):
        newNode = Node(8)
        newNode.nextNode = posisi.nextNode
        posisi.nextNode = newNode
        head.head = posisi
```

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3.py - D:\SEMESTER 4\PRAK ALGOSTRUK\MODUL3_1373.py (3.6.2)

```
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while curr != None:
    if curr.data == cari:
        print("Data ditemukan!")
    else:
        print("Check data!")
        curr = curr.nextNode
def tambahDepan(head):
    newNode = Node(1)
    newNode.nextNode = head
    head = newNode
    return head
def tambahAkhir(head):
    curr = head
    while curr is not None:
        if curr.nextNode == None:
            newNode = Node(25)
            curr.nextNode = newNode
            return curr
        else:
            pass
            curr = curr.nextNode
    return curr
def tambah(head, posisi):
    newNode = Node(8)
    newNode.nextNode = posisi.nextNode
    posisi.nextNode = newNode
    head.head = posisi
    return head
def hapus(head, posisi):
    curr = head
    while curr != None:
        if curr.nextNode.data == posisi:
            curr.nextNode = curr.nextNode.nextNode
            return curr
        else:
            pass
            curr = curr.nextNode
    return curr
```

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Nomor 4.

4.py - D:\SEMESTER 4\PRAK ALGOSTRUK\MODUL3_1374.py (3.6.2)

```
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#4
class doubly_linked():
    def __init__(self, Data, Next=None, Prev=None):
        self.Data = Data
        self.Next = Next
        self.Prev = Prev

    def mencetak():
        curr = head
        while curr != None:
            print(curr.Data)
            if curr.Next == None:
                curr = curr
                break
            else:
                curr = curr.Next
        print("\n")
        while curr != None:
            print(curr.Data)
            curr = curr.Prev
    def simpulAwal(head):
        newNode = doubly_linked(25)
        newNode.Next = head
        head.Prev = newNode
        head = newNode
        return head
    def simpulAkhir(head):
        curr = head
        while curr != None:
            if curr.Next == None:
                newNode = doubly_linked(365)
                curr.Next = newNode
                newNode.Prev = curr
                return curr
            else:
                pass
                curr = curr.Next
        return curr
```

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