

## 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'.	Syntax:  statement1 and statement2  Example:  <pre>marks = 90 attendance_percentage = 87 if marks &gt;= 80 and attendance_percentage &gt;= 85:     print("qualify for honors") else:     print("Not qualified for honors") # Output = qualify for honors</pre>
Class Definition	Defines a blueprint for creating objects and defining their attributes and behaviors.	Syntax:  class ClassName: # Class attributes and methods  Example:  <pre>class Person:     def __init__(self, name, age):         self.name = name         self.age = age</pre>
Define Function	A 'function' is a reusable block of code that performs a specific task or set of tasks when called.	Syntax:  def function_name(parameters): # Function body  Example:  <pre>def greet(name): print("Hello,", name)</pre>
Equal(==)	Checks if two values are equal.	Syntax:  variable1 == variable2  Example 1:  5 == 5  returns True  Example 2:  age = 25 age == 30  returns False
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.).	Syntax:  for variable in sequence: # Code to repeat  Example 1:  <pre>for num in range(1, 10):     print(num)</pre> Example 2:  <pre>fruits = ["apple", "banana", "orange", "grape", "kiwi"] for fruit in fruits:     print(fruit)</pre>
Function Call	A function call is the act of executing the code within the function using the provided arguments.	Syntax:  function_name(arguments)  Example:  greet("Alice")
Greater Than or Equal To(>=)	Checks if the value of variable1 is greater than or equal to variable2.	Syntax:  variable1 >= variable2  Example 1:  5 >= 5 and 9 >= 5  returns True  Example 2:  <pre>quantity = 105 minimum = 100 quantity &gt;= minimum</pre>

		returns True
Greater Than(>)	Checks if the value of variable1 is greater than variable2.	<p>Syntax:</p> <pre>variable1 &gt; variable2</pre> <p>Example 1: 9 &gt; 6</p> <p>returns True</p> <p>Example 2:</p> <pre>age = 20 max_age = 25 age &gt; max_age</pre> <p>returns False</p>
If Statement	Executes code block 'if' the condition is 'True'.	<p>Syntax:</p> <pre>if condition: #code block for if statement</pre> <p>Example:</p> <pre>if temperature &gt; 30:     print("It's a hot day!")</pre>
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.	<p>Syntax:</p> <pre>if condition1:     # Code if condition1 is True elif condition2:     # Code if condition2 is True else:     # Code if no condition is True</pre> <p>Example:</p> <pre>score = 85 # Example score if score &gt;= 90:     print("You got an A!") elif score &gt;= 80:     print("You got a B.") else:     print("You need to work harder.") # Output = You got a B.</pre>
If-Else Statement	Executes the first code block if the condition is 'True', otherwise the second block.	<p>Syntax:</p> <pre>if condition: # Code, if condition is True else: # Code, if condition is False</pre> <p>Example:</p> <pre>if age &gt;= 18:     print("You're an adult.") else:     print("You're not an adult yet.")</pre>
Less Than or Equal To(<=)	Checks if the value of variable1 is less than or equal to variable2.	<p>Syntax:</p> <pre>variable1 &lt;= variable2</pre> <p>Example 1:</p> <pre>5 &lt;= 5 and 3 &lt;= 5</pre> <p>returns True</p> <p>Example 2:</p> <pre>size = 38 max_size = 40 size &lt;= max_size</pre> <p>returns True</p>
Less Than(<)	Checks if the value of variable1 is less than variable2.	<p>Syntax:</p> <pre>variable1 &lt; variable2</pre> <p>Example 1:</p> <pre>4 &lt; 6</pre> <p>returns True</p> <p>Example 2:</p> <pre>score = 60 passing_score = 65 score &lt; passing_score</pre> <p>returns True</p>

Loop Controls	'break' exits the loop prematurely. 'continue' skips the rest of the current iteration and moves to the next iteration.	<p>Syntax:</p> <pre> for: # Code to repeat     if # boolean statement         break for: # Code to repeat     if # boolean statement         continue </pre> <p>Example 1:</p> <pre> for num in range(1, 6):     if num == 3:         break     print(num) </pre> <p>Example 2:</p> <pre> for num in range(1, 6):     if num == 3:         continue     print(num) </pre>
NOT	Returns 'True' if variable is 'False', and vice versa.	<p>Syntax:</p> <pre>!variable</pre> <p>Example:</p> <pre>!isLocked</pre> <p>returns True if the variable is False (i.e., unlocked).</p>
Not Equal(!=)	Checks if two values are not equal.	<p>Syntax:</p> <pre>variable1 != variable2</pre> <p>Example:</p> <pre> a = 10 b = 20 a != b </pre> <p>returns True</p> <p>Example 2:</p> <pre> count=0 count != 0 </pre> <p>returns False</p>
Object Creation	Creates an instance of a class (object) using the class constructor.	<p>Syntax:</p> <pre>object_name = ClassName(arguments)</pre> <p>Example:</p> <pre>person1 = Person("Alice", 25)</pre>
OR	Returns 'True' if either statement1 or statement2 (or both) are 'True'. Otherwise, returns 'False'.	<p>Syntax:</p> <pre>statement1    statement2</pre> <p>Example:</p> <pre> "Farewell Party Invitation" Grade = 12 grade == 11 or grade == 12 </pre> <p>returns True</p>
range()	Generates a sequence of numbers within a specified range.	<p>Syntax:</p> <pre> range(stop) range(start, stop) range(start, stop, step) </pre> <p>Example:</p> <pre> 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. </pre>
Return Statement	'Return' is a keyword used to send a value back from a function to its caller.	<p>Syntax:</p> <pre>return value</pre> <p>Example:</p> <pre> def add(a, b): return a + b result = add(3, 5) </pre>
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	<p>Syntax:</p> <pre>try: # Code that might raise an exception except</pre>

	executed.	<p>ExceptionType: # Code to handle the exception</p> <p>Example:</p> <pre>try:     num = int(input("Enter a number: ")) except ValueError:     print("Invalid input. Please enter a valid number.")</pre>
Try-Except with Else Block	Code in the 'else' block is executed if no exception occurs in the try block.	<p>Syntax:</p> <pre>try: # Code that might raise an exception except ExceptionType: # Code to handle the exception else: # Code to execute if no exception occurs</pre> <p>Example:</p> <pre>try:     num = int(input("Enter a number: ")) except ValueError:     print("Invalid input. Please enter a valid number") else:     print("You entered:", num)</pre>
Try-Except with Finally Block	Code in the 'finally' block always executes, regardless of whether an exception occurred.	<p>Syntax:</p> <pre>try: # Code that might raise an exception except ExceptionType: # Code to handle the exception finally: # Code that always executes</pre> <p>Example:</p> <pre>try:     file = open("data.txt", "r")     data = file.read() except FileNotFoundError:     print("File not found.") finally:     file.close()</pre>
While Loop	A 'while' loop repeatedly executes a block of code as long as a specified condition remains 'True'.	<p>Syntax:</p> <pre>while condition: # Code to repeat</pre> <p>Example:</p> <pre>count = 0 while count &lt; 5:     print(count)     count += 1</pre>



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