Lab Manual – Dynamic 1D Array

Important Note:

- **There shouldn't be any memory leakage or dangling pointers in your program.**
- Make separate functions for input and output of arrays. Your main should be a sequence of function calls only
- You are not allowed to use global variables and goto instruction
- **Submit only one cpp file having main function testing all the following functions**

Exercise 1 [Input Array]:

Write a function **int* InputArray(int& size)** that asks user to enter size of required array, allocates the memory on heap, takes input in array and returns its pointer.

Exercise 2 [Output Array]:

Write a program **void OutputArray(int* myArray, const int& size)** that takes a pointer to an integer array and prints its data.

Write main function to test above functionality.

Exercise – Expand Array

Write a program that keeps taking integer input from the user until user enters -1 and displays the data in reverse order.

Your program should save the input in a dynamically allocated array. Initially create a dynamic array of five integers. Each time the array gets filled your program should double the size of array (i.e. create a new array of double size, copy previous data in new array, delete previous array) and continue taking the input. After receiving -1 (i.e. end of data input) your program should print the numbers in the reverse order as entered by the user.

Note: Write a separate function that **AllocateAndCopyArray** to grow and copy the array. Use **OutputArray** function to print the final array.

Important Note: subscript operator [] is not allowed to traverse the array. Use only offset notation. i.e instead of using myArray[i] use *(myArray+i) to read/write an element. Do not consume extra space. There shouldn't be any memory leakage or dangling pointers in your code.