Write a pseudocode to solve the following problem

Define: newline mean output will goes to nextline

Define: Read() mean read input from user

Define: name = new DataType[size] mean declare array and this array start first element at 0

```
Define print_bit(arr:Array_Integer) :
    For Let i in arr Then
        Display i “ “
    Endfor
    Display (newline)
Define: gen_bit(n:Integer, arr:Array_Integer, i:Integer):
    If n == i :
        print_bit(arr)
        return
    EndIf
    arr[i] = 0
    gen_bit(n,arr,i+1)
    arr[i] = 1
    gen_bit(n,arr,i+1)
Start
    Let t <- input()
    arr <- new Integer[t]
    gen_bit(t,arr,0)
End
```

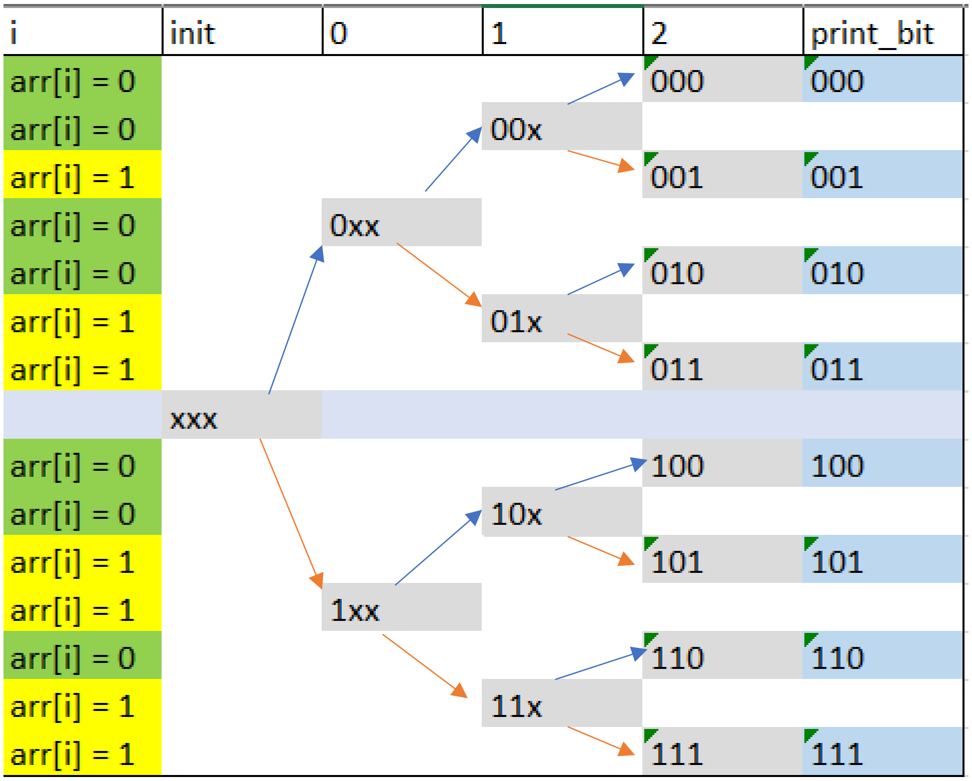
Show that your code is correct

the code that I wrote is a recursion approach it mean if the function called itself the previous function won’t end until the current function is ended

