JÖNKÖPING UNIVERSITY

School of Engineering

WHILE LOOPS IN PYTHON

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LOOPS

```
Enter a number: 12
Enter a number: 2
Enter a number: 5
The sum of the numbers are 19.
```

```
Enter a number or quit: 12
Enter a number or quit: 2
Enter a number or quit: 5
Enter a number or quit: quit
The sum of the numbers are 19.
```

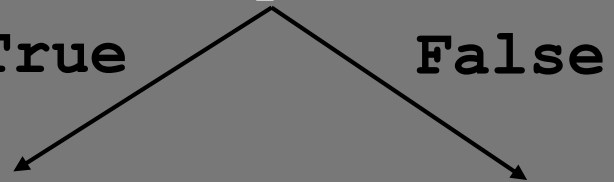
THE WHILE STATEMENT

Syntax

```
while <expr> :
    Statement 1
    Statement 2
    Statement ...
```

How it is executed

1. Evaluate `<expr>`.



2. Execute all statements in the body.
3. Restart on 1.

2. Go to next statement.

WHILE LOOP EXAMPLE

```
# Let's be a computer and execute the statements!
i = 1
while True:
    i = i + 1
i = 25
```

WHILE LOOP EXAMPLE

```
i = 1 # I create the variable i, storing: 1 → 1.
while True:
    i = i + 1
i = 25
```

WHILE LOOP EXAMPLE

```
i = 1
while True: # I evaluate the condition: True → True.
    i = i + 1
i = 25
```

WHILE LOOP EXAMPLE

```
i = 1
while True:
    i = i + 1 # I store a new value in i: i+1 → 1+1 → 2.
i = 25
```

WHILE LOOP EXAMPLE

```
i = 1
while True: # I evaluate the condition: True → True.
    i = i + 1
i = 25
```

WHILE LOOP EXAMPLE

```
i = 1
while True:
    i = i + 1 # I store a new value in i: i+1 → 2+1 → 3.
i = 25
```

WHILE LOOP EXAMPLE

```
i = 1
while True: # I evaluate the condition: True → True.
    i = i + 1
i = 25
```

WHILE LOOP EXAMPLE

```
i = 1
while True:
    i = i + 1 # I store a new value in i: i+1 → 3+1 → 4.
i = 25
```

WHILE LOOP EXAMPLE

```
i = 1
while True: # ...
    i = i + 1
i = 25
```

WHILE LOOP EXAMPLE

Purpose: to calculate the sum of the integers between 1 and 3.

```
sum = 0
i = 1
while i < 4:
    sum = sum + i
    i = i + 1
```

WHILE LOOP EXAMPLE

Purpose: to calculate the sum of the integers between 1 and 3.

```
# Let's be a computer and execute the statements!
sum = 0
i = 1
while i < 4:
    sum = sum + i
    i = i + 1
```

WHILE LOOP EXAMPLE

Purpose: to calculate the sum of the integers between 1 and 3.

```
sum = 0 # I create the variable sum, storing the number 0.
i = 1
while i < 4:
    sum = sum + i
    i = i + 1
```

WHILE LOOP EXAMPLE

Purpose: to calculate the sum of the integers between 1 and 3.

```
sum = 0
i = 1 # I create the variable i, storing the number 1.
while i < 4:
    sum = sum + i
    i = i + 1
```

WHILE LOOP EXAMPLE

Purpose: to calculate the sum of the integers between 1 and 3.

```
sum = 0
i = 1
while i < 4: # I evaluate the condition: i<4 → 1<4 → True.
    sum = sum + i
    i = i + 1
```

WHILE LOOP EXAMPLE

Purpose: to calculate the sum of the integers between 1 and 3.

```
sum = 0
i = 1
while i < 4:
    sum = sum + i # I store a new value in sum: sum+i → 0+1 → 1.
    i = i + 1
```

WHILE LOOP EXAMPLE

Purpose: to calculate the sum of the integers between 1 and 3.

```
sum = 0
i = 1
while i < 4:
    sum = sum + i
    i = i + 1 # I store a new value in i: i+1 → 1+1 → 2.
```

WHILE LOOP EXAMPLE

Purpose: to calculate the sum of the integers between 1 and 3.

```
sum = 0
i = 1
while i < 4: # I evaluate the condition: i<4 → 2<4 → True.
    sum = sum + i
    i = i + 1
```

WHILE LOOP EXAMPLE

Purpose: to calculate the sum of the integers between 1 and 3.

```
sum = 0
i = 1
while i < 4:
    sum = sum + i # I store a new value in sum: sum+i → 1+2 → 3.
    i = i + 1
```

WHILE LOOP EXAMPLE

Purpose: to calculate the sum of the integers between 1 and 3.

```
sum = 0
i = 1
while i < 4:
    sum = sum + i
    i = i + 1 # I store a new value in i: i+1 → 2+1 → 3.
```

WHILE LOOP EXAMPLE

Purpose: to calculate the sum of the integers between 1 and 3.

```
sum = 0
i = 1
while i < 4: # I evaluate the condition: i<4 → 3<4 → True.
    sum = sum + i
    i = i + 1
```

WHILE LOOP EXAMPLE

Purpose: to calculate the sum of the integers between 1 and 3.

```
sum = 0
i = 1
while i < 4:
    sum = sum + i # I store a new value in sum: sum+i → 3+3 → 6.
    i = i + 1
```

WHILE LOOP EXAMPLE

Purpose: to calculate the sum of the integers between 1 and 3.

```
sum = 0
i = 1
while i < 4:
    sum = sum + i
    i = i + 1 # I store a new value in i: i+1 → 3+1 → 4.
```

WHILE LOOP EXAMPLE

Purpose: to calculate the sum of the integers between 1 and 3.

```
sum = 0
i = 1
while i < 4: # I evaluate the condition: i<4 → 4<4 → False.
    sum = sum + i
    i = i + 1
```

WHILE LOOP EXAMPLE

Purpose: to calculate the sum of the integers between 1 and 3.

```
sum = 0
i = 1
while i < 4:
    sum = sum + i
    i = i + 1
# I am done!
```

PRACTICAL DEMONSTRATION

```
Enter a number or quit: 12
Enter a number or quit: 2
Enter a number or quit: 5
Enter a number or quit: quit
The sum of the numbers are 19.
```

PRACTICAL DEMONSTRATION

```
Enter a number or quit: 12
Enter a number or quit: -1
Enter a number or quit: -5
Enter a number or quit: 2
Enter a number or quit: quit
The sum of the positive numbers is 14.
The sum of the negative numbers is -6.
The sum of all the numbers is 8.
```