PythonCourse_2_Patterns

April 18, 2021

0.1 Patterns

**** **** **** ****

```python
[3]: n = int(input())
     i = 1
     while (i <= n):
         #ith Row
         j = 1
         while (j <= n):
             #jth Column in ith Row

             # Need to print the element here
             print('*', end = '') #By default includes \n, End can therefore be␣
     ↪spefied as null
             j = j + 1
         print () #Empty print gives \n
         i = i + 1
```

3
***
***
***

55555 55555 55555 55555 55555

```python
[7]: n = int(input())
     i = 1
     while (i <= n):
         #ith Row
         j = 1
         while ( j <= n):
             #jth Column in ith Row
             #Print Element
             print(n, end= '')
             j = j + 1
         print()
         i = i + 1
```

5

```
55555
55555
55555
55555
55555
```

1111 2222 3333 4444

[8]:
```python
n = int(input())
i = 1
while i <= n:
    #ith Row
    j = 1
    while j <= n:
        #jth Column in ith Row
        print(i, end ="")
        j = j + 1
    print()
    i = i + 1
```

```
5
11111
22222
33333
44444
55555
```

1234 1234 1234 1234

[9]:
```python
n = int(input())
i = 1
while i <= n:
    #ith Row
    j = 1
    while j <= n:
        #jth Column in ith Row
        print(j, end ="")
        j = j + 1
    print()
    i = i + 1
```

```
6
123456
123456
123456
123456
123456
123456
```

4321 4321 4321 4321

```
[10]: n = int(input())
      i = 1
      while i <= n:
          #ith Row
          j = 1
          while j <= n:
              #jth Column in ith Row
              print(n - j + 1, end ="")
              j = j + 1
          print()
          i = i + 1
```

5
54321
54321
54321
54321
54321

1 12 123 1234

```
[11]: n = int(input())
      i = 1
      while i <= n:
          #ith Row
          j = 1
          while j <= i:
              #jth Column in ith Row
              print(j, end ="")
              j = j + 1
          print()
          i = i + 1
```

5
1
12
123
1234
12345

1 23 345 4567 56789

```
[13]: n = int(input())
      i = 1
      while i <= n:
          p = i
          j = 1
          while j <= i:
              print(p, end= "")
```

```
        p = p + 1
        j = j + 1
    print()
    i = i + 1
```

4
1
23
345
4567

1 23 456 78910

[14]:
```
n = int(input())
i = 1
p = 1
while i <= n:
    j = 1
    while j <= i:
        print(p, end = "")
        p = p + 1
        j = j + 1
    print()
    i = i + 1
```

5
1
23
456
78910
1112131415

- ***

[15]:
```
n = int(input())
i = 1
while i <= n:
    j = 1
    while j <= i:
        print('*', end = "")
        j = j + 1
    print()
    i = i + 1
```

5
*
**
***
****
*****

1 22 333 4444

```
[16]: n = int(input())
      i = 1
      while i <= n:
          j = 1
          while j <= i:
              print(i, end = "")
              j = j + 1
          print()
          i = i + 1
```

```
4
1
22
333
4444
```

1 21 321 4321

```
[18]: n = int(input())
      i = 1
      while i <= n:
          j = 1
          p = i
          while j <= i:
              print(p, end = "")
              p = p - 1
              j = j + 1
          print()
          i = i + 1
```

```
4
1
21
321
4321
```

ABCD ABCD ABCD ABCD

```
[21]: n = int(input())
      i = 1
      while i <= n:
          j = 1
          while j <= n:
              charP = chr(ord('A') + j - 1)
              print(charP, end = '')
              j = j + 1
          print()
```

```
        i = i + 1
```

```
5
ABCDE
ABCDE
ABCDE
ABCDE
ABCDE
```

ABCD BCDE CDEF DEFG

```
[24]: n = int(input())
      i = 1
      while i <= n:
          startChar = chr(ord('A') + i -1)
          j = 1
          while j <= n:
              charP = chr(ord(startChar) + j - 1)
              print(charP, end = '')
              j = j + 1
          print()
          i = i + 1
```

```
5
ABCDE
BCDEF
CDEFG
DEFGH
EFGHI
```