if I show in static visual representation I will show you something like this

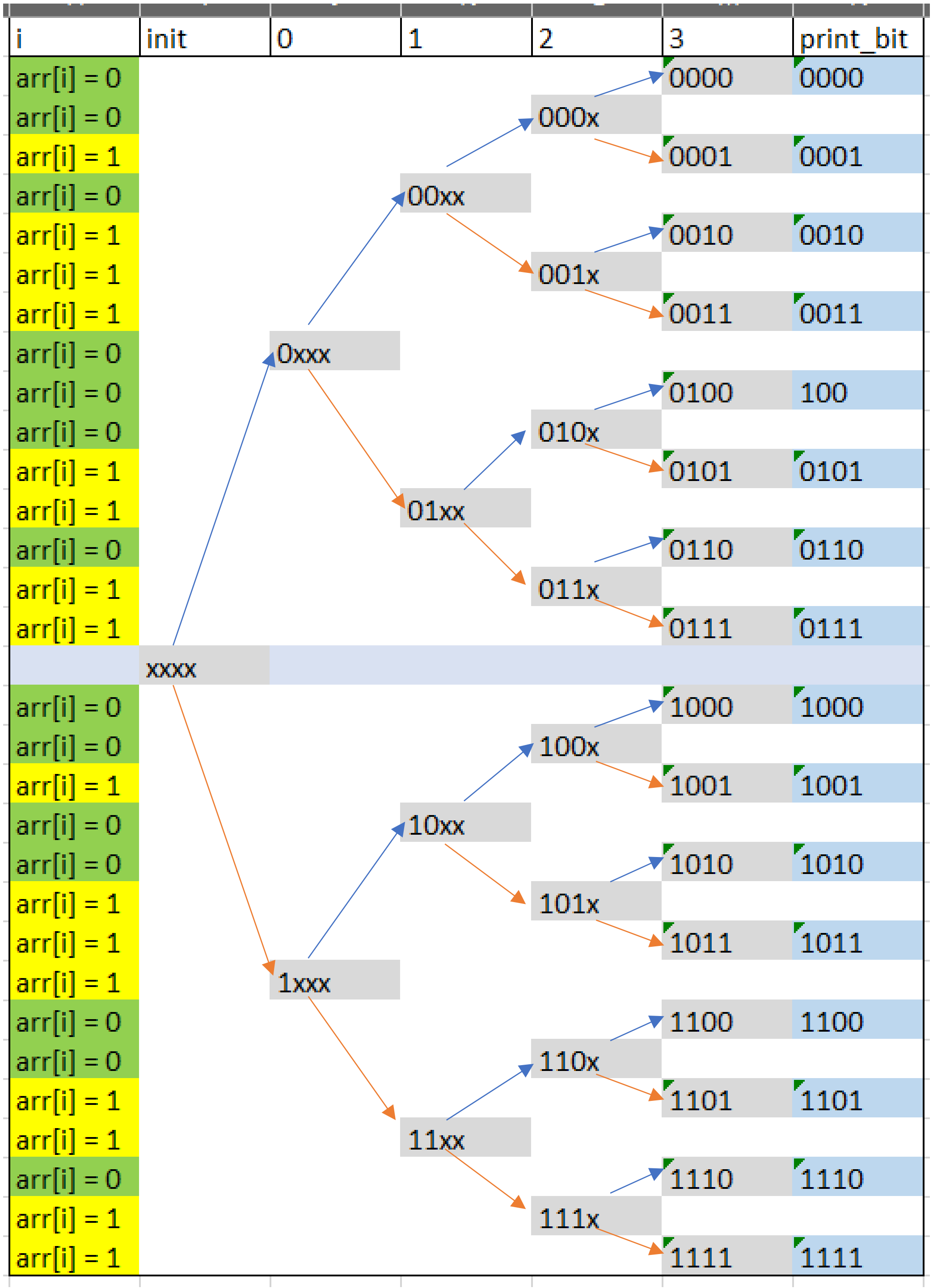
→ this code flow called gen_bit() after arr[i] = 0

→ this code flow called gen_bit() after arr[i] = 1



i	init	0	1	2	print_bit
arr[i] = 0				000	000
arr[i] = 0			00x		
arr[i] = 1				001	001
arr[i] = 0		0xx			
arr[i] = 0				010	010
arr[i] = 1			01x		
arr[i] = 1				011	011
	xxx				
arr[i] = 0				100	100
arr[i] = 0			10x		
arr[i] = 1				101	101
arr[i] = 1		1xx			
arr[i] = 0				110	110
arr[i] = 1			11x		
arr[i] = 1				111	111

