Programming Assignment 2

Try to code on your own thinking your own algorithmic solution. Efficient coders will be assigned with bonus marks.

**Write C codes for the following problems.**

**1.** Write a program in C to store elements in an array and print it.   
Test Data:  
Input 10 elements in the array:  
element – 0 : 1  
element – 1 : 1  
element - 2: 2  
.  
.  
.  
…………….  
Expected Output:  
Elements in array are: 1 1 2 3 4 5 6 7 8 9

**2.** Write a program in C to read n number of values in an array and display it in reverse order.    
Test Data :  
Input the number of elements to store in the array :3  
Input 3 number of elements in the array :  
element - 0 : 2  
element - 1 : 5  
element - 2 : 7  
Expected Output :  
The values store into the array are :  
2 5 7  
The values store into the array in reverse are :  
7 5 2

**3.** Write a program in C to find the sum of all elements of the array.   
Test Data:  
Input the number of elements to be stored in the array :3  
Input 3 elements in the array:  
element - 0 : 2  
element - 1 : 5  
element - 2 : 8  
Expected Output :  
Sum of all elements stored in the array is : 15

**4.** Write a program in C to copy the elements of one array into another array.   
Test Data :  
Input the number of elements to be stored in the array :3  
Input 3 elements in the array :  
element - 0 : 15  
element - 1 : 10  
element - 2 : 12  
Expected Output :  
The elements stored in the first array are :  
15 10 12  
The elements copied into the second array are :  
15 10 12

**5.** Write a program in C to count a total number of duplicate elements in an array.    
Test Data:  
Input the number of elements to be stored in the array :3  
Input 3 elements in the array:  
element - 0 : 5  
element - 1 : 1  
element - 2 : 1  
Expected Output :  
Total number of duplicate elements found in the array is : 1

**6.** Write a program in C to print all unique elements in an array.   
Test Data :  
Print all unique elements of an array:  
------------------------------------------  
Input the number of elements to be stored in the array: 4  
Input 4 elements in the array :  
element - 0 : 3  
element - 1 : 2  
element - 2 : 2  
element - 3 : 5  
Expected Output :  
The unique elements found in the array are:  
3 5

**7.** Write a program in C to merge two arrays of same size sorted in descending order.  Test Data :  
Input the number of elements to be stored in the first array :3  
Input 3 elements in the array :  
element - 0 : 1  
element - 1 : 2  
element - 2 : 3  
Input the number of elements to be stored in the second array :3  
Input 3 elements in the array :  
element - 0 : 1  
element - 1 : 2  
element - 2 : 3  
Expected Output :  
The merged array in descending order is :  
3 3 2 2 1 1

**8.** Write a program in C to count the frequency of each element of an array.    
Test Data:  
Input the number of elements to be stored in the array :3  
Input 3 elements in the array:  
element - 0 : 25  
element - 1 : 12  
element - 2 : 43  
Expected Output :  
The frequency of all elements of an array :  
25 occurs 1 times  
12 occurs 1 times  
43 occurs 1 times

**9.** Write a program in C to find the maximum and minimum element in an array.    
Test Data:  
Input the number of elements to be stored in the array :3  
Input 3 elements in the array:  
element - 0 : 45  
element - 1 : 25  
element - 2 : 21  
Expected Output :  
Maximum element is : 45  
Minimum element is : 21

**10.** Write a program in C to separate odd and even integers in separate arrays.    
Test Data:  
Input the number of elements to be stored in the array:5  
Input 5 elements in the array :  
element - 0 : 25  
element - 1 : 47  
element - 2 : 42  
element - 3 : 56  
element - 4 : 32  
Expected Output :  
The Even elements are :  
42 56 32  
The Odd elements are :  
25 47

**11.** Write a program in C to sort elements of array in ascending order.   
Test Data:  
Input the size of array: 5  
Input 5 elements in the array:  
element - 0 : 2  
element - 1 : 7  
element - 2 : 4  
element - 3 : 5  
element - 4 : 9  
Expected Output :  
Elements of array in sorted ascending order:  
2 4 5 7 9

**12.** Write a program in C to sort elements of the array in descending order.    
Test Data:  
Input the size of array : 3  
Input 3 elements in the array :  
element - 0 : 5  
element - 1 : 9  
element - 2 : 1  
Expected Output :  
Elements of the array in sorted descending order:  
9 5 1

**13.** Write a program in C to insert New value in the array (from sorted array).   
Test Data :  
Input the size of array : 3  
Input 3 elements in the array in ascending order:  
element - 0 : 5  
element - 1 : 7  
element - 2 : 9  
Input the value to be inserted : 8  
Expected Output :  
The exist array list is :  
5 7 9  
After Insert the list is :  
5 7 8 9

**14.** Write a program in C to insert New value in the array (from unsorted array).    
Test Data :  
Input the size of array : 4  
Input 4 elements in the array in ascending order:  
element - 0 : 1  
element - 1 : 8  
element - 2 : 7  
element - 3 : 10  
Input the value to be inserted : 5  
Input the Position, where the value to be inserted :2  
Expected Output :  
The current list of the array :  
1 8 7 10  
After Insert the element the new list is :  
1 5 8 7 10

**15.** Write a program in C to delete an element at desired position from an array.    
Test Data :  
Input the size of array : 5  
Input 5 elements in the array in ascending order:  
element - 0 : 1  
element - 1 : 2  
element - 2 : 3  
element - 3 : 4  
element - 4 : 5  
Input the position where to delete: 3  
Expected Output :  
The new list is : 1 2 4 5

**16.** Write a program in C to find the second largest element in an array.    
Test Data:  
Input the size of array: 5  
Input 5 elements in the array:  
element - 0 : 2  
element - 1 : 9  
element - 2 : 1  
element - 3 : 4  
element - 4 : 6  
Expected Output :  
The Second largest element in the array is : 6

**17.** Write a program in C to find the second smallest element in an array.    
Test Data :  
Input the size of array : 5  
Input 5 elements in the array (value must be <9999) :  
element - 0 : 0  
element - 1 : 9  
element - 2 : 4  
element - 3 : 6  
element - 4 : 5  
Expected Output :  
The Second smallest element in the array is : 4