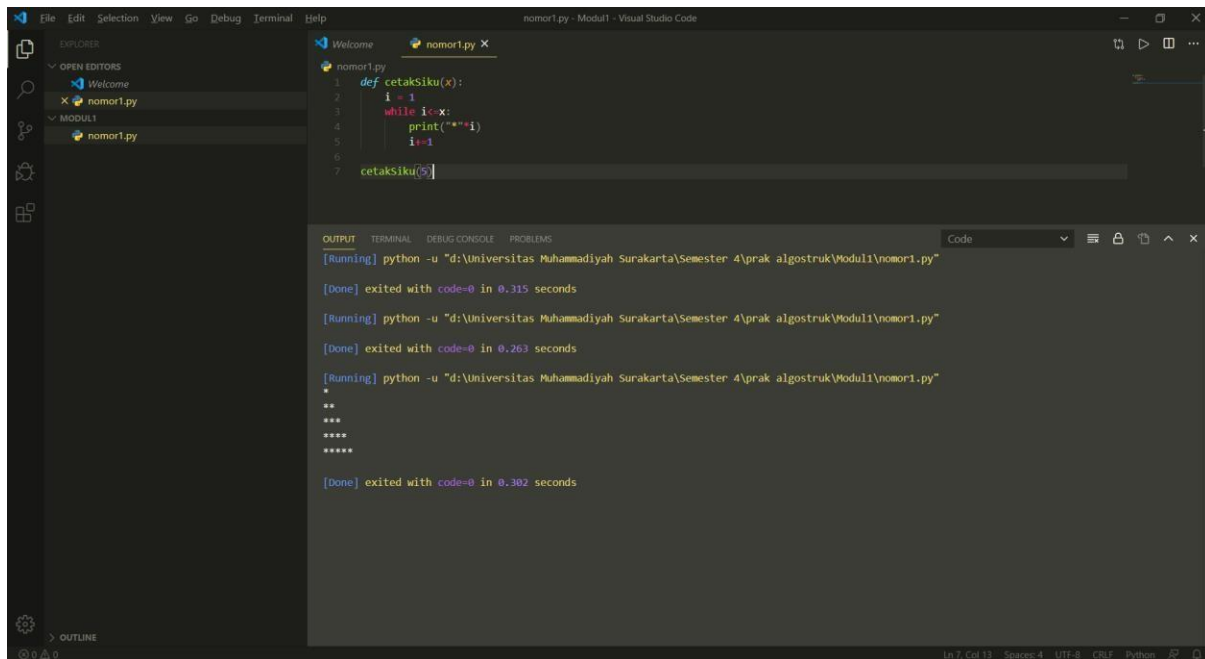


Nama : Banu Wisnu
Murti
NIM : L200180133

Laporan Praktikum Algoritma Struktur Data

1. Output file nomor1.py



```
File Edit Selection View Go Debug Terminal Help
nomor1.py - Modul1 - Visual Studio Code

EXPLORER
  OPEN EDITORS
    Welcome
    X nomor1.py
  MODUL1
    nomor1.py

1 def cetakSiku(x):
2     i = 1
3     while i <= x:
4         print("*"*i)
5         i+=1
6
7 cetakSiku(5)
```

```
OUTPUT
[Running] python -u "d:\Universitas Muhammadiyah Surakarta\Semester 4\prak algostruk\Modul1\nomor1.py"

[Done] exited with code=0 in 0.315 seconds

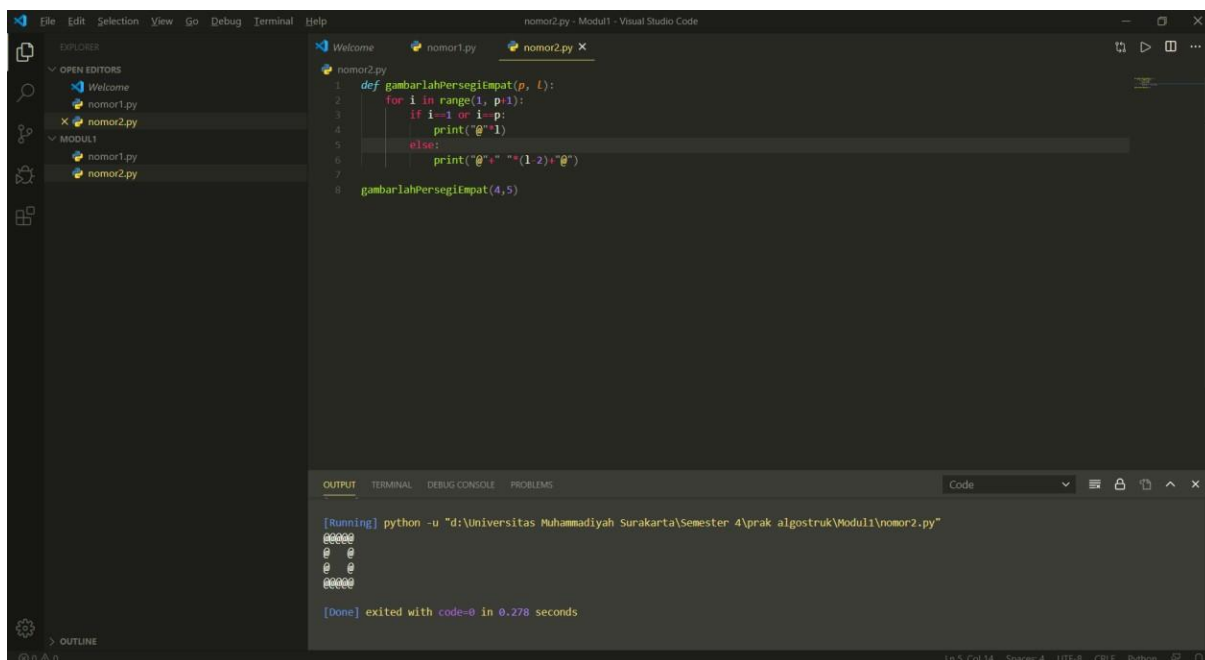
[Running] python -u "d:\Universitas Muhammadiyah Surakarta\Semester 4\prak algostruk\Modul1\nomor1.py"

[Done] exited with code=0 in 0.263 seconds

[Running] python -u "d:\Universitas Muhammadiyah Surakarta\Semester 4\prak algostruk\Modul1\nomor1.py"
*
***
*****

[Done] exited with code=0 in 0.302 seconds
```

