

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

4. Functions:

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

5. String Manipulation:

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