

Python Programming Fundamentals Cheat Sheet

Package/Method	Description	Syntax and Code Example
AND	Returns `True` if both statement1 and statement2 are `True`. Otherwise, returns `False`.	<p>Syntax:</p> <pre>1. 1 1. statement1 and statement2</pre> <p>Copied!</p> <p>Example:</p> <pre>1. 1 2. 2 3. 3 4. 4 5. 5 6. 6 7. 7 8. 8 9. 9 1. marks = 90 2. attendance_percentage = 87 3. 4. if marks >= 80 and attendance_percentage >= 85: 5. print("qualify for honors") 6. else: 7. print("Not qualified for honors") 8. 9. # Output = qualify for honors</pre> <p>Copied!</p>
		<p>Syntax:</p> <pre>1. 1 1. class ClassName: # Class attributes and methods</pre> <p>Copied!</p> <p>Example:</p> <pre>1. 1 2. 2 3. 3 4. 4 1. class Person: 2. def __init__(self, name, age): 3. self.name = name 4. self.age = age</pre> <p>Copied!</p>
Class Definition	Defines a blueprint for creating objects and defining their attributes and behaviors.	<p>Syntax:</p> <pre>1. 1 1. def function_name(parameters): # Function body</pre> <p>Copied!</p> <p>Example:</p> <pre>1. 1 1. def greet(name): print("Hello,", name)</pre> <p>Copied!</p>
Define Function	A `function` is a reusable block of code that performs a specific task or set of tasks when called.	<p>Syntax:</p> <pre>1. 1 1. variable1 == variable2</pre> <p>Copied!</p> <p>Example 1:</p> <pre>1. 1 1. 5 == 5</pre> <p>Copied!</p> <p>returns True</p> <p>Example 2:</p> <pre>1. 1 1. age = 25 age == 30</pre> <p>Copied!</p> <p>returns False</p>
Equal(==)	Checks if two values are equal.	

Syntax:

- 1. 1
- 1. for variable in sequence: # Code to repeat

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Example 1:

- 1. 1
- 2. 2
- 1. for num in range(1, 10):
- 2. print(num)

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Example 2:

- 1. 1
- 2. 2
- 3. 3
- 1. fruits = ["apple", "banana", "orange", "grape", "kiwi"]
- 2. for fruit in fruits:
- 3. print(fruit)

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Syntax:

- 1. 1
- 1. function_name(arguments)

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Example:

- 1. 1
- 1. greet("Alice")

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Syntax:

- 1. 1
- 1. variable1 >= variable2

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Example 1:

- 1. 1
- 1. 5 >= 5 and 9 >= 5

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returns True

Example 2:

- 1. 1
- 2. 2
- 3. 3
- 1. quantity = 105
- 2. minimum = 100
- 3. quantity >= minimum

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returns True

Syntax:

- 1. 1
- 1. variable1 > variable2

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Example 1: 9 > 6

returns True

Example 2:

- 1. 1
- 2. 2
- 3. 3
- 1. age = 20
- 2. max_age = 25
- 3. age > max_age

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For Loop

A `for` loop repeatedly executes a block of code for a specified number of iterations or over a sequence of elements (list, range, string, etc.).

Function Call

A function call is the act of executing the code within the function using the provided arguments.

Greater Than or Equal To(>=) Checks if the value of variable1 is greater than or equal to variable2.

Greater Than(>)

Checks if the value of variable1 is greater than variable2.

returns False

Syntax:

1. 1

1. if condition: #code block for if statement

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Example:

1. 1
2. 21. if temperature > 30:
2. print("It's a hot day!")

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Syntax:

1. 1
2. 2
3. 3
4. 4
5. 5
6. 6
7. 7
8. 81. if condition1:
2. # Code if condition1 is True
3.
4. elif condition2:
5. # Code if condition2 is True
6.
7. else:
8. # Code if no condition is True

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Example:

1. 1
2. 2
3. 3
4. 4
5. 5
6. 6
7. 7
8. 8
9. 91. score = 85 # Example score
2. if score >= 90:
3. print("You got an A!")
4. elif score >= 80:
5. print("You got a B.")
6. else:
7. print("You need to work harder.")
8.
9. # Output = You got a B.

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Syntax:

1. 1
2. 21. if condition: # Code, if condition is True
2. else: # Code, if condition is False

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Example:

1. 1
2. 2
3. 3
4. 41. if age >= 18:
2. print("You're an adult.")
3. else:
4. print("You're not an adult yet.")

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Syntax:

1. 1

1. variable1 <= variable2

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Example 1:

1. 1

1. 5 <= 5 and 3 <= 5

If Statement

Executes code block `if` the condition is `True`.

If-Elif-Else

Executes the first code block if condition1 is `True`, otherwise checks condition2, and so on. If no condition is `True`, the else block is executed.

If-Else Statement

Executes the first code block if the condition is `True`, otherwise the second block.

Less Than or Equal To(<=)

Checks if the value of variable1 is less than or equal to variable2.