2. Output file nomor2.py



```
File Edit Selection View Go Debug Terminal Help
nomor2.py - Modul1 - Visual Studio Code

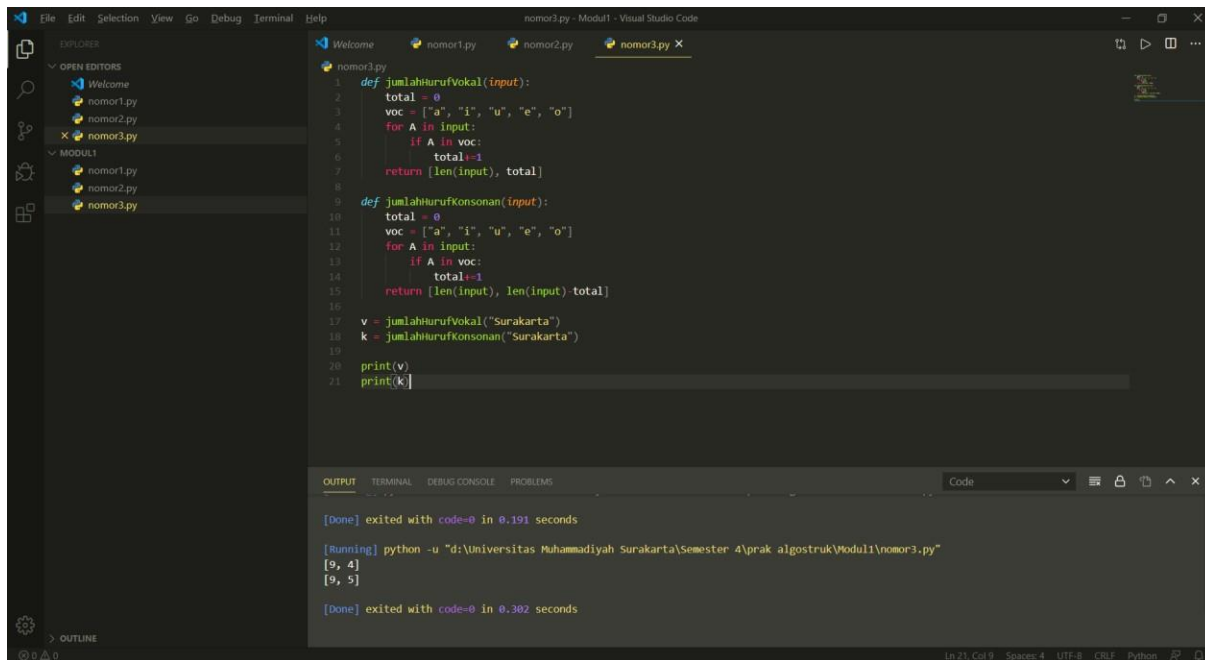
EXPLORER
  OPEN EDITORS
    Welcome
    nomor1.py
    X nomor2.py
  MODUL1
    nomor1.py
    nomor2.py

1 def gambarlahPersegiEmpat(p, l):
2     for i in range(1, p+1):
3         if i==1 or i==p:
4             print("@"*l)
5         else:
6             print("@"*i+"*(1 2)*@"*l)
7
8 gambarlahPersegiEmpat(4,5)
```

```
OUTPUT
[Running] python -u "d:\Universitas Muhammadiyah Surakarta\Semester 4\prak algostruk\Modul1\nomor2.py"
@@@@@
@  @
@  @
@@@@@

[Done] exited with code=0 in 0.278 seconds
```

3. Output file nomor3.py



```
1 def jumlahHurufVokal(input):
2     total = 0
3     voc = ["a", "i", "u", "e", "o"]
4     for A in input:
5         if A in voc:
6             total+=1
7     return [len(input), total]
8
9 def jumlahHurufKonsonan(input):
10    total = 0
11    voc = ["a", "i", "u", "e", "o"]
12    for A in input:
13        if A in voc:
14            total+=1
15    return [len(input), len(input)-total]
16
17 v = jumlahHurufVokal("Surakarta")
18 k = jumlahHurufKonsonan("Surakarta")
19
20 print(v)
21 print(k)
```

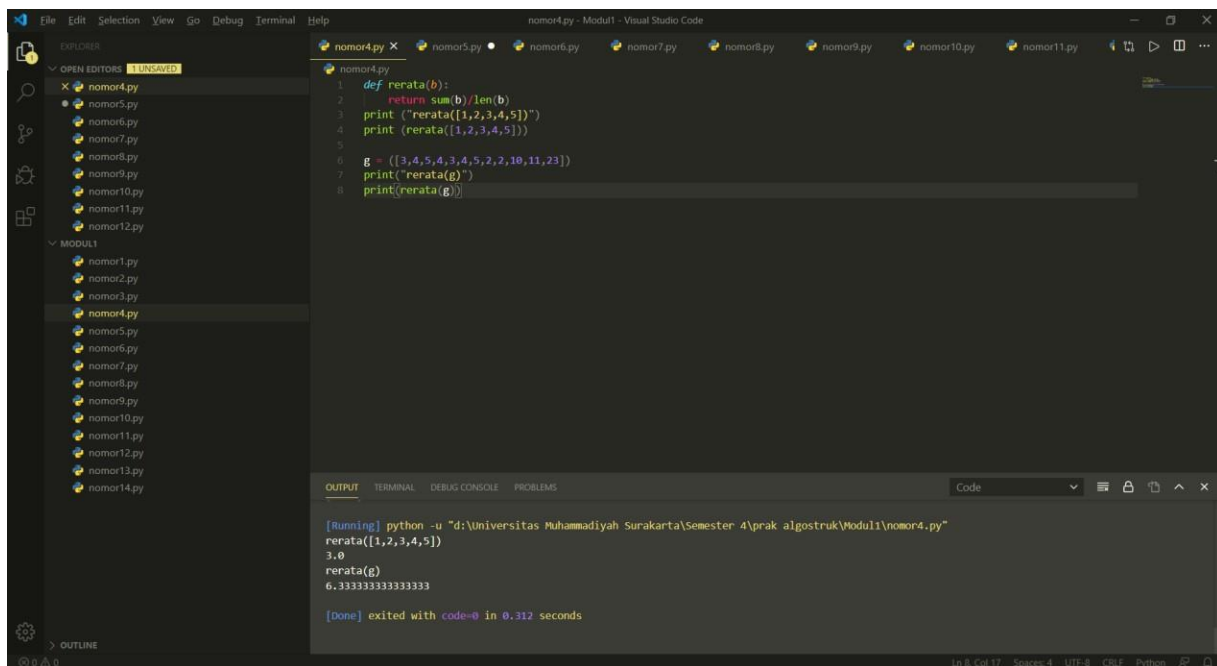
OUTPUT

```
[Done] exited with code=0 in 0.191 seconds

[Running] python -u "d:\Universitas Muhammadiyah Surakarta\Semester 4\prak algostruk\Modul1\nomor3.py"
[9, 4]
[9, 5]

[Done] exited with code=0 in 0.382 seconds
```

