**Experiment - 1**

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**Batch - 4 AIML**

**Q1. Write a Python program to perform basic arithmetic operations (addition, subtraction, multiplication, division, and modulus) on two numbers.**

**Prompt the user to enter two numbers.**

**Perform the arithmetic operations and print the results.**

**Use appropriate operators and print formatting for clear output.**

num1 = float(input("Enter the first number: "))

num2 = float(input("Enter the second number: "))

addition = num1 + num2

subtraction = num1 - num2

multiplication = num1 \* num2

division = num1 / num2

modulus = num1 % num2

print(f"Addition: {num1} + {num2} = {addition}")

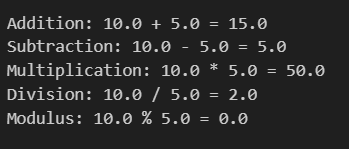
print(f"Subtraction: {num1} - {num2} = {subtraction}")

print(f"Multiplication: {num1} \* {num2} = {multiplication}")

print(f"Division: {num1} / {num2} = {division}")

print(f"Modulus: {num1} % {num2} = {modulus}")

Output:



**Q2.Create variables of different data types (integer, float, string, boolean) and perform basic operations on them.**

**Assign values to variables of different data types.**

**Perform arithmetic operations on numeric data types.**

**Concatenate strings using the + operator.**

**Use logical operators to evaluate boolean expressions.**

#Q2

integer\_var = 10

float\_var = 5.5

string\_var = "Hello"

boolean\_var = True

#arithematic

sum\_result = integer\_var + float\_var

diff\_result = integer\_var - float\_var

product\_result = integer\_var \* float\_var

div\_result = integer\_var / float\_var

# Concatenating strings

concatenated\_string = string\_var + " World"

# Using logical operators to evaluate boolean expressions

and\_result = boolean\_var and False

or\_result = boolean\_var or False

not\_result = not boolean\_var

# Printing the results

print(f"Integer value: {integer\_var}")

print(f"Float value: {float\_var}")

print(f"String value: {string\_var}")

print(f"Boolean value: {boolean\_var}\n")

print(f"Sum of integer and float: {sum\_result}")

print(f"Difference between integer and float: {diff\_result}")

print(f"Product of integer and float: {product\_result}")

print(f"Division of integer by float: {div\_result}\n")

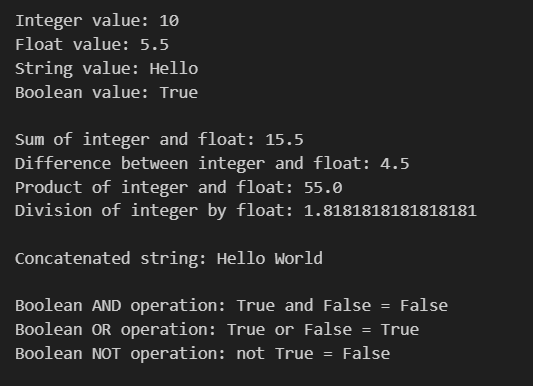
print(f"Concatenated string: {concatenated\_string}\n")

print(f"Boolean AND operation: {boolean\_var} and False = {and\_result}")

print(f"Boolean OR operation: {boolean\_var} or False = {or\_result}")

print(f"Boolean NOT operation: not {boolean\_var} = {not\_result}")

**Output:**



**Q3. Write a program to take user input, process it, and display the result.**

**Prompt the user to enter their name.**

**Greet the user using their name.**

**Calculate and print the user's age based on their birth year.**

#Q3

name = input("Enter your name")

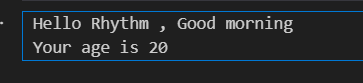
print(f"Hello {name} , Good morning")

birthyear = int(input("Enter your birth-year"))

age = 2024 - birthyear

print(f"Your age is {age}")

**Output:**



**Q4. Write a program to check if a number is even or odd.**

**Prompt the user to enter a number.**

**Use the modulus operator to determine if the number is even or odd.**

**Print the appropriate message.**

#Q4

num = int(input("Enter a number"))

if(num % 2 == 0):

    print(f"{num} is an even number")

else:

    print(f"{num} is an odd number")

**Output:**



**Q5. Write a program to print the numbers from 1 to 10 using both for and while loops.**

**Use a for loop to iterate through a range of numbers.**

**Use a while loop with a counter variable.**

#Q5

print("using for loop:")

for i in range(1,11):

    print(i)

print("using while loop:")

