

# Python cheat sheet

(COMMONLY USED CODE SNIPPETS)

## 1. Basic Python Syntax:

Task	Code
Print to Console	<code>print("Hello, World!")</code>
Variable Assignment	<code>x = 10</code>
Commenting	<code># This is a comment</code>
Multi-line Comment	<code>''' This is a multi-line comment '''</code>
Input from User	<code>name = input("Enter your name: ")</code>
Check Data Type	<code>type(x)</code>
Type Casting	<code>int("10"), float("10.5"), str(100)</code>

## 2. Data Structures:

Task	Code
List (Array)	<code>my_list = [1, 2, 3, 4, 5]</code>
Access List Item	<code>my_list[0]</code>
List Slicing	<code>my_list[1:4]</code>
Add Item to List	<code>my_list.append(6)</code>
Remove Item from List	<code>my_list.remove(3)</code>
Tuple	<code>my_tuple = (1, 2, 3, 4)</code>
Set	<code>my_set = {1, 2, 3, 4}</code>
Dictionary (HashMap)	<code>my_dict = {"key1": "value1", "key2": "value2"}</code>
Access Dictionary Value	<code>my_dict["key1"]</code>
Add Key-Value Pair	<code>my_dict["key3"] = "value3"</code>

### 3. Control Flow:

Task	Code
<b>If Statement</b>	<code>if x &gt; 10: print("x is greater than 10")</code>
<b>If-Else Statement</b>	<code>if x &gt; 10: print("x is greater than 10") else: print("x is less than or equal to 10")</code>
<b>Elif Statement</b>	<code>if x &gt; 10: print("x is greater") elif x == 10: print("x is 10") else: print("x is smaller")</code>
<b>For Loop</b>	<code>for i in range(5): print(i)</code>
<b>While Loop</b>	<code>while x &lt; 10: x += 1</code>
<b>Break</b>	<code>for i in range(5): if i == 3: break</code>
<b>Continue</b>	<code>for i in range(5): if i == 3: continue</code>

### 4. Functions:

Task	Code
<b>Define Function</b>	<code>def my_function(): print("Hello from function!")</code>
<b>Function with Parameters</b>	<code>def greet(name): print(f"Hello, {name}!")</code>
<b>Return Value from Function</b>	<code>def add(a, b): return a + b</code>
<b>Lambda Function</b>	<code>add = lambda a, b: a + b</code>

### 5. String Manipulation:

Task	Code
<b>Concatenate Strings</b>	<code>full_name = "John" + " " + "Doe"</code>
<b>String Length</b>	<code>len("Hello")</code>
<b>Convert to Upper Case</b>	<code>"hello".upper()</code>
<b>Convert to Lower Case</b>	<code>"HELLO".lower()</code>
<b>Substring</b>	<code>"Hello, World!"[7:12]</code>
<b>Find Substring</b>	<code>"Hello, World!".find("World")</code>
<b>Replace Substring</b>	<code>"Hello, World!".replace("World", "Python")</code>
<b>Split String</b>	<code>"Hello, World!".split(",")</code>

## 6. File Handling:

Task	Code
Open a File	<code>file = open("example.txt", "r")</code>
Read File	<code>content = file.read()</code>
Read Line by Line	<code>lines = file.readlines()</code>
Write to a File	<code>file = open("example.txt", "w"); file.write("Hello, World!")</code>
Close a File	<code>file.close()</code>

## 7. List Comprehension:

Task	Code
Basic List Comprehension	<code>[x**2 for x in range(5)]</code>
List Comprehension with Condition	<code>[x for x in range(10) if x % 2 == 0]</code>

## 8. Error Handling:

Task	Code
Try-Except Block	<code>try: x = 10 / 0 except ZeroDivisionError: print("Cannot divide by zero")</code>
Finally Block	<code>try: x = 10 / 0 except ZeroDivisionError: print("Error!") finally: print("This runs always")</code>

## 9. Working with Libraries:

Task	Code
Importing a Library	<code>import math</code>
Using a Library Function	<code>math.sqrt(16)</code>
Install a Library (using pip)	<code>pip install pandas</code>
Import Specific Function	<code>from math import sqrt</code>

## 10. NumPy for Numerical Operations:

Task	Code
Import NumPy	<code>import numpy as np</code>
Create NumPy Array	<code>arr = np.array([1, 2, 3, 4, 5])</code>
Array Reshaping	<code>arr.reshape(5, 1)</code>
Array Operations	<code>arr + 10, arr * 2</code>
Array Slicing	<code>arr[1:4]</code>
Array Statistics	<code>np.mean(arr), np.median(arr), np.std(arr)</code>

## 11. Pandas for Data Handling:

Task	Code
Import Pandas	<code>import pandas as pd</code>
Create DataFrame	<code>df = pd.DataFrame({"Name": ["Alice", "Bob"], "Age": [25, 30]})</code>
Read CSV File	<code>df = pd.read_csv("data.csv")</code>
View Data	<code>df.head()</code>
Basic Statistics	<code>df.describe()</code>
Filter Data	<code>df[df["Age"] &gt; 25]</code>
Group By	<code>df.groupby("Age").mean()</code>

## 12. Matplotlib for plotting:

Task	Code
Import Matplotlib	<code>import matplotlib.pyplot as plt</code>
Simple Plot	<code>plt.plot([1, 2, 3], [4, 5, 6]); plt.show()</code>
Bar Plot	<code>plt.bar([1, 2, 3], [4, 5, 6]); plt.show()</code>
Histogram	<code>plt.hist([1, 2, 2, 3, 4, 5]); plt.show()</code>
Scatter Plot	<code>plt.scatter([1, 2, 3], [4, 5, 6]); plt.show()</code>