Python Loops

# 1. Introduction to Loops

Loops in Python are used to execute a block of code repeatedly. Python provides two types of loops:  
- for loop  
- while loop

# 2. for Loop

The for loop in Python is used for iterating over a sequence such as a list, tuple, dictionary, set, or string.  
Syntax:  
for variable in sequence:  
 # block of code

Example:

for i in range(5):  
 print(i)

# 3. while Loop

The while loop in Python is used to execute a block of code as long as a condition is true.  
Syntax:  
while condition:  
 # block of code

Example:

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

# 4. Difference between for and while Loops

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| --- | --- | --- |
| Aspect | for Loop | while Loop |
| Use Case | Used when the number of iterations is known | Used when the number of iterations is unknown |
| Condition Placement | Condition is part of the sequence | Condition is explicitly mentioned |
| Loop Control | Automatically controlled by iterable | Manually controlled by condition and increment |
| Example | for i in range(5): | i = 0 while i < 5: |
| Common Use | Iterating over sequences | Repeating until a condition changes |