PYTHON ASSIGNMENT 3

QUESTIONS

1. Write a Python program to print the Fibonacci sequence.

If a number is given, find whether it belongs to the Fibonacci sequence and if so which term is

the number?

Code:

n\_terms = 10 # Number of terms to print in the Fibonacci sequence

given\_number = 21 # Number to check in the Fibonacci sequence

# Initialize the first two terms

a, b = 0, 1

fibonacci\_sequence = [a]

# Generate the Fibonacci sequence

for \_ in range(1, n\_terms):

fibonacci\_sequence.append(b)

a, b = b, a + b

print("Fibonacci sequence up to", n\_terms, "terms:", fibonacci\_sequence)

# Check if the given number is in the Fibonacci sequence

if given\_number in fibonacci\_sequence:

term\_position = fibonacci\_sequence.index(given\_number) + 1

print(f"{given\_number} is a term in the Fibonacci sequence at position {term\_position}.")

else:

print(f"{given\_number} is not a term in the Fibonacci sequence.")

2. Write a Python program to find the factors of a given number and append it to a list. For each of the factor in the list find the multiples of the factor in the list and print them.

Code:

number = 12 # Given number

# Step 1: Find factors of the given number

factors = []

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

if number % i == 0:

factors.append(i)

print("Factors:", factors)

# Step 2: Find and print multiples of each factor in the list

for factor in factors:

multiples = [i for i in factors if i % factor == 0]

print(f"Multiples of {factor} in the list:", multiples)