Python Syntax Cheat Sheet

1. Variables and Data Types

```
x = 10              # int
y = 3.14            # float
name = "Naveen"     # string
is_active = True    # boolean
nothing = None      # null value
```

2. Strings

```
s = "Hello"
print(s[0])               # H
print(s.lower())          # hello
print(s.upper())          # HELLO
print(len(s))             # 5
print("Hi" in s)          # False
print(s + " World")       # Hello World
```

3. Conditionals

```
age = 18

if age >= 18:
    print("Adult")
elif age >= 13:
    print("Teenager")
else:
    print("Child")
```

4. Lists and Tuples

```
# List - Mutable
fruits = ["apple", "banana", "cherry"]
fruits.append("mango")
print(fruits[0])          # apple

# Tuple - Immutable
numbers = (1, 2, 3)
print(numbers[1])         # 2
```

5. Dictionary and Sets

Python Syntax Cheat Sheet

```
# Dictionary - Key-value pairs
person = {"name": "Naveen", "age": 20}
print(person["name"])
person["age"] = 21

# Set - Unique elements
nums = {1, 2, 3, 1, 2}
print(nums)               # {1, 2, 3}
nums.add(4)
```

6. Loops

```
# For loop
for i in range(5):
    print(i)

# While loop
n = 0
while n < 5:
    print(n)
    n += 1
```

7. Functions and Recursion

```
def greet(name):
    return "Hello " + name

print(greet("Naveen"))

# Recursive function
def factorial(n):
    if n == 0:
        return 1
    return n * factorial(n - 1)

print(factorial(5))       # 120
```

8. File I/O

```
# Writing to file
with open("data.txt", "w") as f:
    f.write("Hello, file!")

# Reading from file
with open("data.txt", "r") as f:
    content = f.read()
```

```
    print(content)
```

9. OOP in Python

```
class Person:
    def __init__(self, name, age):
        self.name = name
        self.age = age

    def greet(self):
        print("Hello, my name is", self.name)

# Object creation
p = Person("Naveen", 20)
p.greet()                    # Hello, my name is Naveen
```

Bonus: Useful One-Liners

```
# List Comprehension
squares = [x*x for x in range(5)]

# Lambda Function
add = lambda a, b: a + b

# Dictionary iteration
for key, value in person.items():
    print(key, value)
```