**FSDS MAY BATCH 2022(Python Programming 4)**

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Q1. Write a Python Program to Find the Factorial of a Number?

Ans:

# input the number

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

# initialize factorial to 1

factorial = 1

# loop from 1 to num and multiply each number to factorial

for i in range(1, num+1):

factorial \*= i

# print the result

print("Factorial of", num, "is", factorial)

Q2. Write a Python Program to Display the multiplication Table?

Ans:

# input the number

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

# display the multiplication table

for i in range(1, 11):

print(num, "x", i, "=", num\*i)

Q3. Write a Python Program to Print the Fibonacci sequence?

Ans:

# input the number of terms in the sequence

num\_terms = int(input("Enter the number of terms: "))

# initialize variables to hold the first two terms of the sequence

first\_term = 0

second\_term = 1

# check if the number of terms is valid

if num\_terms <= 0:

print("Invalid input. Number of terms should be a positive integer.")

elif num\_terms == 1:

print("Fibonacci sequence up to", num\_terms, "term:")

print(first\_term)

else:

# print the first two terms of the sequence

print("Fibonacci sequence up to", num\_terms, "terms:")

print(first\_term, ",", second\_term, end=", ")

# loop to print the rest of the sequence

for i in range(2, num\_terms):

next\_term = first\_term + second\_term

print(next\_term, end=", ")

# update variables for next iteration

first\_term = second\_term

second\_term = next\_term

Q4. Write a Python Program to Check Armstrong Number?

Ans:

# input the number

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

# find the number of digits in the number

num\_digits = len(str(num))

# initialize the sum of the cubes of the digits to 0

sum\_of\_cubes = 0

# calculate the sum of the cubes of the digits

temp = num

while temp > 0:

digit = temp % 10

sum\_of\_cubes += digit \*\* num\_digits

temp //= 10

# check if the number is an Armstrong number

if num == sum\_of\_cubes:

print(num, "is an Armstrong number")

else:

print(num, "is not an Armstrong number")

Q5. Write a Python Program to Find Armstrong Number in an Interval?

Ans:

# input the lower and upper limits of the interval

lower = int(input("Enter the lower limit of the interval: "))

upper = int(input("Enter the upper limit of the interval: "))

# iterate over the numbers in the interval

for num in range(lower, upper+1):

# find the number of digits in the number

num\_digits = len(str(num))

# initialize the sum of the cubes of the digits to 0

sum\_of\_cubes = 0

# calculate the sum of the cubes of the digits

temp = num

while temp > 0:

digit = temp % 10

sum\_of\_cubes += digit \*\* num\_digits

temp //= 10

# check if the number is an Armstrong number

if num == sum\_of\_cubes:

print(num)

Q6. Write a Python Program to Find the Sum of Natural Numbers?

Ans:

# input the limit

limit = int(input("Enter the limit: "))

# initialize the sum to 0

sum = 0

# iterate over the natural numbers up to the limit

for num in range(1, limit+1):

sum += num

# print the sum

print("The sum of natural numbers up to", limit, "is", sum)