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Lab Section Output

Question 1.

Design, Develop and Implement a menu driven Program in C# for the following Array operations

a. Creating an Array of N Integer Elements

b. Display of Array Elements with Suitable Headings

c. Inserting an Element (ELEM) at a given valid Position (POS)

d. Deleting an Element at a given valid Position(POS)

e. Exit.

Support the program with functions for each of the above operations.

Program

```
using System;
namespace ArrayBasedProgram
{
    /*Design, Develop and Implement a menu driven Program in C# for the following
Array operations
    a. Creating an Array of N Integer Elements
    b. Display of Array Elements with Suitable Headings
    c. Inserting an Element (ELEM) at a given valid Position (POS)
    d. Deleting an Element at a given valid Position(POS)
    e. Searching an element present in array or not
    f. Exit.
    Support the program with functions for each of the above operations.*/

    class MainClass
    {
        static void Main(string[] args)
        {
```

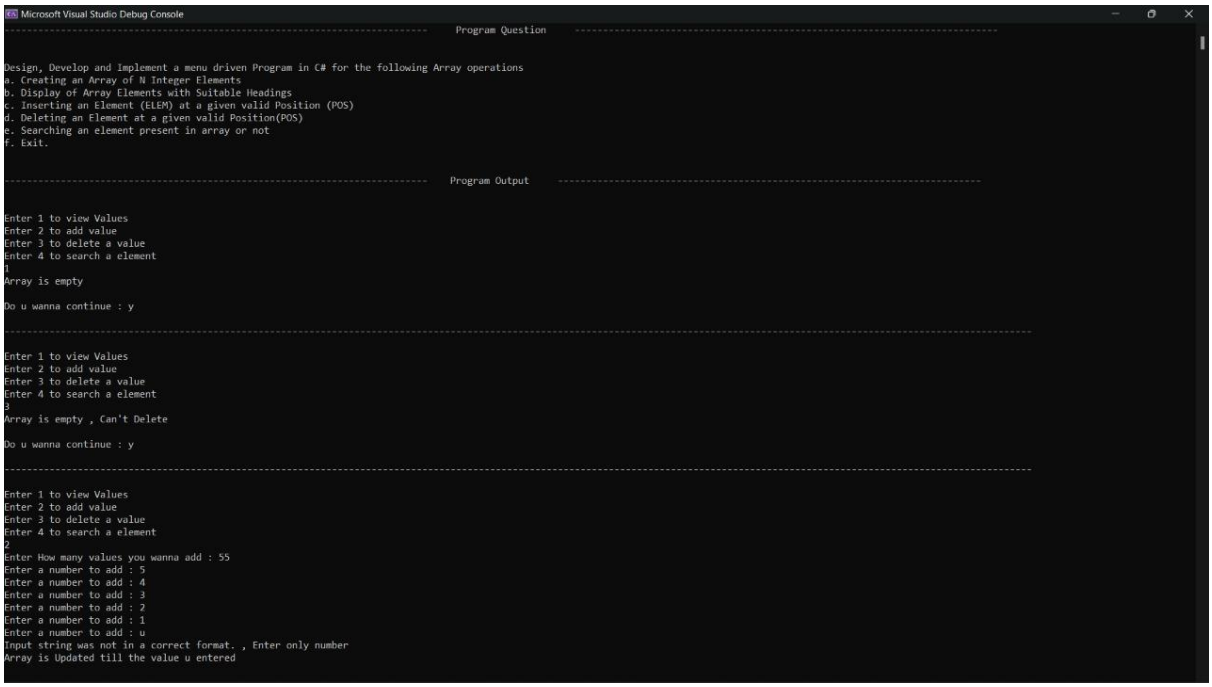
```
            Console.WriteLine("-------------------------------------------------
------------------------     Program Question     ------------------------------
-----------------------------------------------");
            Console.WriteLine();
            Console.WriteLine();
            Console.WriteLine("Design, Develop and Implement a menu driven
Program in C# for the following Array operations");
            Console.WriteLine("a. Creating an Array of N Integer Elements");
            Console.WriteLine("b. Display of Array Elements with Suitable
Headings");
            Console.WriteLine("c. Inserting an Element (ELEM) at a given valid
Position (POS)");
            Console.WriteLine("d. Deleting an Element at a given valid
Position(POS)");
            Console.WriteLine("e. Searching an element present in array or not");
            Console.WriteLine("f. Exit.");
            Console.WriteLine();
            Console.WriteLine();
            Console.WriteLine("-------------------------------------------------
------------------------    Program Output     -------------------------------
-----------------------------------------------");
            Console.WriteLine();
            Console.WriteLine();
            int size = 20;
            int count = 0;
            // Actual array for doing operations
            int[] accArr = new int[size];


            // method to view elements in array
            void ViewArray()
            {
                if (count == 0)
                {
                    Console.WriteLine("Array is empty ");
                }
                else
                {
                    Console.WriteLine("values of array are : ");
                    for (int i = 0; i < count; i++)
                    {
