

Unit 1

Challenge 1Q

Implement a recursive function to calculate the factorial of a given number.

```
def factorial(n):  
    if n == 0:  
        return 1  
    else:  
        return n * factorial(n - 1)  
  
# Input from the user  
num = int(input("Enter a number: "))  
  
# Call the factorial function and print the result  
result = factorial(num)  
print(f"The factorial of {num} is {result}")
```

Output:

Enter a number:5

The factorial of 5 is 120

Challenge 2 Q

Write a program that determines whether a year entered by the user is a leap year or not using ifelif-else statements.

```
year = int(input("Enter a year: "))

# Check if it's a leap year
if year % 4 == 0:
    if year % 100 == 0:
        if year % 400 == 0:
            print(f"{year} is a leap year.")
        else:
            print(f"{year} is not a leap year.")
    else:
        print(f"{year} is a leap year.")
else:
    print(f"{year} is not a leap year.")
```

Output :

Certainly, here's the expected output of the program when you run it and provide a year as input:

...

Enter a year: 2024

2024 is a leap year.

...

This output indicates that the year 2024 is a leap year.