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returns True

Example 2:

```
1. 1
2. 2
3. 3

1. size = 38
2. max_size = 40
3. size <= max_size
```

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returns True

Syntax:

```
1. 1

1. variable1 < variable2
```

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Example 1:

```
1. 1

1. 4 < 6
```

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Less Than(<) Checks if the value of variable1 is less than variable2.

returns True

Example 2:

```
1. 1
2. 2
3. 3

1. score = 60
2. passing_score = 65
3. score < passing_score
```

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returns True

Syntax:

```
1. 1
2. 2
3. 3
4. 4
5. 5
6. 6
7. 7

1. for: # Code to repeat
2.     if # boolean statement
3.         break
4.
5. for: # Code to repeat
6.     if # boolean statement
7.         continue
```

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Example 1:

Loop Controls `break` exits the loop prematurely. `continue` skips the rest of the current iteration and moves to the next iteration.

```
1. 1
2. 2
3. 3
4. 4

1. for num in range(1, 6):
2.     if num == 3:
3.         break
4.     print(num)
```

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Example 2:

```
1. 1
2. 2
3. 3
4. 4

1. for num in range(1, 6):
2.     if num == 3:
3.         continue
4.     print(num)
```

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NOT Returns `True` if variable is `False`, and vice versa.

Syntax:

```
1. 1
```

		<div>about:blank</div> <div>1. !variable</div> <div>Copied!</div> <div>Example:</div> <div>1. 1</div> <div>1. !isLocked</div> <div>Copied!</div> <div>returns True if the variable is False (i.e., unlocked).</div> <div>Syntax:</div> <div>1. 1</div> <div>1. variable1 != variable2</div> <div>Copied!</div> <div>Example:</div> <div>1. 1</div> <div>2. 2</div> <div>3. 3</div> <div>1. a = 10</div> <div>2. b = 20</div> <div>3. a != b</div> <div>Copied!</div> <div>returns True</div> <div>Example 2:</div> <div>1. 1</div> <div>2. 2</div> <div>1. count=0</div> <div>2. count != 0</div> <div>Copied!</div> <div>returns False</div> <div>Syntax:</div> <div>1. 1</div> <div>1. object_name = ClassName(arguments)</div> <div>Copied!</div> <div>Example:</div> <div>1. 1</div> <div>1. person1 = Person("Alice", 25)</div> <div>Copied!</div> <div>Syntax:</div> <div>1. 1</div> <div>1. statement1 statement2</div> <div>Copied!</div> <div>Example:</div> <div>1. 1</div> <div>2. 2</div> <div>1. "Farewell Party Invitation"</div> <div>2. Grade = 12 grade == 11 or grade == 12</div> <div>Copied!</div> <div>returns True</div> <div>Syntax:</div> <div>1. 1</div> <div>2. 2</div> <div>3. 3</div> <div>1. range(stop)</div> <div>2. range(start, stop)</div> <div>3. range(start, stop, step)</div> <div>Copied!</div> <div>Example:</div> <div>1. 1</div> <div>2. 2</div> <div>3. 3</div> <div>1. range(5) #generates a sequence of integers from 0 to 4.</div>
Not Equal(!=)	Checks if two values are not equal.	
Object Creation	Creates an instance of a class (object) using the class constructor.	
OR	Returns `True` if either statement1 or statement2 (or both) are `True`. Otherwise, returns `False`.	
range()	Generates a sequence of numbers within a specified range.	

```
2. range(2, 10) #generates a sequence of integers from 2 to 9.
3. range(1, 11, 2) #generates odd integers from 1 to 9.
```

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Syntax:

```
1. 1
1. return value
```

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Example:

```
1. 1
2. 2

1. def add(a, b): return a + b
2. result = add(3, 5)
```

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Syntax:

```
1. 1
2. 2

1. try: # Code that might raise an exception except
2. ExceptionType: # Code to handle the exception
```

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Example:

```
1. 1
2. 2
3. 3
4. 4

1. try:
2.     num = int(input("Enter a number: "))
3. except ValueError:
4.     print("Invalid input. Please enter a valid number.")
```

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Syntax:

```
1. 1
2. 2
3. 3

1. try: # Code that might raise an exception except
2. ExceptionType: # Code to handle the exception
3. else: # Code to execute if no exception occurs
```

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Example:

```
1. 1
2. 2
3. 3
4. 4
5. 5
6. 6

1. try:
2.     num = int(input("Enter a number: "))
3. except ValueError:
4.     print("Invalid input. Please enter a valid number")
5. else:
6.     print("You entered:", num)
```

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Syntax:

```
1. 1
2. 2
3. 3

1. try: # Code that might raise an exception except
2. ExceptionType: # Code to handle the exception
3. finally: # Code that always executes
```

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Example:

```
1. 1
2. 2
3. 3
4. 4
5. 5
6. 6
7. 7

1. try:
2.     file = open("data.txt", "r")
3.     data = file.read()
4. except FileNotFoundError:
5.     print("File not found.")
6. finally:
```

Return Statement

`Return` is a keyword used to send a value back from a function to its caller.

Try-Except Block

Tries to execute the code in the try block. If an exception of the specified type occurs, the code in the except block is executed.

Try-Except with Else Block

Code in the `else` block is executed if no exception occurs in the try block.

Try-Except with Finally Block

Code in the `finally` block always executes, regardless of whether an exception occurred.

```
7.     file.close()
```

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Syntax:

```
1. 1
1. while condition: # Code to repeat
```

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While Loop

A `while` loop repeatedly executes a block of code as long as a specified condition remains `True`.

Example:

```
1. 1
2. 2

1. count = 0 while count < 5:
2.     print(count) count += 1
```

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