```python
# Q. Print number from 1 to 5 using a while loop.

num = 1
while num <= 5:
    print(num)
    num += 1


# Q. Calclate the summ of number from 1 to 10 using a while loop.

sum = 0
num = 1


while num <= 10:
    print(num)
    sum += num
    num += 1


# Q.Calculate the factorial of a number using a for loop.

# Function to calculate factorial
def factorial(n):
    # Initialize the factorial variable to store the result
    fact = 1
    # Iterate through numbers from 1 to n
    for i in range(1, n + 1):
        # Multiply the current factorial value by the current number
        fact *= i
    # Return the factorial value
    return fact

# Example: Calculate factorial of 5
result = factorial(5)
print("The factorial of 5 is:", result)


# Q. Count the number of vowel in a string using a for loop.

def count_vowels(string):
    vowels = 'aeiouAEIOU'
    count = 0
    for char in string:
        if char in vowels:
            count += 1
    return count

input_string = input("Enter a string: ")
print("Number of vowels:", count_vowels(input_string))


# Q. Print a pattern using nested loop.

rows = 5

# Outer loop for rows
for i in range(1, rows + 1):
    # Inner loop for columns
    for j in range(1, i + 1):
        print(j, end=" ")
    print()

# Q. Generate a mltiplication table using nested loop.

row  = int(input("Enter the number of row:"))
colum = int(input("Enter the number of colum:"))
for i in range(1, row+1):
    for j in range(1, colum+1):

        result = i * j

        print(f"{i} * {j} = {result}\t",end=" ")
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print( )
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