

Python while Loop

Quick Notes for Beginners

 **Core Idea:** A while loop repeats a block of code as long as its condition is True.

1. Basic Syntax

Syntax

```
while condition:
    statement
```

 **Remember:** The condition is checked before each repetition. If it becomes False, the loop stops.

2. The Three Important Parts

① Initialize

Set the starting value.

② Condition

Decide whether to continue.

③ Update

Change the loop variable.

3. Simple Example

Print 1 to 5

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

 **Output:** 1 2 3 4 5

4. Start, Stop and Step Ideas

Start at 2, stop before 6

```
i = 2
while i < 6:
    print(i)
    i += 1
```

☆ **Step Value:** Use `i += 2` to count by 2. Use `i -= 1` to count backward.

5. while vs for + range()

for + range()

while

Important

Python manages the number sequence automatically.

You control the starting value, condition and update.

while does not directly use range().

6. Common Counting Patterns

Count backward

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

Count by 5

```
i = 5
while i <= 25:
```

```
print(i)
i += 5
```

Calculate a sum

```
i = 1
total = 0
while i <= 10:
    total += i
    i += 1
print(total)
```

7. Practice Questions

1. Print numbers from 1 to 10.
2. Print numbers from 10 to 1.
3. Print even numbers from 2 to 20.
4. Print odd numbers from 1 to 19.
5. Print 5, 10, 15, 20, 25.
6. Print 20, 18, 16, 14, 12, 10.
7. Find the sum of numbers from 1 to 10.
8. Print multiples of 3 from 3 to 30.

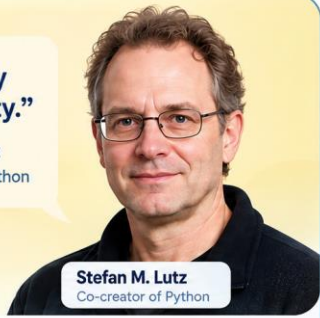
 **Final Rule:** Start → Check → Execute → Update → Repeat. Always make sure the loop can eventually stop.



“Beautiful is better than ugly.”
— Guido van Rossum
Creator of Python



Happy Coding!



“Practicality beats purity.”
— Stefan M. Lutz
Co-creator of Python

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