4. Output file nomor4.py



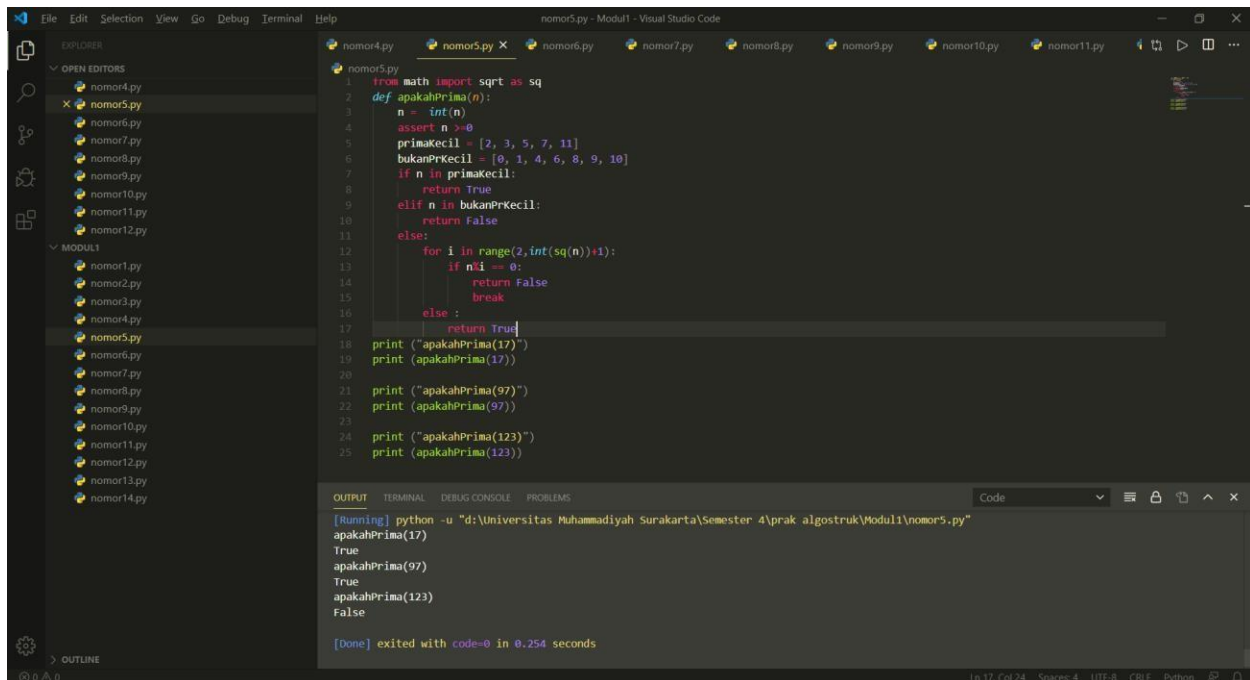
```
1 def rerata(b):
2     return sum(b)/len(b)
3 print ("rerata([1,2,3,4,5])")
4 print (rerata([1,2,3,4,5]))
5
6 g = [[3,4,5,4,3,4,5,2,2,10,11,23]]
7 print("rerata(g)")
8 print(rerata(g))
```

OUTPUT

```
[Running] python -u "d:\Universitas Muhammadiyah Surakarta\Semester 4\prak algostruk\Modul1\nomor4.py"
rerata([1,2,3,4,5])
3.0
rerata(g)
6.333333333333333

[Done] exited with code=0 in 0.312 seconds
```

