**Name:**

**Advanced Programming in C++**

**Lab Exercise 5/12/2025**

When you have completed these three problems, submit your documented source code including sample output.

1. You work in a toy car workshop, and your job is to build toy cars from a collection of parts. Each toy car needs 4 wheels, 1 car body, and 2 figures of people to be placed inside. Given the total number of wheels, car bodies and figures available, how many *complete* toy cars can you make?

Examples

cars(2, 48, 76) ➞ 0

// 2 wheels, 48 car bodies, 76 figures

cars(43, 15, 87) ➞ 10

cars(88, 37, 17) ➞ 8

1. Write a function to replace all instances of character c1 with character c2 and vice versa.

Examples

doubleSwap("aabbccc", 'a', 'b') ➞ "bbaaccc"

doubleSwap("random w#rds writt&n h&r&", '#', '&')

➞ "random w&rds writt#n h#r#"

doubleSwap("128 895 556 788 999", '8', '9')

➞ "129 985 556 799 888"

1. Create a function that performs an even-odd transform to an array, n times. Each even-odd transformation:

Adds two (+2) to each odd integer.

Subtracts two (-2) to each even integer.

Examples

evenOddTransform([3, 4, 9], 3) ➞ [9, -2, 15]

evenOddTransform([0, 0, 0], 10) ➞ [-20, -20, -20]

evenOddTransform([1, 2, 3], 1) ➞ [3, 0, 5]

Note: In C++ it is not possible to determine array size once it is passed to a function. It will therefore be necessary to pass the length of the array from the calling function.