

Take input as n and print:

```
# n = 4
####

for i in range(4):
    print("#", end="")

####

# print 5 times

for i in range(5):
    print("#", end="")

#####
```

## Problem 2

```
# N = 3

###
###
###

for i in range(3):
    print("#", end="")
# print is for next line
print()

for i in range(3):
    print("#", end="")
print()

for i in range(3):
    print("#", end="")
print()

###
###
###
```

### Nested for loop

```
# Outer loop is for number of rows
for j in range(3):
    # this loop is to print the # (columns)
    for i in range(3):
        print("#", end="")
    print()
```

###

###

###

```
for j in range(3):
    for i in range(3):
        print("#", end="")
```

### # Quiz

```
for i in range(3):
    print('*', end='')
for i in range(3):
    print('*', end='')
for i in range(3):
    print('*', end='')
```

\*\*\*\*\*

```
# Outer loop is for number of rows
for j in range(4):
    # this loop is to print the # (columns)
    for i in range(4):
        print("#", end="")
```

#####

```
# Outer loop is for number of rows
for j in range(4):
    # this loop is to print the # (columns)
    for i in range(4):
        print("#", end="")
    print()
```

####

####

####

####

### Print N \* N pattern

```
n = int(input())
```

```
for j in range(n):
    for i in range(n):
        print("#", end=" ")
    print()
```

5

```
#####
#####
#####
#####
#####
```

### Quiz

```
for i in range(2):
    for j in range(1):
        print('*', end=' ')
    print()
```

```
*
*
```

```
for i in range(1):
    for j in range(2):
        print('*', end=' ')
    print()
```

```
**
```

```
n = 1
for i in range(n):
    for j in range(n):
        print('*', end=' ')
    print('')
```

```
*
```

```
n = int(input())
for i in range(2):
    for j in range(n):
        print('*', end=' ')
```

3

\*\*\*\*\*

### Iteration protocols

```
for i in range(5):  
    print(i)
```

0  
1  
2  
3  
4

*# how to know if anything is iterable?*

*# print(dir("Rahul"))*

*# Here we are getting an iterator i with iterable range(5)*

```
i = iter(range(5))
```

```
print(type(i))
```

```
<class 'range_iterator'>
```

```
print(next(i))
```

0

```
print(next(i))
```

1

```
print(next(i))
```

2

```
print(next(i))
```

3

```
print(next(i))
```

4

*# Here the range of iterator gets ended*

```
print(next(i))
```

```
-----  
-----  
StopIteration                                Traceback (most recent call  
last)  
/var/folders/zn/hkv6562d6_d30glfs8yc76900000gn/T/ipykernel_25072/72804  
5058.py in <module>  
      1 # Here the range of iterator gets ended  
----> 2 print(next(i))
```

StopIteration:

```
# This is just a range object  
j = range(5)  
print(type(j))  
<class 'range'>  
print(i)  
<range_iterator object at 0x7fb56849f4e0>
```

### Quizzes

```
i = iter(range(7))  
  
print(next(i))  
print(next(i))  
  
0  
1  
  
i = iter(range(7))  
  
print(next(i) * 3)  
print(next(i) * 5)  
  
0  
5  
  
i = iter(range(7))  
print(next(i))  
  
0  
  
i = iter(range(1, 7, 5))  
  
print(next(i))  
print(next(i))
```

1  
6

```
i = iter(range(1, 7, 5))  
res = next(i)  
res = next(i)  
print(res)
```

6

### GCD

A = 16  
B = 24

*# Find min of A and B*  
minm = min(A, B)

```
for i in range(minm, 0, -1):  
    # It will check if i is factor of both A and B  
    if A % i == 0 and B % i == 0:  
        print("GCD is", i)  
        break
```

GCD is 8

*# Following code will print all the factors bcz no break*

A = 16  
B = 24  
minm = min(A, B)

```
for i in range(minm, 0, -1):  
    if A % i == 0 and B % i == 0:  
        print("GCD is", i)
```

GCD is 8  
GCD is 4  
GCD is 2  
GCD is 1

A = int(input())  
B = int(input())  
minm = min(A, B)

```
for i in range(minm, 0, -1):  
    if A % i == 0 and B % i == 0:
```

```
print("GCD is", i)  
break
```

```
5  
10
```

```
GCD is 5
```