

While Loop – Definition

A while loop is a control flow statement that repeatedly executes a block of code as long as a given condition is true.

It is used when the number of iterations is not known in advance.

Syntax:

```
while condition:  
    # code to execute repeatedly
```

Examples:

1. Print numbers from 1 to 5:

```
i = 1  
while i <= 5:  
    print(i)  
    i += 1
```

2. Print even numbers from 2 to 10:

```
i = 2  
while i <= 10:  
    print(i)  
    i += 2
```

3. Print "Hello" 3 times:

```
count = 1  
while count <= 3:  
    print("Hello")  
    count += 1
```

4. Print numbers in reverse (5 to 1):

```
i = 5  
while i >= 1:  
    print(i)  
    i -= 1
```

5. Sum of first 5 numbers:

```
i = 1  
total = 0  
while i <= 5:  
    total += i  
    i += 1  
print(total)
```

6. Print characters of a string:

```
text = "abc"  
i = 0  
while i < len(text):  
    print(text[i])  
    i += 1
```

7. Password attempt loop:

```
password = ""  
while password != "1234":  
    password = input("Enter password: ")  
print("Access granted!")
```