

# 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> <div>Copied!</div> <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 &gt;= 80 and attendance_percentage &gt;= 85: 5.     print("qualify for honors") 6. else: 7.     print("Not qualified for honors") 8. 9. # Output = qualify for honors</pre> <div>Copied!</div>
		<p>Syntax:</p> <pre>1. 1  1. class ClassName: # Class attributes and methods</pre> <div>Copied!</div> <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> <div>Copied!</div>
Class Definition	Defines a blueprint for creating objects and defining their attributes and behaviors.	
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. def function_name(parameters): # Function body</pre> <div>Copied!</div> <p>Example:</p> <pre>1. 1  1. def greet(name): print("Hello,", name)</pre> <div>Copied!</div>
Equal(==)	Checks if two values are equal.	<p>Syntax:</p> <pre>1. 1  1. variable1 == variable2</pre> <div>Copied!</div> <p>Example 1:</p> <pre>1. 1  1. 5 == 5</pre> <div>Copied!</div> <p>returns True</p> <p>Example 2:</p> <pre>1. 1</pre>

```
1. age = 25 age == 30
```

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returns False

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
```

Copied!

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

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.

Example 2:

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

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

Copied!

returns False

Syntax:

```
1. 1

1. if condition: #code block for if statement
```

Copied!

Example:

```
1. 1
2. 2

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

Copied!

Syntax:

```
1. 1
2. 2
3. 3
4. 4
5. 5
6. 6
7. 7
8. 8

1. 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. 9

1. 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.
```

Copied!

Syntax:

```
1. 1
2. 2

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

Copied!

Example:

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

1. if age >= 18:
2.     print("You're an adult.")
```

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.

```
3. else:
4.     print("You're not an adult yet.")
```

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Syntax:

```
1. 1

1. variable1 <= variable2
```

Copied!

Example 1:

```
1. 1

1. 5 <= 5 and 3 <= 5
```

Copied!

returns True

Example 2:

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

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

Copied!

returns True

Syntax:

```
1. 1

1. variable1 < variable2
```

Copied!

Example 1:

```
1. 1

1. 4 < 6
```

Copied!

returns True

Example 2:

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

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

Copied!

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:

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

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

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

```
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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Syntax:

```
1. 1

1. !variable
```

Copied!

Example:

```
1. 1

1. !isLocked
```

Copied!

returns True if the variable is False (i.e., unlocked).

Syntax:

```
1. 1

1. variable1 != variable2
```

Copied!

Example:

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

1. a = 10
2. b = 20
3. a != b
```

Copied!

returns True

Example 2:

```
1. 1
2. 2

1. count=0
2. count != 0
```

Copied!

returns False

Syntax:

```
1. 1

1. object_name = ClassName(arguments)
```

Copied!

Example:

```
1. 1

1. person1 = Person("Alice", 25)
```

Copied!

Syntax:

```
1. 1

1. statement1 || statement2
```

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

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'.

Example:

- 1
  - 2
- 
- "Farewell Party Invitation"
  - Grade = 12 grade == 11 or grade == 12

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returns True

Syntax:

- 1
  - 2
  - 3
- 
- range(stop)
  - range(start, stop)
  - range(start, stop, step)

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Example:

- 1
  - 2
  - 3
- 
- range(5) #generates a sequence of integers from 0 to 4.
  - range(2, 10) #generates a sequence of integers from 2 to 9.
  - range(1, 11, 2) #generates odd integers from 1 to 9.

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Syntax:

- 1
- 
- return value

Copied!

Example:

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

Copied!

Syntax:

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

Copied!

Example:

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

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Syntax:

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

Copied!

Example:

- 1
- 2
- 3
- 4
- 5

range()

Generates a sequence of numbers within a specified range.

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.

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)
```

Copied!

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:
7.     file.close()
```

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Syntax:

```
1. 1

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

Copied!

Example:

```
1. 1
2. 2

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

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Try-Except with  
Finally Block

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

While Loop

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



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