1. Write a Python Program to Find the Factorial of a Number?

Ans : Here's a Python program that calculates the factorial of a given number:

python code

def factorial(n): if n == 0: return 1 else: return n \* factorial(n - 1) num = int(input("Enter a number: ")) if num < 0: print("Factorial is not defined for negative numbers.") elif num == 0: print("Factorial of 0 is 1") else: fact = factorial(num) print("Factorial of", num, "is", fact)

1. Write a Python Program to Display the multiplication Table?

Ans : Here's a Python program that displays the multiplication table for a given number:

python code

num = int(input("Enter a number: ")) print("Multiplication Table for", num) for i in range(1, 11): print(num, "x", i, "=", num \* i)

1. Write a Python Program to Print the Fibonacci sequence?

Ans : Here's a Python program that prints the Fibonacci sequence:

pythonCopy code

def fibonacci(n): fib\_sequence = [] if n <= 0: return fib\_sequence elif n == 1: fib\_sequence.append(0) return fib\_sequence elif n == 2: fib\_sequence.extend([0, 1]) return fib\_sequence else: fib\_sequence.extend([0, 1]) a, b = 0, 1 for \_ in range(n - 2): a, b = b, a + b fib\_sequence.append(b) return fib\_sequence # Take input from the user terms = int(input("Enter the number of terms: ")) # Call the fibonacci function sequence = fibonacci(terms) # Print the Fibonacci sequence print("Fibonacci Sequence:") print(sequence)

1. Write a Python Program to Check Armstrong Number?

Ans : Here's a Python program that checks whether a given number is an Armstrong number or not:

pythonCopy code

def is\_armstrong\_number(num): # Convert the number to a string and calculate the number of digits num\_str = str(num) num\_digits = len(num\_str) # Calculate the sum of the cubes of each digit sum\_of\_cubes = 0 for digit in num\_str: sum\_of\_cubes += int(digit) \*\* num\_digits # Check if the sum of the cubes is equal to the original number if sum\_of\_cubes == num: return True else: return False # Take input from the user number = int(input("Enter a number: ")) # Check if the number is an Armstrong number if is\_armstrong\_number(number): print(number, "is an Armstrong number.") else: print(number, "is not an Armstrong number.")

1. Write a Python Program to Find Armstrong Number in an Interval?

Ans : Here's a Python program that finds Armstrong numbers within a given interval:

pythonCopy code

def is\_armstrong\_number(num): # Convert the number to a string and calculate the number of digits num\_str = str(num) num\_digits = len(num\_str) # Calculate the sum of the cubes of each digit sum\_of\_cubes = 0 for digit in num\_str: sum\_of\_cubes += int(digit) \*\* num\_digits # Check if the sum of the cubes is equal to the original number if sum\_of\_cubes == num: return True else: return False # Take input from the user lower\_limit = int(input("Enter the lower limit of the interval: ")) upper\_limit = int(input("Enter the upper limit of the interval: ")) # Find Armstrong numbers within the interval armstrong\_numbers = [] for num in range(lower\_limit, upper\_limit + 1): if is\_armstrong\_number(num): armstrong\_numbers.append(num) # Print the Armstrong numbers print("Armstrong numbers in the interval", lower\_limit, "to", upper\_limit, "are:") print(armstrong\_numbers)

1. Write a Python Program to Find the Sum of Natural Numbers?

Ans : Here's a Python program that calculates the sum of natural numbers up to a given limit:

pythonCopy code

def sum\_of\_natural\_numbers(n): sum = 0 for i in range(1, n + 1): sum += i return sum # Take input from the user limit = int(input("Enter the limit: ")) # Calculate the sum of natural numbers sum = sum\_of\_natural\_numbers(limit) # Print the sum print("The sum of natural numbers up to", limit, "is", sum)

In this program, the **sum\_of\_natural\_numbers()** function calculates the sum of natural numbers up to a given limit.

The program prompts the user to enter the limit. It then calls the **sum\_of\_natural\_numbers()** function with the user input and stores the returned sum in the **sum** variable.

Finally, it prints the sum of natural numbers up to the given limit.