Problem: Multiple Summation with variable coefficients.

$\Sigma\Sigma\Sigma\ldots\ (c_1 * i + c_2 * j + c_3 * k + \cdots.)$

Program:

```
#include <iostream>
#include <cmath>
using namespace std;
long long c = 0;
long long pre = 0;
long long s = 0;
void varsum(int a, int siz, int arr[])
{
    if (a <= 0)
    {
        cout << "The sum is " << pre << endl;
        return;
    }
    else
    {
        int L, U;
        cin >> L >> U;
        int pin = (U - L) + 1;
        for (int j = L; j <= U; j++)
            s += (arr[c] * j);
        for (int kk = c + 1; kk < siz; kk++)
            arr[kk] *= pin;
        pre = pre * pin + s;
        s = 0;
    }
    a--;
    c++;
    varsum(a, siz, arr);
}
int main()
{
    int var;
    cout << "Enter How many Sum signs : ";
    cin >> var;
    int val[var];
    cout << "Order the Sum signs and variables from left to right" << endl;
    cout << "The " << var << " Coefficients Left to right: ";
    for (int i = 0; i < var; i++)
        cin >> val[i];
```

```
    cout << "Enter Low and Up from left to Right : ";
    varsum(var, var, val);
}
```

Input & Output:

```
PS C:\Users\Tonmo> cd "c:\Users\Tonmo\Desktop\Covers\
Enter How many Sum signs : 3
Order the Sum signs and variables from left to right
The 3 Coefficients Left to right: 1 2 3
Enter Low and Up from left to Right : 0 3 0 3 1 3
The sum is 504
PS C:\Users\Tonmo\Desktop\Covers>
```