Programming Questions (Q11 to Q15):

Q11: Write a Python program to find the factorial of a number.

In [40]:
```
def factorial(n):
    if n == 0:
        return 1
    else:
        return n * factorial(n-1)

# Example
number = 3
print(f"The factorial of {number} is {factorial(number)}")
```

```
The factorial of 3 is 6
```

Q12: Write a Python program to find whether a number is prime or composite.

In [38]:
```
def check_prime(num):
    if num <= 1:
        return False
    if num == 2:
        return True  # 2 is the only even prime number
    if num % 2 == 0:
        return False  # other even numbers are not prime
    for i in range(3, num // 2 + 1, 2):
        if num % i == 0:
            return False
    return True

# Example 1: Prime number
number1 = 21
if check_prime(number1):
    print(f"{number1} is a prime number")
else:
    print(f"{number1} is a composite number")

# Example 2: Composite number
number2 = 19
if check_prime(number2):
    print(f"{number2} is a prime number")
else:
    print(f"{number2} is a composite number")
```

```
21 is a composite number
19 is a prime number
```

Q13: Write a Python program to check whether a given string is a palindrome or not.

In [27]:
```
#Examples
# Example 1: Palindrome
string1 = "racecar"
if is_palindrome(string1):
    print(f"'{string1}' is a palindrome")
else:
    print(f"'{string1}' is not a palindrome")

# Example 2: Not a palindrome
string2 = "hello"
if is_palindrome(string2):
    print(f"'{string2}' is a palindrome")
else:
    print(f"'{string2}' is not a palindrome")
```

```
'racecar' is a palindrome
'hello' is not a palindrome
```

Q14: Write a Python program to get the third side of a right-angled triangle from two given sides.

In [19]:
```
import math

def calculate_third_side(side1, side2, hypotenuse=False):
    if hypotenuse:
        return math.sqrt(abs(side1**2 - side2**2))
    else:
        return math.sqrt(side1**2 + side2**2)

#example
side1 = 5
side2 = 12
print(f"The hypotenuse is {calculate_third_side(side1, side2)}")

hypotenuse = 13
known_side = 5
print(f"The other side is {calculate_third_side(hypotenuse, known_side, hypote
```

```
The hypotenuse is 13.0
The other side is 12.0
```

Q15: Write a Python program to print the frequency of each of the characters present in a given string.

In [8]:

```
def char_frequency(s):
    freq = {}
    for char in s:
        if char in freq:
            freq[char] += 1
        else:
            freq[char] = 1
    return freq

#example
string = "FLORENCE Leo-Patrick"
frequency = char_frequency(string)
for char, count in frequency.items():
    print(f"'{char}': {count}")
```

```
'F': 1
'L': 2
'O': 1
'R': 1
'E': 2
'N': 1
'C': 1
' ': 2
'e': 1
'o': 1
'-': 1
'P': 1
'a': 1
't': 1
'r': 1
'i': 1
'c': 1
'k': 1
```

In [ ]: