Problem 1: Factorial Implementation

Problem Statement

Write a function to calculate the factorial of a number using either recursion or iteration.

Function Signature

```
def factorial(n):
    # Your implementation here
    pass
```

Requirements

- Implement the factorial function using either recursion or iteration
- Handle edge cases appropriately (e.g., n = 0, negative numbers)
- Test your function with the input `7`

Test Case

- **Input:** `7`

Instructions

1. Implement the factorial function using either recursion or iteration
2. Test your function with the input `7`
3. **The result of `factorial(7)` is the password for the next file: `Q2_[answer].pdf`**

Background Information

The factorial of a non-negative integer n, denoted by n!, is the product of all positive integers less than or equal to n.

- 0! = 1 (by definition)
- n! = n × (n-1) × (n-2) × ... × 1

Example

```
factorial(5) = 5 × 4 × 3 × 2 × 1 = 120
factorial(0) = 1
```