For loop

- The iterator starts from the beginning of the sequence. In each iteration, the iterator updates to the next value in the sequence.
- In a for loop, we need to define three main things:
1. The name of the iterator
2. The sequence to be traversed
3. The set of operations to perform

image

Range Function

```
print(range(11))

range(0, 11)

print(list(range(11)))

[0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10]


print(list(range(7, 8)))

[7]

print(list(range(1, 11, 2)))

[1, 3, 5, 7, 9]

print(list(range(1, 11, -1)))

[]

print(list(range(-1, 5, 1)))

[-1, 0, 1, 2, 3, 4]

print(list(range(-1, -5, -1)))

[-1, -2, -3, -4]

print(list(range(10, 1, -1)))

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

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

iterable, iterator and iteration

Print numbers from 1 to 5
```python
for rahul in range(1, 5):
    print(rahul)

1
2
3
4

for i in range(1, 6):
    print(i, end=" ")

1 2 3 4 5
```

Print numbers from 1 to N
```python
N = int(input())

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

 5

1 2 3 4

N = int(input())

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

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

```
for i in range(-1, 10, 2):
    print(i, end=' ')
```
```
-1 1 3 5 7 9
```

```
print(list(range(5,1,1)))
```
```
[]
```

Print numbers from N to 1
```
n = int(input())
```
```
for i in range(n, 1, -1):
    print(i, end=" ")
```
```
 10
```
```
10 9 8 7 6 5 4 3 2
```
```
n = int(input())
```
```
for i in range(n, 0, -1):
    print(i, end=" ")
```
```
 11
```
```
11 10 9 8 7 6 5 4 3 2 1
```
```
N = int(input())
```
```
for i in range(N, 1, -1):
    print(i, end=' ')
```
```
 7
```
```
7 6 5 4 3 2
```

Print all odd numbers from 1 to n

```
n = int(input())

for i in range(1, n+1, 2):
    print(i)
```

 6

1
3
5

```
n = int(input())

for i in range(1, n, 2):
    print(i)
```

 5

1
3

Print all even numbers from 0 to n
```
n = int(input())

for i in range(0, n+1, 2):
    print(i)
```

 6

0
2
4
6

Print sum of all odd numbers from 1 to n
```
n = int(input())

for i in range(1, n+1, 2):
    print(i)
```

 7

```
1
3
5
7
```

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

total = 0
for i in range(1, n+1, 2):
    total += i
print(total)
```

```
 7
```

```
16
```

Print sum of all even numbers from 1 to n
```python
n = int(input())

total = 0
for i in range(2, n+1, 2):
    total += i
print(total)
```

```
 8
```

```
20
```

```python
## count of even numbers
```

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

count = 0
for i in range(2, n+1, 2):
    count += 1
print(count)
```

```
 8
```

```
4
```

```python
print(list(range(1, 11, -1)))
```

```
[]
```