**CS1020E | Lab 5 | Exercise 2 (will not be graded)**

**Reorder List**

**Objective**

The objective of this exercise is to learn how to manipulate a **Singly Linked List**.

**Problem Description**

Given a list (*L*1, *L*2, …, *LN*−1, *LN*), represented in a **singly linked list**, your program is required to reorder it to (*L*1, *LN*, *L*2, *LN*−1, *L*3, *LN*−2, …).

For example, given (1, 2, 3, 4, 5, 6), it must be reordered to (1, 6, 2, 5, 3, 4); or given (1, 2, 3, 4, 5), it must be reordered to (1, 5, 2, 4, 3).

Your program must do the reordering **in-place (i.e. must not create any new node, and must not use another list or an array)**, and also not alter the nodes’ data values.

**Add your code only to the parts of the files indicated. Do not modify any other part of the given code, and do not add new files.**

**Inputs**

The first line of the input consists of a single positive integer *N*, the number of values in the input list. The next line contains the *N* integer data values for the input list, each has value within the range of integer.

**Outputs**

The data values of the list after reordering.

**Sample Input**

6

1 2 3 4 5 6

**Sample Output**

1 6 2 5 3 4

**Hint**

Consider reorder the list in two steps.

**Submission**

You need to submit **ALL** your completed skeleton **\*.cpp** and **\*.h** files to CodeCrunch (<https://codecrunch.comp.nus.edu.sg/>).

**Your submission for this exercise will not be manually graded, and there is no submission deadline for this exercise.**