                        Console.WriteLine(accArr[i]);
                    }
                }
            }

            // method to add a element in an array
            void AddElement()
            {
                try
                {
                    Console.Write("Enter How many values you wanna add : ");
                    int c1 = int.Parse(Console.ReadLine());
                    for (int i = 0; i < c1; i++)
                    {
                        Console.Write("Enter a number to add : ");
                        int insert = int.Parse(Console.ReadLine());
                        accArr[count] = insert;
                        count++;
                    }

                }
                catch (FormatException e)
```

```
                {
                    Console.Write(e.Message);
                    Console.WriteLine(" , Enter only number");
                }
                finally
                {
                    Console.WriteLine("Array is Updated till the value u
entered");
                }
            }

            // method to delete a element in an array
            void DeleteElement()
            {
                // temporary array for delete method
                int[] tempArr = new int[size];

                if (count == 0)
                {
                    Console.WriteLine("Array is empty , Can't Delete ");
                }
                else
                {
                    try
                    {
                        int c = 0;
                        Console.Write("Enter a number to delete : ");
                        int delete = int.Parse(Console.ReadLine());
                        int j = 0;
                        for (int i = 0; i < count; i++)
                        {
                            if (accArr[i] != delete)
                            {
                                tempArr[j] = accArr[i];
                                j++;

                            }
                            else
                            {
                                c = 1;
                                count--;
                            }


                        }
                        for (int i = 0; i < count; i++)
                        {
                            accArr[i] = tempArr[i];
                        }
                        if (c == 1)
                        {
                            Console.WriteLine("Updated array is : ");
                            for (int i = 0; i < count; i++)
                            {
                                Console.WriteLine(accArr[i]);
                            }
                        }
                        else
                        {
                            Console.WriteLine(" Number You entered is not present
in array , can't delete");
                        }
                    }
```