5. Output file nomor5.py



```
File Edit Selection View Go Debug Terminal Help
nomor5.py - Modul1 - Visual Studio Code

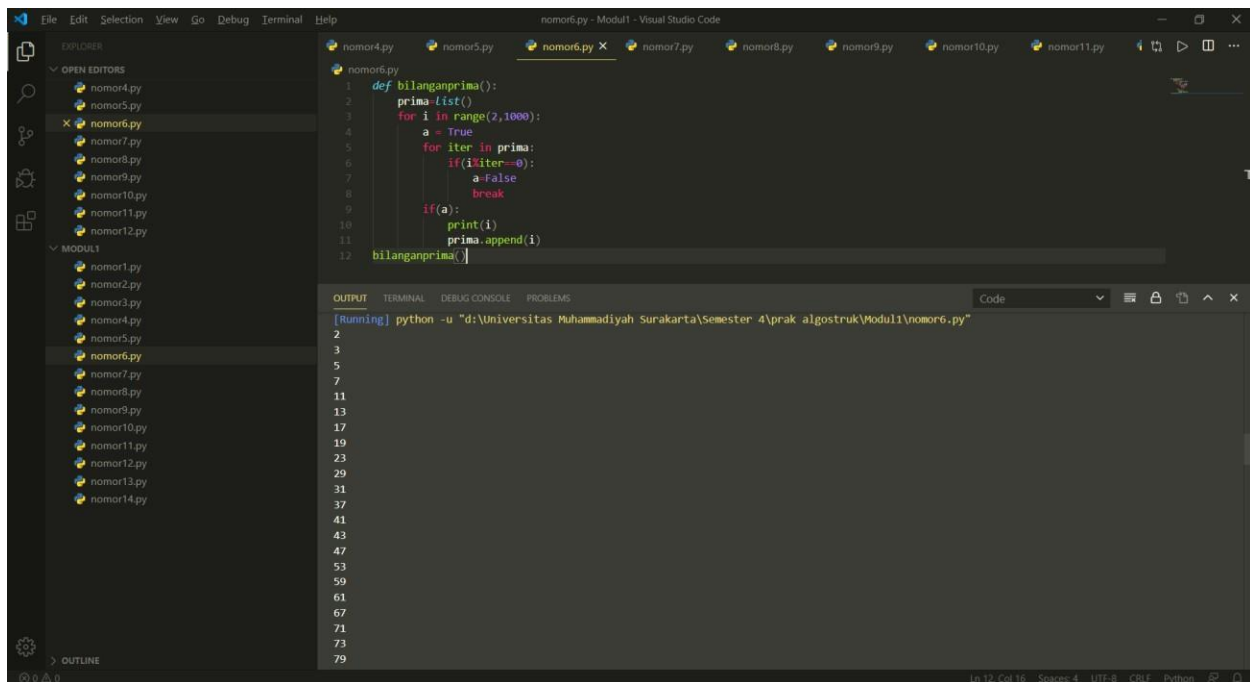
EXPLORER
  OPEN EDITORS
    nomor4.py
    nomor5.py
    nomor6.py
    nomor7.py
    nomor8.py
    nomor9.py
    nomor10.py
    nomor11.py
    nomor12.py
  MODUL1
    nomor1.py
    nomor2.py
    nomor3.py
    nomor4.py
    nomor5.py
    nomor6.py
    nomor7.py
    nomor8.py
    nomor9.py
    nomor10.py
    nomor11.py
    nomor12.py
    nomor13.py
    nomor14.py

nomor5.py
1 from math import sqrt as sq
2 def apakahPrima(n):
3     n = int(n)
4     assert n >= 0
5     primaKecil = [2, 3, 5, 7, 11]
6     bukanPrKecil = [0, 1, 4, 6, 8, 9, 10]
7     if n in primaKecil:
8         return True
9     elif n in bukanPrKecil:
10        return False
11    else:
12        for i in range(2, int(sq(n))+1):
13            if n%i == 0:
14                return False
15            break
16    else:
17        return True
18 print ("apakahPrima(17)")
19 print (apakahPrima(17))
20
21 print ("apakahPrima(97)")
22 print (apakahPrima(97))
23
24 print ("apakahPrima(123)")
25 print (apakahPrima(123))

OUTPUT TERMINAL DEBUG CONSOLE PROBLEMS
[Running] python -u "d:\Universitas Muhammadiyah Surakarta\Semester 4\prak algostruk\Modul1\nomor5.py"
apakahPrima(17)
True
apakahPrima(97)
True
apakahPrima(123)
False
[Done] exited with code=0 in 0.254 seconds

Ln 17, Col 24 Spaces: 4 UTF-8 CRLF Python
```

6. Output file nomor6.py



```
File Edit Selection View Go Debug Terminal Help
nomor6.py - Modul1 - Visual Studio Code

EXPLORER
  OPEN EDITORS
    nomor4.py
    nomor5.py
    nomor6.py
    nomor7.py
    nomor8.py
    nomor9.py
    nomor10.py
    nomor11.py
    nomor12.py
  MODUL1
    nomor1.py
    nomor2.py
    nomor3.py
    nomor4.py
    nomor5.py
    nomor6.py
    nomor7.py
    nomor8.py
    nomor9.py
    nomor10.py
    nomor11.py
    nomor12.py
    nomor13.py
    nomor14.py

nomor6.py
1 def bilanganPrima():
2     prima = list()
3     for i in range(2, 1000):
4         a = True
5         for iter in prima:
6             if(i%iter==0):
7                 a=False
8                 break
9         if(a):
10            print(i)
11            prima.append(i)
12    return prima

OUTPUT TERMINAL DEBUG CONSOLE PROBLEMS
[Running] python -u "d:\Universitas Muhammadiyah Surakarta\Semester 4\prak algostruk\Modul1\nomor6.py"
2
3
5
7
11
13
17
19
23
29
31
37
41
43
47
53
59
61
67
71
73
79

Ln 12, Col 16 Spaces: 4 UTF-8 CRLF Python
```

7. Output file nomor7.py

```
File Edit Selection View Go Debug Terminal Help
nomor7.py - Modul1 - Visual Studio Code

EXPLORER
  OPEN EDITORS
    nomor4.py
    nomor5.py
    nomor6.py
    X nomor7.py
    nomor8.py
    nomor9.py
    nomor10.py
    nomor11.py
    nomor12.py
  MODUL1
    nomor1.py
    nomor2.py
    nomor3.py
    nomor4.py
    nomor5.py
    nomor6.py
    nomor7.py
    nomor8.py
    nomor9.py
    nomor10.py
    nomor11.py
    nomor12.py
    nomor13.py
    nomor14.py

nomor7.py
1 def faktorprima(n):
2     prima=list()
3     for i in range(2,n):
4         a = True
5         for iter in prima:
6             if(i%iter==0):
7                 a=False
8                 break
9         if a and n%i==0:
10             prima.append(i)
11     return prima
12 print(faktorprima(143))

OUTPUT
[Done] exited with code=0 in 0.308 seconds

[Running] python -u "d:\Universitas Muhammadiyah Surakarta\Semester 4\prak algostruk\Modul1\nomor7.py"
[11, 13]

[Done] exited with code=0 in 0.28 seconds

Ln 12, Col 24 Spaces: 4 UTF-8 CRLF Python
```