A BC CDE DEFG

```
[26]: n = int(input())
      i = 1
      while i <= n:
          j = 1
          startChar = chr(ord('A') + i - 1)
          while j <= i:
              charP = chr(ord(startChar) + j - 1)
              print(charP, end = '')
              j = j + 1
          print()
          i = i + 1
```

```
6
A
BC
CDE
DEFG
EFGHI
```

```
FGHIJK
```

```
E DE CDE BCDE ABCDE
```

[30]:
```python
n = int(input())
i = 1
while i <= n:
    startChar = chr(ord('A') + n - i)
    j = 1
    while j <= i:
        charP = chr(ord(startChar) + j - 1)
        print(charP, end= '')
        j = j + 1
    print()
    i = i + 1
```

```
5
E
DE
CDE
BCDE
ABCDE
```

```
1 11 202 3003
```

[38]:
```python
n = int(input())
print('1')
i = 2
k = 1
while i <= n:
    print(k, end = '')
    j = 2
    while j <= i:
        if(i == j):
            print(k, end = '')
        else:
            print('0', end = '')
        j = j + 1
    print()
    i = i + 1
    k = k + 1
```

```
7
1
11
202
3003
40004
500005
6000006
```

1 11 121 1221 12221

```
[41]: n = int(input())
      print('1')
      i = 2
      while i <= n:
          print('1', end = '')
          j = 2
          while j <= i:
              if (i == j):
                  print('1',end = '')
              else:
                  print('2',end = '')
              j = j + 1
          print()
          i = i + 1
```

```
7
1
11
121
1221
12221
122221
1222221
```

1234 123 12 1

```
[42]: n = int(input())
      i = 1
      while i <= n:
          j = 1
          while j <= (n - i + 1):
              print(j, end = '')
              j = j + 1
          print()
          i = i + 1
```

```
4
1234
123
12
1
```

A BB CCC DDDD

```
[45]: n = int(input())
      i = 1
      while i <= n:
```

```
        rowChar = chr(ord('A') + i - 1)
        j = 1
        while j <= i:
            print(rowChar, end = '')
            j = j + 1
        print()
        i = i + 1
```

6
A
BB
CCC
DDDD
EEEEE
FFFFFF

4444 333 22 1

[46]:
```
n = int(input())
i = 1
k = n
while i <= n:
    j = 1
    while j <= n - i + 1:
        print(k, end = '')
        j = j + 1
    print()
    k = k - 1
    i = i + 1
```

4
4444
333
22
1

* ** *** ****

[1]:
```
n = int(input())
i = 1
while i <= n:
    spaces = 1
    while spaces <= n - i:
        print(' ',end = '')
        spaces = spaces + 1
    stars = 1
    while stars <= i:
        print('*',end = '')
        stars = stars + 1
```

```
        print()
        i = i + 1
```

```
5
    *
   **
  ***
 ****
*****
```

1 12 123 1234

```
[2]: n = int(input())
     i = 1
     while i <= n:
         spaces = 1
         while spaces <= n - i:
             print(' ',end = '')
             spaces = spaces + 1
         j = 1
         num = 1
         while j <= i:
             print(num,end = '')
             num = num + 1
             j = j + 1
         print()
         i = i + 1
```

```
5
    1
   12
  123
 1234
12345
```

1 121 12321 1234321

```
[3]: n = int(input())
     i = 1
     while i <= n:
         # spaces
         spaces = 1
         while spaces <= n - i:
             print(' ',end = '')
             spaces = spaces + 1
         # increasing seq
         j = 1
         while j <= i:
             print(j,end = '')
```

```
        j = j + 1
    # decreasing seq
    j = i - 1
    while j >= 1:
        print(j, end = "")
        j = j - 1
    print()
    i = i + 1
```

```
4
   1
  121
 12321
1234321
```

```
* *** ***** *******
```

[4]:
```
n = int(input())
i = 1
while i <= n:
    # spaces
    spaces = 1
    while spaces <= n - i:
        print(' ',end = '')
        spaces = spaces + 1
    # increasing seq
    j = 1
    while j <= i:
        print('*',end = '')
        j = j + 1
    # decreasing seq
    j = i - 1
    while j >= 1:
        print('*', end = "")
        j = j - 1
    print()
    i = i + 1
```

```
5
    *
   ***
  *****
 *******
*********
```

```
1 232 34543 4567654
```