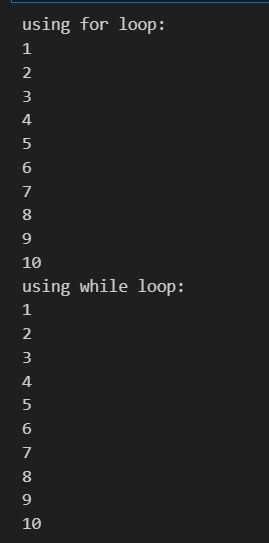
counter = 1

while counter<=10:

    print(counter)

    counter +=1

**Output:**



**Q6. Create a list, access elements, modify elements, and perform list operations.**

**Create a list of fruits.**

**Access elements using indexing.**

**Modify elements in the list.**

**Add and remove elements from the list.**

**Find the length of the list.**

**Sort the list in ascending and descending order.**

# List of fruits

fruits = ["apple", "banana", "mango", "orange"]

# Accessing element using indexing

print("Accessing element using indexing:")

print(f"Element at 0th index is {fruits[0]}:")

# Modifying element

print("\nModifying element 'banana' to 'pineapple' and returning the list:")

fruits[1] = "pineapple"

print(fruits)

# Adding elements

print("\nAdding more fruits to the list:")

fruits.append("strawberry")

print(fruits)

# Removing an element

print("\nRemoving the element at index 2 (mango):")

fruits.pop(2)

print(fruits)

# Length of the list

length = len(fruits)

print(f"\nThe length of the list is: {length}")

# Sorting in ascending order

print("\nSorting the list in ascending order:")

fruits.sort()  # Sorts in ascending order

print(fruits)

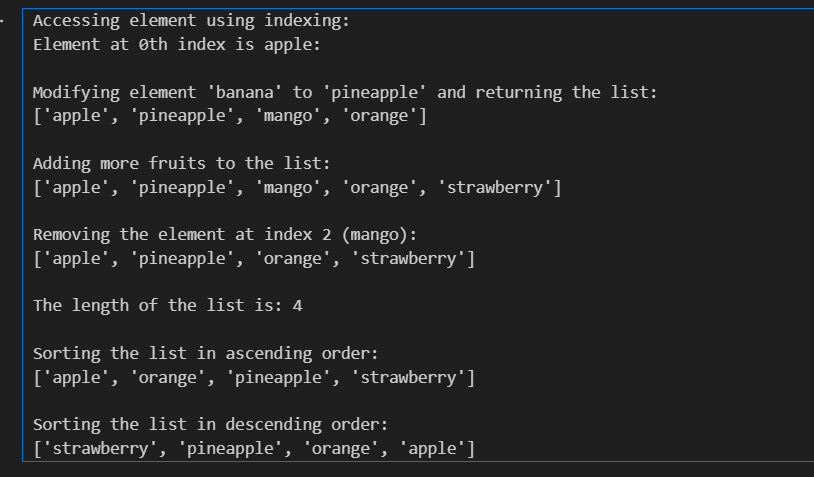
# Sorting in descending order

print("\nSorting the list in descending order:")

fruits.sort(reverse=True)  # Sorts in descending order

print(fruits)

**Output:**



**Q7. Manipulate strings using various built-in functions.**

**Create a string variable and find the length of the string.**

**Convert the string to uppercase and lowercase.**

**Check if a substring exists in the string.**

**Split the string into a list of words.**

#Q7

# Create a string variable

my\_string = "hello my name is Rhythm"

# 1. Find the length of the string

length = len(my\_string)

print(f"Length of the string: {length}")

# 2. Convert the string to uppercase

uppercase\_string = my\_string.upper()

print(f"String in uppercase: {uppercase\_string}")

# 3. Convert the string to lowercase

lowercase\_string = my\_string.lower()

print(f"String in lowercase: {lowercase\_string}")

# 4. Check if a substring exists in the string

substring = "Rhythm"

if substring in my\_string:

    print(f"'{substring}' exists in the string.")

else:

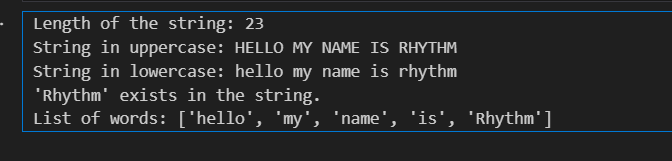
    print(f"'{substring}' does not exist in the string.")

# 5. Split the string into a list of words

words\_list = my\_string.split()

print(f"List of words: {words\_list}")

**Output:**



**Q8. Write a program to find the largest and smallest number in a list.**

#Q8

# List of numbers

numbers = [10, 24, 3, 57, 18, 6, 99, 1]

# Find the largest number

largest\_number = max(numbers)

# Find the smallest number

smallest\_number = min(numbers)

print(f"The largest number in the list is: {largest\_number}")

print(f"The smallest number in the list is: {smallest\_number}")

**Output:**

