Aim-Generate Numbers with a Given Sum  
#include <iostream>

#include <vector>

#include <numeric> // for accumulate

std::vector<int> generateNumbersWithSum(int n, int S) {

if (n <= 0 || S < n) {

throw std::invalid\_argument("Invalid input: n must be positive and S >= n");

}

std::vector<int> result(n, 1); // Start with all elements as 1

int remaining = S - n; // Remaining sum to distribute

for (int i = 0; i < n && remaining > 0; ++i) {

int add = std::min(remaining, 9); // Add up to 9 to avoid excessive numbers

result[i] += add;

remaining -= add;

}

return result;

}

int main() {

int n, S;

std::cout << "Enter the number of elements (n): ";

std::cin >> n;

std::cout << "Enter the target sum (S): ";

std::cin >> S;

try {

std::vector<int> numbers = generateNumbersWithSum(n, S);

std::cout << "Generated numbers: ";

for (int num : numbers) {

std::cout << num << " ";

}

std::cout << "\n";

std::cout << "Sum of numbers: " << std::accumulate(numbers.begin(), numbers.end(), 0) << "\n";

} catch (const std::invalid\_argument& e) {

std::cerr << e.what() << "\n";

}

return 0;

}