8. Output file nomor8.py

```
File Edit Selection View Go Debug Terminal Help
nomor8.py - Modul1 - Visual Studio Code

EXPLORER
  OPEN EDITORS
    nomor4.py
    nomor5.py
    nomor6.py
    nomor7.py
    X nomor8.py
    nomor9.py
    nomor10.py
    nomor11.py
    nomor12.py
  MODUL1
    nomor1.py
    nomor2.py
    nomor3.py
    nomor4.py
    nomor5.py
    nomor6.py
    nomor7.py
    nomor8.py
    nomor9.py
    nomor10.py
    nomor11.py
    nomor12.py
    nomor13.py
    nomor14.py

nomor8.py
1 def apakahTerkandung(a,b):
2     return a in b
3     print(apakahTerkandung("db","abcdcdsqwdb"))
4     print(apakahTerkandung("abd","abc"))

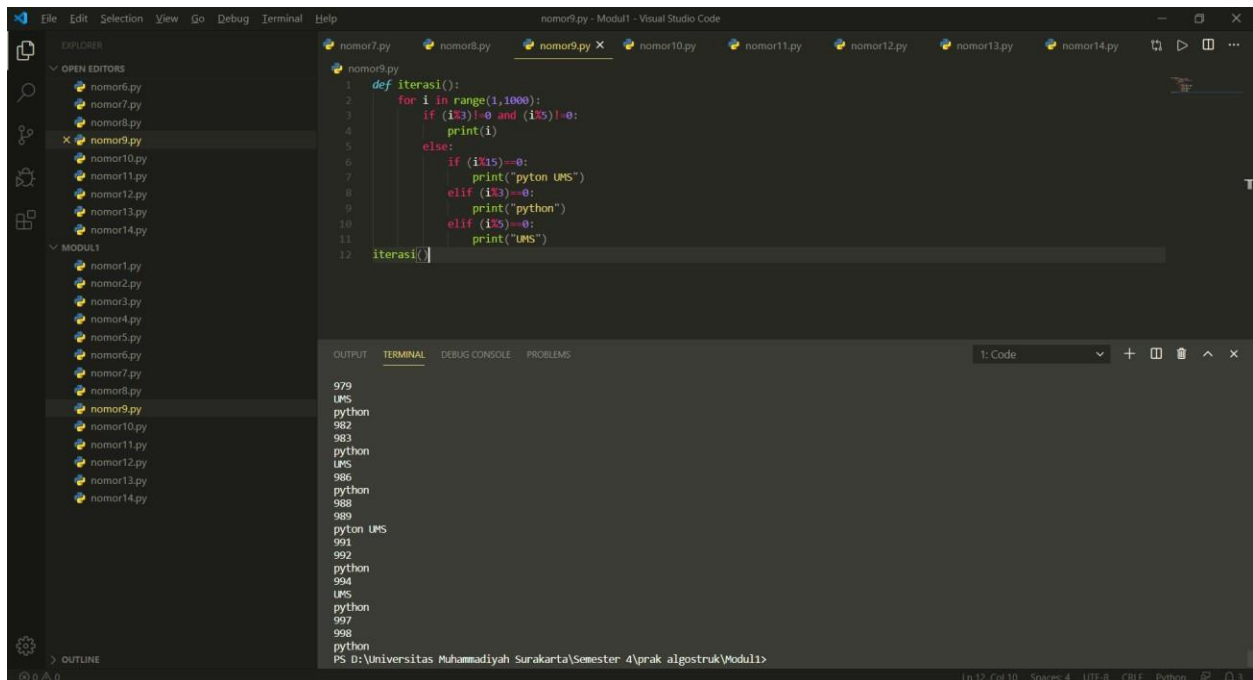
OUTPUT
[Done] exited with code=0 in 0.28 seconds

[Running] python -u "d:\Universitas Muhammadiyah Surakarta\Semester 4\prak algostruk\Modul1\nomor8.py"
True
False

[Done] exited with code=0 in 0.282 seconds

Ln 4, Col 37 Spaces: 4 UTF-8 CRLF Python
```

9. Output file nomor9.py



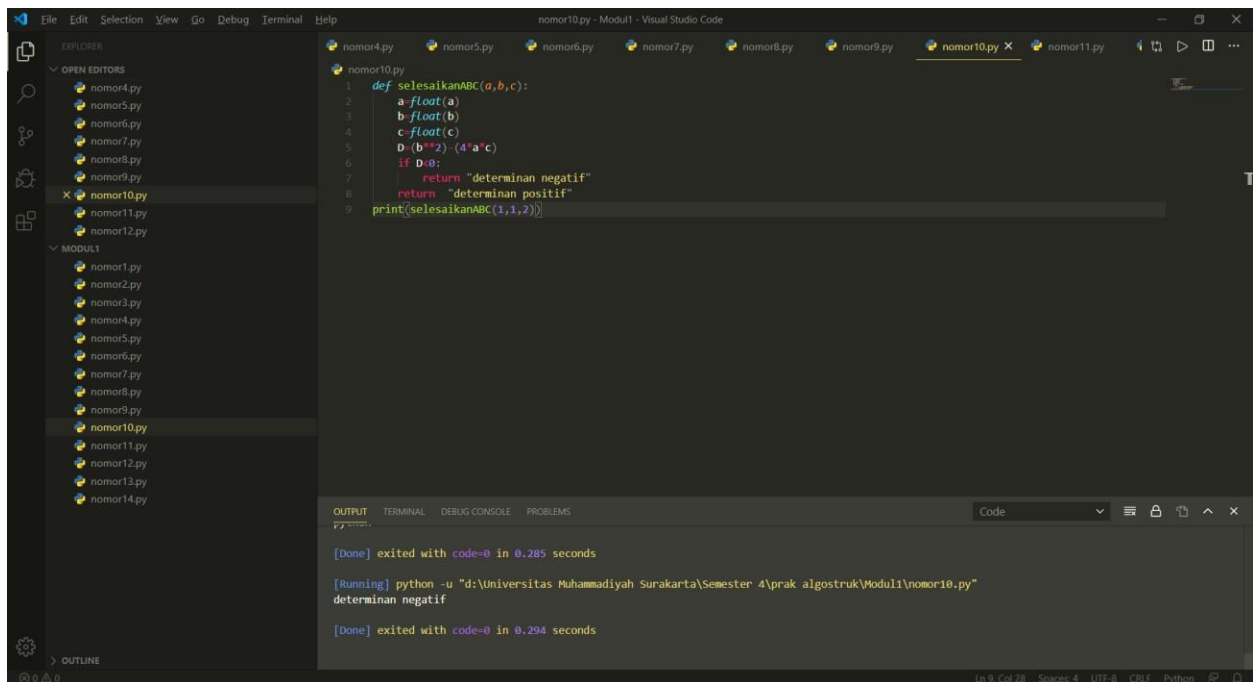
The screenshot shows the Visual Studio Code interface with the file explorer on the left displaying a list of files from nomor1.py to nomor14.py. The main editor window shows the code for nomor9.py, which defines a function `iterasi()` that iterates from 1 to 1000, checking for divisibility by 3, 5, and 15, and printing the corresponding results. The terminal at the bottom shows the output of the program, which is a sequence of numbers and strings: 979, UMS, python, 982, python, 983, python, UMS, 986, python, 988, 989, python UMS, 991, 992, python, 994, UMS, python, 997, 998, python.

```
def iterasi():
    for i in range(1,1000):
        if (i%3)!=0 and (i%5)!=0:
            print(i)
        else:
            if (i%15)==0:
                print("python UMS")
            elif (i%3)==0:
                print("python")
            elif (i%5)==0:
                print("UMS")
            print("UMS")
    iterasi()
```

