1. Create a tuple with 5 numbers and print the first and last elements.

nums = (10, 20, 30, 40, 50)

print(nums[0], nums[-1])

1. Write a Python program to check if an element exists in a tuple.

t = (1, 2, 3)

print(2 in t)

1. How can you find the length of a tuple?

t = (5, 6, 7)

print(len(t))

1. Write a program to convert a tuple into a list.

t = (8, 9, 10)

lst = list(t)

print(lst)

1. Write a Python code to repeat a tuple 3 times.

t = (1, 2)

print(t \* 3)

1. What happens if you try to change an element of a tuple? Explain with example.

t = (1, 2, 3)

# t[0] = 10 # This will raise TypeError because tuples are immutable

1. Write a Python program to concatenate two tuples.

a = (1, 2)

b = (3, 4)

c = a + b

print(c)

1. How can you slice a tuple to get its first three elements?

t = (10, 20, 30, 40, 50)

print(t[:3])

1. Create a set with strings and print all elements.

s = {'apple', 'banana', 'cherry'}

print(s)

1. Write a program to add multiple elements to a set using update().

s = {1, 2}

s.update([3, 4, 5])

print(s)

1. Write a program to check if an element is present in a set.

s = {10, 20, 30}

print(20 in s)

1. Write a Python code to find the difference between two sets {1, 2, 3, 4} and {3, 4, 5}.

a = {1, 2, 3, 4}

b = {3, 4, 5}

print(a - b)

1. What is the symmetric difference of two sets? Write a program for it.

a = {1, 2, 3}

b = {3, 4, 5}

print(a ^ b)

1. Can a set contain duplicate elements? Explain with example.

s = {1, 2, 2, 3}

print(s) # duplicates are removed automatically

1. How do you clear all elements from a set?

s = {1, 2, 3}

s.clear()

print(s)

1. Write a program to copy a set to another set.

a = {10, 20}

b = a.copy()

print(b)

1. Write a program to compare two integers and print if they are equal or not.

a = 5

b = 5

if a == b:

print("Equal")

else:

print("Not equal")

1. What is the output of 10 != 5?

print(10 != 5) # True

1. How do you check if a number is less than or equal to another number?

a = 7

b = 10

print(a <= b)

1. Write a program to compare two strings entered by the user using ==.

s1 = input("Enter first string: ")

s2 = input("Enter second string: ")

print(s1 == s2)

1. What is the difference between > and >= operators?

# > means greater than; >= means greater than or equal to

1. Write a program to check if a is not equal to b.

a = 3

b = 4

print(a != b)

1. Write a program to compare the lengths of two input strings.

s1 = input("Enter first string: ")

s2 = input("Enter second string: ")

if len(s1) == len(s2):

print("Lengths are equal")

else:

print("Lengths are not equal")

1. Write a program to check if the first number is greater than the second and print an appropriate message.

a = int(input("Enter first number: "))

b = int(input("Enter second number: "))

if a > b:

print("First number is greater")

else:

print("First number is not greater")

1. What will be the output of True or False?

print(True or False) # True

1. Write a Python condition using and that checks if a number is positive and less than 100.

num = 50

print(num > 0 and num < 100)

1. Write a program to check if a character entered by the user is a vowel or consonant using logical operators.

ch = input("Enter a character: ").lower()

if ch in 'aeiou':

print("Vowel")

else:

print("Consonant")

1. How does the not operator work? Write an example.

a = True

print(not a) # False

1. Write a Python code using or to check if a number is divisible by 3 or 5.

n = 15

print(n % 3 == 0 or n % 5 == 0)

1. Write a Python program to check if a number is between 50 and 100 (inclusive) using logical operators.

num = 75

print(num >= 50 and num <= 100)

1. Explain how and, or, not can be used in a single condition.

# Example: check if n is positive and (even or odd) but not equal to 0

n = 4

print(n > 0 and (n % 2 == 0 or n % 2 == 1) and not n == 0)

1. Write a program using not to check if a string is not empty.

s = "hello"

if not s == "":

print("String is not empty")

1. Write a program to take a number from the user and print its square.

n = int(input("Enter a number: "))

print(n \* n)

1. How do you take a floating-point number as input and print it?

f = float(input("Enter a float number: "))

print(f)

1. Write a program to take a space-separated list of integers from the user and print the maximum number.

nums = list(map(int, input("Enter numbers: ").split()))

print(max(nums))

1. Write a Python program to read a string from the user and print its length.

s = input("Enter a string: ")

print(len(s))

1. Write a program to input two numbers and print their product.

a = int(input("Enter first number: "))

b = int(input("Enter second number: "))

print(a \* b)

1. Write a program to input a number and check if it is positive, negative, or zero.

n = int(input("Enter a number: "))

if n > 0:

print("Positive")

elif n < 0:

print("Negative")

else:

print("Zero")

1. Write a program to take the user's full name as input and display it in uppercase.

name = input("Enter your full name: ")

print(name.upper())

1. Write a program to take a sentence from the user and count the number of words.

sentence = input("Enter a sentence: ")

print(len(sentence.split()))