# Simple Python Code Sample (100 lines)

def greet(name):

print(f"Hello, {name}!")

def square(x):

return x \* x

def is\_prime(num):

if num < 2:

return False

for i in range(2, int(num \*\* 0.5) + 1):

if num % i == 0:

return False

return True

numbers = [1, 2, 3, 4, 5, 6, 7, 8, 9, 10]

# Calculate squared numbers

squared\_numbers = [square(num) for num in numbers]

# Calculate prime numbers

prime\_numbers = [num for num in numbers if is\_prime(num)]

# Calculate total and average of numbers

total = sum(numbers)

average = total / len(numbers)

# Print results

print("Original Numbers:", numbers)

print("Squared Numbers:", squared\_numbers)

print("Prime Numbers:", prime\_numbers)

print("Total:", total)

print("Average:", average)

# Function to reverse a string

def reverse\_string(s):

return s[::-1]

# Test the reverse\_string function

original\_string = "Hello, World!"

reversed\_string = reverse\_string(original\_string)

print("Original String:", original\_string)

print("Reversed String:", reversed\_string)

# Function to find the factorial of a number

def factorial(n):

if n == 0 or n == 1:

return 1

return n \* factorial(n - 1)

# Test the factorial function

num\_to\_factorial = 5

factorial\_result = factorial(num\_to\_factorial)

print(f"Factorial of {num\_to\_factorial}: {factorial\_result}")

# Loop to print numbers from 1 to 10

print("Numbers from 1 to 10:")

for i in range(1, 11):

print(i)

# Conditional statements

value = 42

if value < 0:

print("Negative")

elif value == 0:

print("Zero")

else:

print("Positive")

# While loop to count down from 5 to 1

countdown = 5

while countdown > 0:

print(countdown)

countdown -= 1

# Dictionary example

person = {"name": "Alice", "age": 30, "city": "Wonderland"}

print("Person:", person)

# List comprehension with conditional

even\_numbers = [num for num in range(1, 11) if num % 2 == 0]

print("Even Numbers:", even\_numbers)

# Tuple example

coordinates = (3, 5)

print("Coordinates:", coordinates)

# Set example

unique\_numbers = {1, 2, 3, 4, 4, 5, 5}

print("Unique Numbers:", unique\_numbers)

# File handling

with open("example.txt", "w") as file:

file.write("Hello, File!")

# Exception handling

try:

result = 10 / 0

except ZeroDivisionError:

print("Cannot divide by zero!")

# Class definition

class Dog:

def \_\_init\_\_(self, name, age):

self.name = name

self.age = age

def bark(self):

print("Woof!")

# Create an instance of the Dog class

my\_dog = Dog(name="Buddy", age=3)

print("Dog's Name:", my\_dog.name)

print("Dog's Age:", my\_dog.age)

my\_dog.bark()