▾ Range function

```
print(range(6))
```

```
range(0, 6)
```

```
print(list(range(6)))
```

```
[0, 1, 2, 3, 4, 5]
```

```
print(list(range(10)))
```

```
[0, 1, 2, 3, 4, 5, 6, 7, 8, 9]
```

▾ Range with 2 inputs

```
print(range(1, 6))
```

```
range(1, 6)
```

```
print(list(range(1, 6)))
```

```
[1, 2, 3, 4, 5]
```

```
print(list(range(2, 8)))
```

```
[2, 3, 4, 5, 6, 7]
```

▾ Range with 3 inputs

```
print(range(1, 10, 2))
```

```
range(1, 10, 2)
```

```
print(list(range(1, 10, 2)))
```

```
[1, 3, 5, 7, 9]
```

```python
print(list(range(0, 10, 2)))
```
```
[0, 2, 4, 6, 8]
```

Range with negative increment

```python
print(range(10, 0, -2))
```
```
range(10, 0, -2)
```

```python
print(list(range(10, 0, -2)))
```
```
[10, 8, 6, 4, 2]
```

```python
print(list(range(10, 12, -2)))
```
```
[]
```

```python
print(list(range(0,10)))
```
```
[0, 1, 2, 3, 4, 5, 6, 7, 8, 9]
```

Challenge 1: Sum of numbers from 1 to N

```python
n = int(input())
```
```
6
```

```python
sum = 0
for i in range(1, n+1):
  sum += i
```

```python
print(sum)
```
```
21
```

Challenge 2:

```python
N = int(input())
```

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

```
5
0 1 2 3 4
```

Challenge 2: Print the first N natural numbers from 1 to N

```
N = int(input())

for i in range(1, N+1):
  print(i, end=' ')
```

```
50
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29
```

Challenge 3: Print the odd numbers from N to 1.

```
N = int(input())
```

```
5
```

```
if N % 2 == 0:
  # even
  for i in range(N - 1, 0, -2):
    print(i, end=' ')
else:
  # odd
  for i in range(N, 0, -2):
    print(i, end=' ')
```

```
5 3 1
```

Version 2

```
N = int(input())
```

```
10
```

```
# keeping the start point
if N % 2 == 0:
  x = N - 1
else:
  x = N

# using x as the start

for i in range(x, 0, -2):
  print(i, end=' ')
```

```
    9 7 5 3 1
```

Version 3

```
N = int(input())
# updating N itself to be the correct start point
if N % 2 == 0:
  N -= 1

for i in range(N, 0, -2):
  print(i, end=' ')
```

```
    6
    5 3 1
```

Pattern Printing

```
N = int(input())

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

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

```
N = int(input())

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

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

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

```
    3
    *********
```

```
N = int(input())

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

print('')

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

print('')

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

print('')

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

print('')

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

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

▾ Quiz

```
N = 3

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

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

```
N = 3
```

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

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

```
N = 3
```

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

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

```
N = 4
```

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

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

▾ Doubts

```
print(list(range(5, 9)))
```

```
    [5, 6, 7, 8]
```

```
print(list(range(9, 5)))
```

```
    []
```

```
print(list(range(-10, -5)))
```

```
    [-10, -9, -8, -7, -6]
```

```
print(list(range(-10, 0)))
```

```
    [-10, -9, -8, -7, -6, -5, -4, -3, -2, -1]
```

```python
a, b = map(int, input().split())
```

```
1 2
```

```python
print(a)
```

```
1
```

```python
print(b)
```

```
2
```