[9]:
```
n = int(input())
i = 1
```

```
while i <= n:
    spaces = 1
    while spaces <= n - i:
        print(' ', end = '')
        spaces = spaces + 1
    incNo = 1
    p = i
    while incNo <= i:
        print(p, end = '')
        p = p + 1
        incNo = incNo + 1
    decNo = 1
    p = (2*i) - 2
    while decNo <= i-1:
        print(p, end = '')
        p = p - 1
        decNo = decNo + 1
    print()
    i = i + 1
```

4
```
   1
  232
 34543
4567654
```

* *** ***** *** *

```
[21]: N = int(input())
      n1 = (N + 1)/2
      n2 = n1 - 1

      i = 1
      while i <= n1:
          spaces = 1
          while spaces <= n1 - i:
              print(' ', end = '')
              spaces = spaces + 1
          stars = 1
          while stars <= (2 * i) - 1:
              print('*', end = '')
              stars = stars + 1
          print()
          i = i + 1

      i = n2
      while i >= 1:
          spaces = 1
```

```
        while spaces <= n2 - i + 1:
            print(' ', end = '')
            spaces = spaces + 1
        stars = 1
        while stars <= (2 * i) - 1:
            print('*', end = '')
            stars = stars + 1
        print()
        i = i - 1
```

```
5
    *
   ***
  *****
   ***
    *
```

1 1 12 21 123 321 1234 4321 1234554321

```
[24]: n = int(input())
      i = 1
      while i <= n:
          num1 = 1
          p = 1
          while num1 <= i:
              print(p, end = '')
              p = p + 1
              num1 = num1 + 1
          spaces = 1
          while spaces <= 2 * (n - i):
              print(' ', end = '')
              spaces = spaces + 1
          num2 = i
          while num2 >= 1:
              print(num2, end = '')
              num2 = num2 - 1
          print()
          i = i + 1
```

```
4
1       1
12     21
123   321
12344321
```

*000*000* 0*00*00*0 00*0*0*00 000***000

```
[28]: n = int(input())
      i = 1
```

```
while i <= n:
    j = 1
    while j <= n:
        if(i == j):
            print('*', end = '')
        else:
            print('0', end = '')
        j = j + 1
    print('*', end = '')
    j = n
    while j >= 1:
        if(i == j):
            print('*', end = '')
        else:
            print('0', end = '')
        j = j - 1
    print()
    i = i + 1
```

```
6
*00000*00000*
0*0000*0000*0
00*000*000*00
000*00*00*000
0000*0*0*0000
00000***00000
```

1 212 32123 4321234

```
[31]: n = int(input())
i = 1
while i <= n:
    spaces = 1
    while spaces <= n - i:
        print(' ', end = '')
        spaces = spaces + 1
    decNo = 1
    p = i
    while decNo <= i:
        print(p, end = '')
        p = p - 1
        decNo = decNo + 1
    incNo = 1
    p = 2
    while incNo <= i - 1:
        print(p, end = '')
        p = p + 1
        incNo = incNo + 1
```

```
    print()
    i = i + 1
```

```
4

   1
  212
 32123
4321234

* * * * * * * * * * * * * * * *
```

[35]:
```
N = int(input())
n1 = (N + 1) / 2
n2 = n1 - 1

i = 1
while i <= n1:
    spaces = 1
    while spaces <= i - 1:
        print(' ', end = '')
        spaces = spaces + 1
    stars = 1
    while stars <= i:
        print('* ', end = '')
        stars = stars + 1
    print()
    i = i + 1
i = n2
while i >= 1:
    spaces = 1
    while spaces <= i - 1:
        print(' ', end = '')
        spaces = spaces + 1
    stars = 1
    while stars <= i:
        print('* ', end = '')
        stars = stars + 1
    print()
    i = i - 1
```

```
7
*
 * *
  * * *
   * * * *
  * * *
 * *
*
```

15