OUTPUT

```
979
UMS
python
982
python
983
python
UMS
986
python
988
989
python UMS
991
992
python
994
UMS
python
997
998
python
```

10. Output file nomor10.py



The screenshot shows the Visual Studio Code interface with the file explorer on the left displaying a list of files from nomor1.py to nomor14.py. The main editor window shows the code for nomor10.py, which defines a function `selesaikanABC(a,b,c)` that calculates the discriminant $D = (b^2) - (4*a*c)$ and returns "determinan negatif" if $D < 0$ and "determinan positif" otherwise. The terminal at the bottom shows the output of the program, which is "determinan negatif".

```
def selesaikanABC(a,b,c):
    a=float(a)
    b=float(b)
    c=float(c)
    D=(b**2)-(4*a*c)
    if D<0:
        return "determinan negatif"
    return "determinan positif"
print(selesaikanABC(1,1,2))
```

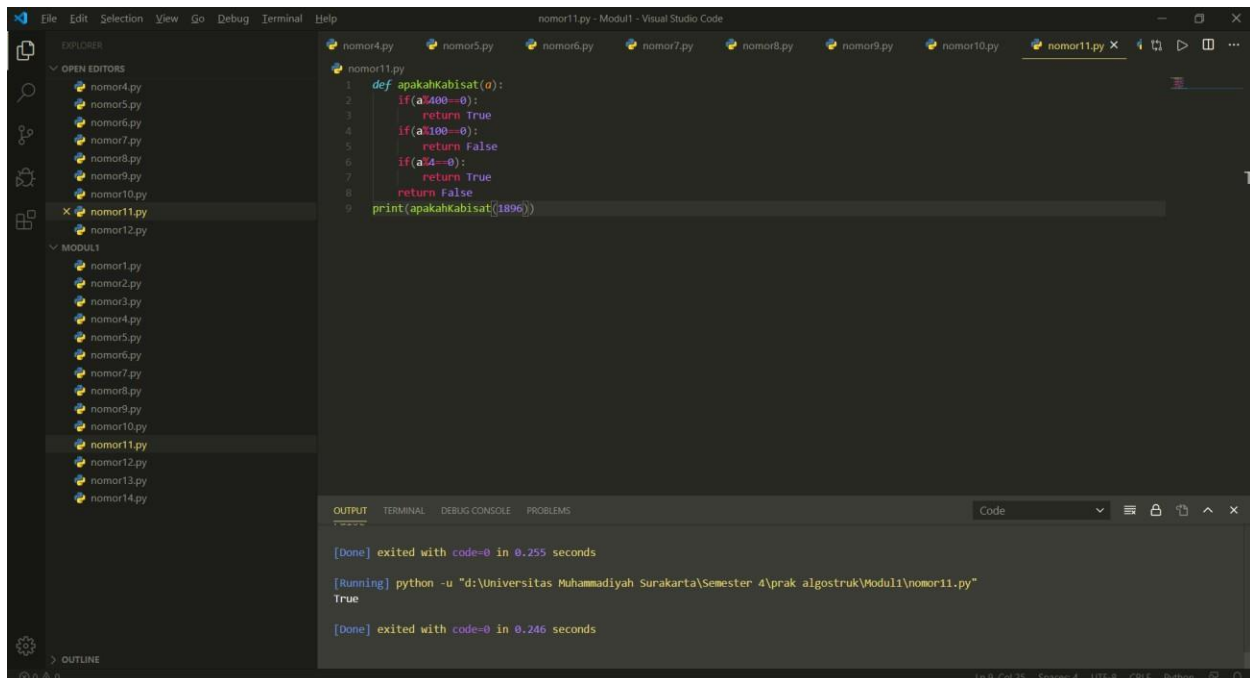
OUTPUT

```
[Done] exited with code=0 in 0.285 seconds

[Running] python -u "d:\Universitas Muhammadiyah Surakarta\Semester 4\prak algostruk\Modul1\nomor10.py"
determinan negatif

[Done] exited with code=0 in 0.294 seconds
```

