Ex1: Buffer. Write a program that, given a list of defined length, moves the elements "forward" one position (thus increasing their index by one unit), and moves the element at the last position to the first position. For example, the list 1 7 9 3 0 4, after this operation, becomes the list: 4 1 7 9 3 0.

Ex2: Lists union. Write a function **merge(a, b)** that merges the two lists a and b, alternating one element of the first and one element of the second. If one list is shorter than the other, the items are alternated if possible, then the items left in the longer list are added, in order, to the bottom. Starting lists should not be changed. If, for example, the content of a is 1 4 9 16 and the content of b is 9 7 4 9 11, the invocation of merge(a, b) return a new list composed of the following values: 1 9 4 7 9 4 16 9 11.

Ex3: Crazy Combination. Given a list of n integers, find the maximum that maximizes the sum of the value of i*arr[i] where i varies from 0 to n-1.

HINT: Use what you did in EX1.

Ex:

Input: arr[] = {8, 3, 1, 2}

Output: 29

Explanation: Lets look at all the rotations,

{8, 3, 1, 2} = 8*0 + 3*1 + 1*2 + 2*3 = 11

{3, 1, 2, 8} = 3*0 + 1*1 + 2*2 + 8*3 = **29**

{1, 2, 8, 3} = 1*0 + 2*1 + 8*2 + 3*3 = 27

{2, 8, 3, 1} = 2*0 + 8*1 + 3*2 + 1*3 = 17

Input: arr[] = {3, 2, 1}

Output: 7

Explanation: Lets look at all the rotations,

{3, 2, 1} = 3*0 + 2*1 + 1*2 = 4

{2, 1, 3} = 2*0 + 1*1 + 3*2 = **7**

{1, 3, 2} = 1*0 + 3*1 + 2*2 = **7**

Ex4: Sort in wave form. Given an unsorted array of integers, sort the array into a wave array. An array arr[0..n-1] is sorted in wave form if:

arr[0] >= arr[1] <= arr[2] >= arr[3] <= arr[4] >= …..

Example 1:

Input: arr[] = {10, 5, 6, 3, 2, 20, 100, 80}

Output: arr[] = {3, 2, 6, 5, 80, 10, 100}

Example 2:

Input: arr[] = {20, 10, 8, 6, 4, 2}

Output: arr[] = {4, 2, 8, 6, 20, 10}

Ex5: Triplets. Given a list and a value, find if there is a triplet in array whose sum is equal to the given value. If there is such a triplet present in array, then print the triplet and return true. Else return false.

Examples:

Input: array = {12, 3, 4, 1, 6, 9}, sum = 24;

Output: 12, 3, 9

Explanation: There is a triplet (12, 3 and 9) present in the array whose sum is 24.

Input: array = {1, 2, 3, 4, 5}, sum = 9

Output: 5, 3, 1

Explanation: There is a triplet (5, 3 and 1) present in the array whose sum is 9.