

Patterned Summation

You are developing a program to calculate a specific result based on a given number **N** and an **option**. The program needs to compute the result using alternating addition and subtraction operations according to the selected option.

Task

Write a function that takes two inputs:

- **N** A positive integer where $1 \leq N \leq 10000$
- **Option** : An integer indicating the option to choose the calculation method:
 - **Option = 1** Perform alternating addition and subtraction starting with subtraction.
 - **Option = 2** Perform alternating addition and subtraction starting with addition.

Your function should return the computed result based on the rules defined below.

Rules

- If Option = 1: Calculate the result using the formula:
$$\text{Result} = N - (N-1) + (N-2) - (N-3) + \dots + 1$$

Example: $N = 6$, Calculate $6 - 5 + 4 - 3 + 2 - 1 = 3$
- If Option = 2: Calculate the result using the formula:
$$\text{Result} = N + (N-1) - (N-2) + (N-3) - \dots - 1$$

Example: $N = 6$, Calculate $6 + 5 - 4 + 3 - 2 + 1 = 9$

Instructions

1. Implement the function in your preferred programming language.
2. Test your function with different values of N and Option to ensure it correctly computes the expected results.
3. Consider edge cases such as $N = 1$ and the maximum allowed value of N.

Test Case 1

Given $N=6$ and Option = 1

- Expected Result: 3
- Explanation: $6 - 5 + 4 - 3 + 2 - 1 = 3$

Test Case 2

Given $N=6$ and Option = 2

- Expected Result: 9
- Explanation: $6 + 5 - 4 + 3 - 2 + 1 = 9$