11. Output file nomor11.py



```
File Edit Selection View Go Debug Terminal Help
nomor11.py - Modul1 - Visual Studio Code

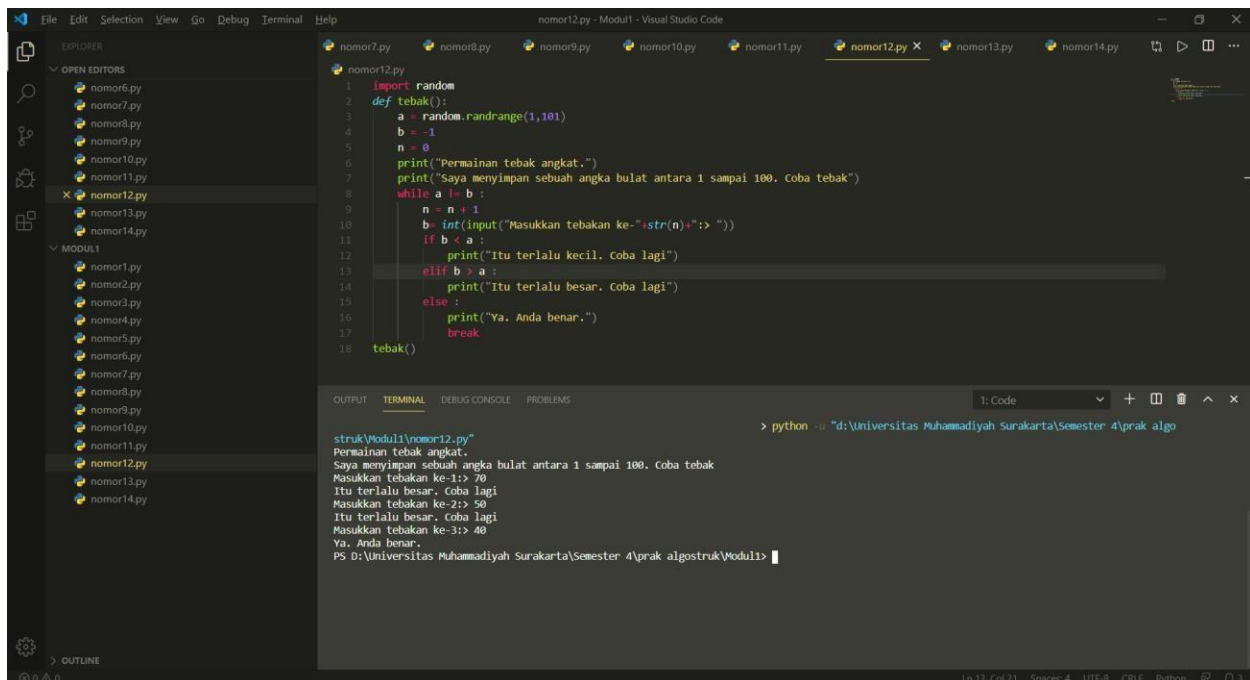
EXPLORER
  OPEN EDITORS
    nomor4.py
    nomor5.py
    nomor6.py
    nomor7.py
    nomor8.py
    nomor9.py
    nomor10.py
    X nomor11.py
    nomor12.py
  MODUL1
    nomor1.py
    nomor2.py
    nomor3.py
    nomor4.py
    nomor5.py
    nomor6.py
    nomor7.py
    nomor8.py
    nomor9.py
    nomor10.py
    nomor11.py
    nomor12.py
    nomor13.py
    nomor14.py

1 def apakahKabisat(a):
2     if(a%400==0):
3         return True
4     if(a%100==0):
5         return False
6     if(a%4==0):
7         return True
8     return False
9 print(apakahKabisat(1896))

OUTPUT TERMINAL DEBUG CONSOLE PROBLEMS
[Done] exited with code=0 in 0.255 seconds
[Running] python -u "d:\Universitas Muhammadiyah Surakarta\Semester 4\prak algostruk\Modul1\nomor11.py"
True
[Done] exited with code=0 in 0.246 seconds

Ln 9, Col 25 Spaces: 4 UTF-8 CRLF Python
```

12. Output file nomor12.py



```
File Edit Selection View Go Debug Terminal Help
nomor12.py - Modul1 - Visual Studio Code

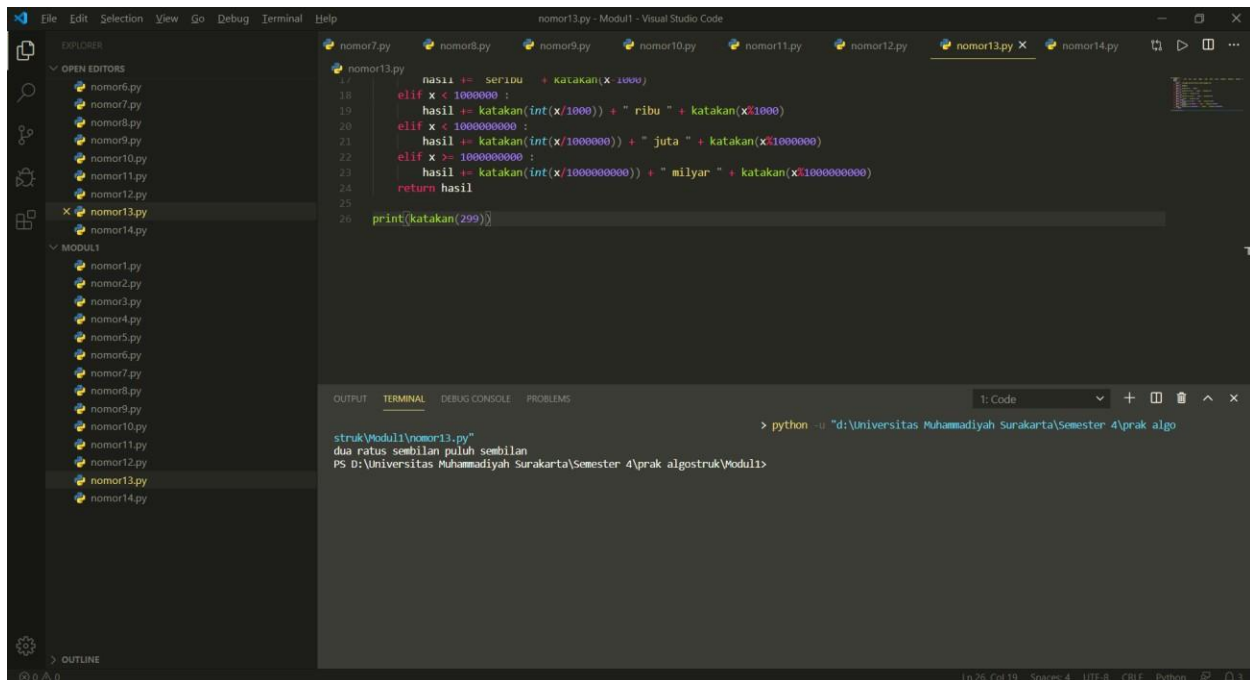
EXPLORER
  OPEN EDITORS
    nomor6.py
    nomor7.py
    nomor8.py
    nomor9.py
    nomor10.py
    nomor11.py
    X nomor12.py
    nomor13.py
    nomor14.py
  MODUL1
    nomor1.py
    nomor2.py
    nomor3.py
    nomor4.py
    nomor5.py
    nomor6.py
    nomor7.py
    nomor8.py
    nomor9.py
    nomor10.py
    nomor11.py
    nomor12.py
    nomor13.py
    nomor14.py

1 import random
2 def tebak():
3     a = random.randrange(1,101)
4     b = -1
5     n = 0
6     print("Permainan tebak angkat.")
7     print("Saya menyimpan sebuah angka bulat antara 1 sampai 100. Coba tebak")
8     while a != b :
9         n = n + 1
10        b = int(input("Masukkan tebakan ke-"+str(n)+":> "))
11        if b < a :
12            print("Itu terlalu kecil. Coba lagi")
13        elif b > a :
14            print("Itu terlalu besar. Coba lagi")
15        else :
16            print("Ya. Anda benar.")
17            break
18    tebak()

OUTPUT TERMINAL DEBUG CONSOLE PROBLEMS
> python -u "d:\Universitas Muhammadiyah Surakarta\Semester 4\prak algo
struk\Modul1\nomor12.py"
Permainan tebak angkat.
Saya menyimpan sebuah angka bulat antara 1 sampai 100. Coba tebak
Masukkan tebakan ke-1:> 70
Itu terlalu besar. Coba lagi
Masukkan tebakan ke-2:> 50
Itu terlalu besar. Coba lagi
Masukkan tebakan ke-3:> 40
Ya. Anda benar.
PS D:\Universitas Muhammadiyah Surakarta\Semester 4\prak algostruk\Modul1>

Ln 13, Col 21 Spaces: 4 UTF-8 CRLF Python
```

