Lab Sheet 1

Lab Tasks:

A. Create a static array of 15 size, and take 15 integer inputs to store them in that array. Then write a loop to print all the integers from start to end.

B. Take an integer input from the user (***n***) where the user will tell the number of integers, n, he wants to input. Then create a dynamic array of that size, take ***n*** number of inputs, and store them in the array. Then write a loop to print all the integers.

Tasks on Array:

1. Print the array in reverse order:

   Sample Input:

   n=5

5	10	15	20	25

   Sample output:

25	20	15	10	5

2. Insert a value at a specific index:

   Sample Input:

   n=5

5	10	15	20	25
0	1	2	3	4

   Index = 2

   Value =100

   Sample output:

5	10	100	15	20
0	1	2	3	4

3. Delete a value from a specific index.

   Sample Input:

   n=5

5	10	15	20	25
0	1	2	3	4

   Index = 2

   Sample output:

5	10	15	20

0	1	2	3

4. Update the value of a specific index.

   Sample Input:

   n= 5

5	10	15	20	25
0	1	2	3	4

   Index = 3

   Value = 50

   Sample output:

5	10	15	50	25
0	1	2	3	4

5. Merge the values of two arrays into one single array.

   Sample Input:

   N1 (size of first array) =5

   A1[N1] =

5	10	15	20	25
0	1	2	3	4

   N2 (size of the second array) =3

   A2[N2] =

1	2	3
0	1	2

   Sample output:

   A[N1+N2] =

5	10	15	20	25	1	2	3
0	1	2	3	4	5	6	7

6. Split the values of an array into two separate arrays.

   Sample input:

   N= 7

   A[N] =

5	10	100	15	20	1	2
0	1	2	3	4	5	6

   Sample output:

   N1 (size of first array) = N/2+1 = 4

   A1[N1] =

5	10	100	15
0	1	2	3

   N2 (size of the second array) = N/2

A2[N2] = 20 1 2
0 1 2

Assessment Rubric: CLO-wise Mapping with Bloom's Taxonomy

Total Marks: 10

Task No.	Task Description	CLO	Marks	Bloom's Level	Justification
1	Create a static array and print all integers	CLO1	1	Understand	Demonstrates understanding of static arrays and basic iteration.
2	Create a dynamic array based on user input and print all integers	CLO2	1	Apply	Applies array initialization and dynamic memory concepts.
3	Print the array in reverse order	CLO2	1	Apply	Applies indexing in reverse to iterate through the array.
4	Insert a value at a specific index	CLO2	2	Apply	Modifies an array using index-based logic.
5	Delete a value from a specific index	CLO2	1	Apply	Implements deletion logic and array shifting.
6	Update a value at a specific index	CLO2	1	Apply	Updates existing values using index references.
7	Merge two arrays into a single array	CLO2	1	Apply	Combines array values using iteration and indexing.
8	Split an array into two separate arrays	CLO3	2	Analyze	Analyzes and partitions data structure based on a condition (length).

CLO-wise Mark Distribution:

- CLO1: 1 mark
- CLO2: 7 marks
- CLO3: 2 marks

Bloom's Taxonomy Level Summary:

- Understand: 1 mark
- Apply: 7 marks
- Analyze: 2 marks

Reading Material:
https://www.tutorialspoint.com/data_structures_algorithms/array_data_structure.htm