Find all possible cases of the input

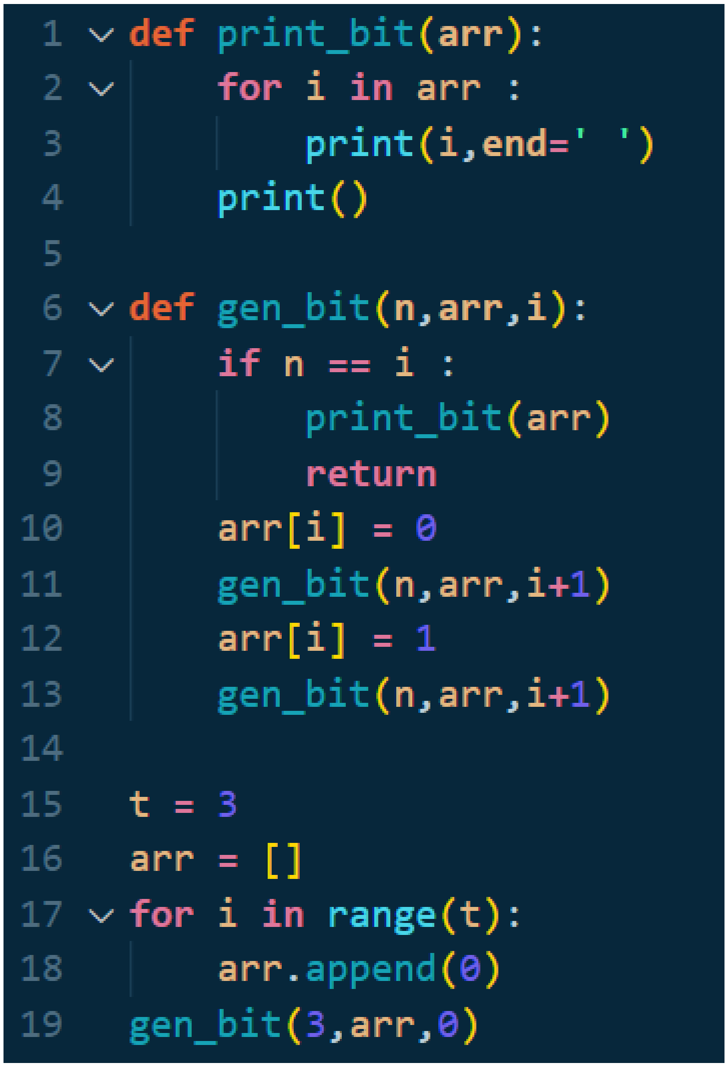


i	init	0	1	2	3	print_bit
arr[i] = 0					0000	0000
arr[i] = 0				000x		
arr[i] = 1					0001	0001
arr[i] = 0			00xx			
arr[i] = 1					0010	0010
arr[i] = 1				001x		
arr[i] = 1					0011	0011
arr[i] = 0		0xxx				
arr[i] = 0					0100	100
arr[i] = 0				010x		
arr[i] = 1					0101	0101
arr[i] = 1			01xx			
arr[i] = 0					0110	0110
arr[i] = 1				011x		
arr[i] = 1					0111	0111
	xxxx					
arr[i] = 0					1000	1000
arr[i] = 0				100x		
arr[i] = 1					1001	1001
arr[i] = 0			10xx			
arr[i] = 0					1010	1010
arr[i] = 1				101x		
arr[i] = 1					1011	1011
arr[i] = 1		1xxx				
arr[i] = 0					1100	1100
arr[i] = 0				110x		
arr[i] = 1					1101	1101
arr[i] = 1			11xx			
arr[i] = 0					1110	1110
arr[i] = 1				111x		
arr[i] = 1					1111	1111

Implementing your code and show the solution

Programming language : python 3.8

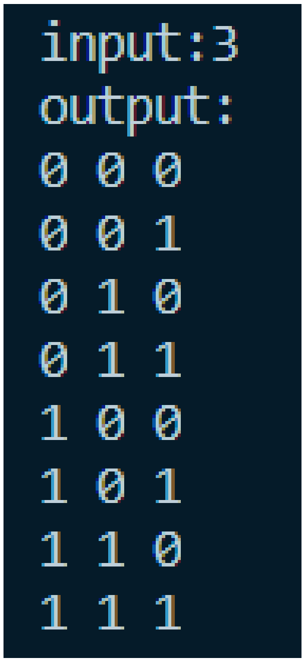
Text editor : visual studio code with python extension



```python
def print_bit(arr):
    for i in arr :
        print(i,end=' ')
    print()

def gen_bit(n,arr,i):
    if n == i :
        print_bit(arr)
        return
    arr[i] = 0
    gen_bit(n,arr,i+1)
    arr[i] = 1
    gen_bit(n,arr,i+1)

t = 3
arr = []
for i in range(t):
    arr.append(0)
gen_bit(3,arr,0)
```



```
input:3
output:
0 0 0
0 0 1
0 1 0
0 1 1
1 0 0
1 0 1
1 1 0
1 1 1
```