13. Output file nomor13.py

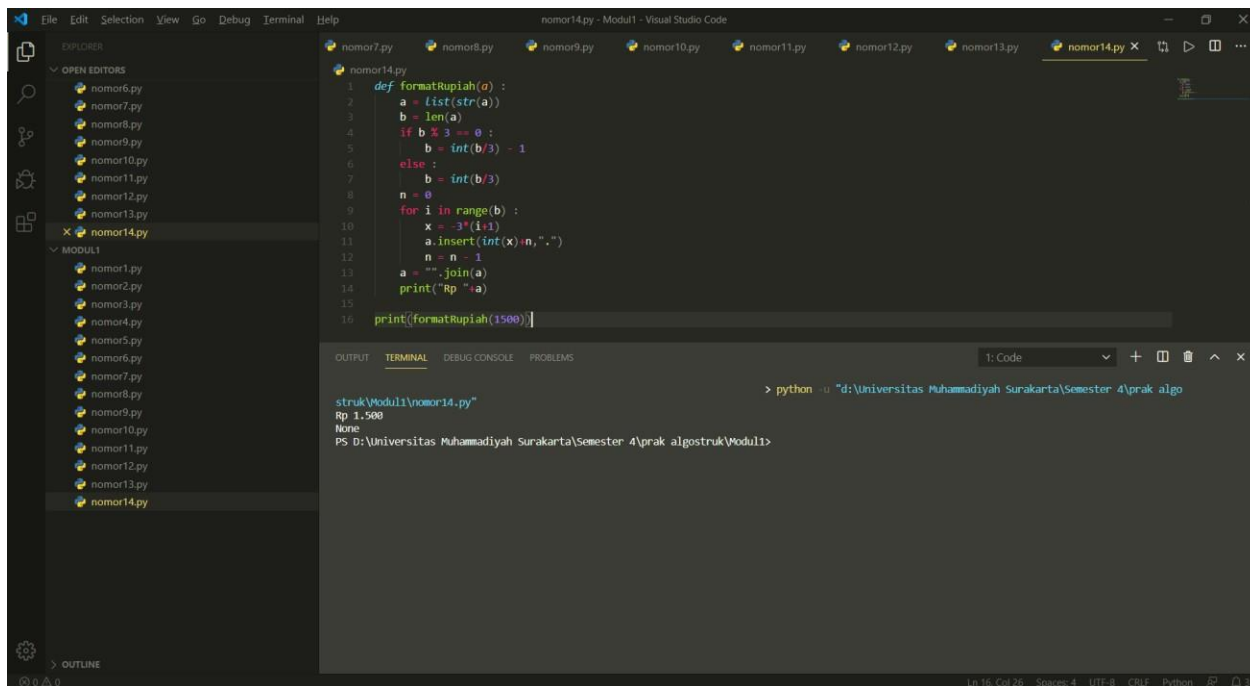


The screenshot shows the Visual Studio Code interface with the file explorer on the left displaying a directory structure with files named nomor1.py through nomor14.py. The main editor window shows the code for nomor13.py, which defines a function katakan(x) that returns a string representation of a number in Indonesian. The function uses a series of if-elif statements to handle different ranges of values, from less than 100,000,000,000 up to 10,000,000,000,000. The code then calls katakan(299) and prints the result. The terminal at the bottom shows the command to run the script: `python -u "d:\Universitas Muhammadiyah Surakarta\Semester 4\prak algostruk\Modul1\nomor13.py"`, and the output is: `dua ratus sembilan puluh sembilan`.

```
17 hasil += seribu + katakan(x // 1000)
18 elif x < 1000000 :
19     hasil += katakan(int(x/1000)) + " ribu " + katakan(x%1000)
20 elif x < 1000000000 :
21     hasil += katakan(int(x/1000000)) + " juta " + katakan(x%1000000)
22 elif x >= 10000000000 :
23     hasil += katakan(int(x/10000000000)) + " milyar " + katakan(x%10000000000)
24 return hasil
25
26 print(katakan(299))
```

```
> python -u "d:\Universitas Muhammadiyah Surakarta\Semester 4\prak algostruk\Modul1\nomor13.py"
dua ratus sembilan puluh sembilan
PS D:\Universitas Muhammadiyah Surakarta\Semester 4\prak algostruk\Modul1>
```

14. Output file nomor14.py



The screenshot shows the Visual Studio Code interface with the file explorer on the left displaying a directory structure with files named nomor1.py through nomor14.py. The main editor window shows the code for nomor14.py, which defines a function formatRupiah(a) that formats a number as a string in Indonesian Rupiah. The function uses a list to store the digits of the number, then inserts commas as thousands separators. The code then calls formatRupiah(1500) and prints the result. The terminal at the bottom shows the command to run the script: `python -u "d:\Universitas Muhammadiyah Surakarta\Semester 4\prak algostruk\Modul1\nomor14.py"`, and the output is: `Rp 1.500`.

```
1 def formatRupiah(a) :
2     a = list(str(a))
3     b = len(a)
4     if b % 3 == 0 :
5         b = int(b/3) - 1
6     else :
7         b = int(b/3)
8     n = 0
9     for i in range(b) :
10         x = -3*(i+1)
11         a.insert(int(x),",")
12         n = n - 1
13     a = "".join(a)
14     print("Rp " + a)
15
16 print(formatRupiah(1500))
```

```
> python -u "d:\Universitas Muhammadiyah Surakarta\Semester 4\prak algostruk\Modul1\nomor14.py"
Rp 1.500
None
PS D:\Universitas Muhammadiyah Surakarta\Semester 4\prak algostruk\Modul1>
```