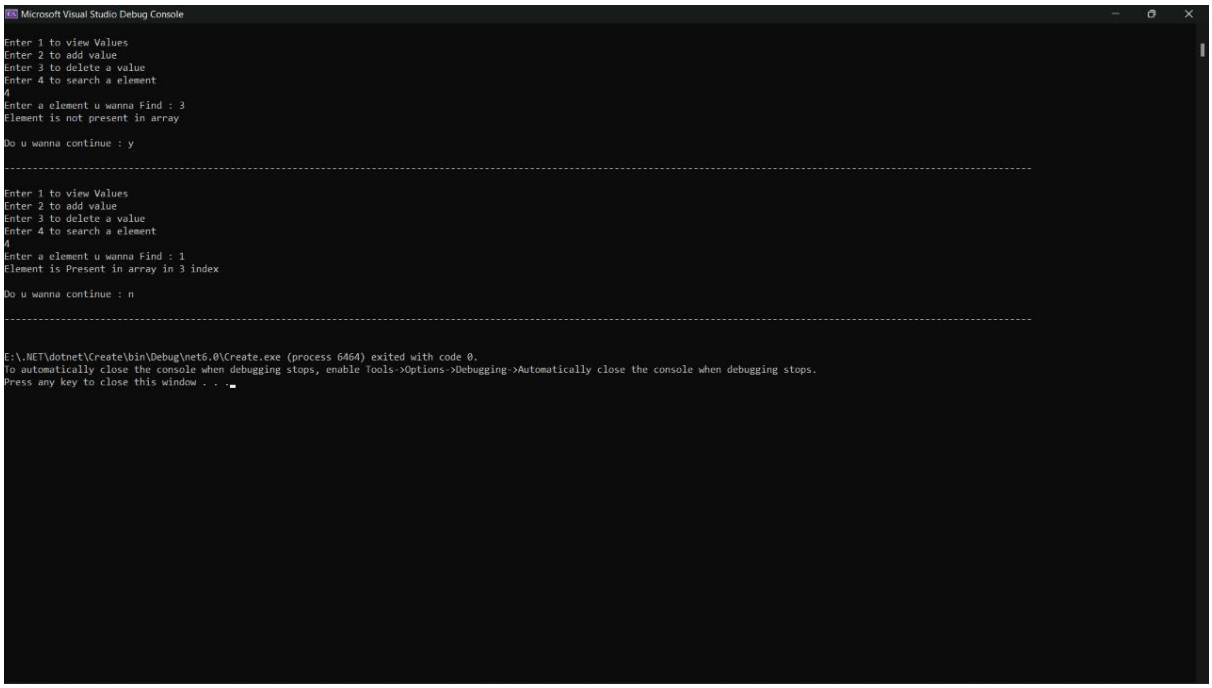
```
                catch (FormatException e)
                {
                    Console.WriteLine(e.Message);
                    Console.WriteLine(" , Enter only number");
                }
            }
        }

        //method to search an element
        void SearchElement()
        {
            try
            {
                Console.Write("Enter a element u wanna Find : ");
                int c1 = int.Parse(Console.ReadLine());
                int c2 = 0;
                for (int i = 0; i < count; i++)
                {
                    if (c1 == accArr[i])
                    {
                        c2 = 1;
                    }
                    if (c2 == 1)
                    {
                        Console.WriteLine("Element is Present in array in {0}
index", i);
                        break;
                    }
                }

                if (c2 == 0)
                {
                    Console.WriteLine("Element is not present in array");
                }
            }
            catch (FormatException e)
            {
                Console.WriteLine(e.Message);
                Console.WriteLine(" , Enter only number");
            }
        }

        //flag variable for check the condition
        char check = 'y';
        // do while loop to repeat the operation till condition becomes false
        do
        {
            Console.WriteLine("Enter 1 to view Values");
            Console.WriteLine("Enter 2 to add value");
            Console.WriteLine("Enter 3 to delete a value");
            Console.WriteLine("Enter 4 to search a element");
            int choice = int.Parse(Console.ReadLine());

            // four case to do 4 operations
            switch (choice)
            {
                case 1:
                    {
                        ViewArray();
                        break;
                    }
                case 2:
                    {
```

```
                            AddElement();
                            break;
                        }
                    case 3:
                        {
                            DeleteElement();
                            break;
                        }
                    case 4:
                        {
                            SearchElement();
                            break;
                        }
                    default:
                        {
                            Console.WriteLine("Enter only correct Key");
                            break;
                        }
                }
                Console.WriteLine();
                //updation of flag variable
                Console.Write("Do u wanna continue : ");
                check = char.Parse(Console.ReadLine());
                Console.WriteLine();
                Console.WriteLine("-----------------------------------------
------------------------------------------------------------------------
------------------------------------------------------");
                Console.WriteLine();
            }

            //condition for the loop
            while ((check == 'y') || (check == 'Y'));
        }


    }

}
```

Output


Microsoft Visual Studio Debug Console
Program Question
Design, Develop and Implement a menu driven Program in C# for the following Array operations
a. Creating an Array of N Integer Elements
b. Display of Array Elements with Suitable Headings
c. Inserting an Element (ELEM) at a given valid Position (POS)
d. Deleting an Element at a given valid Position(POS)
e. Searching an element present in array or not
f. Exit.
Program Output
Enter 1 to view Values
Enter 2 to add value
Enter 3 to delete a value
Enter 4 to search a element
1
Array is empty
Do u wanna continue : y
Enter 1 to view Values
Enter 2 to add value
Enter 3 to delete a value
Enter 4 to search a element
3
Array is empty , Can't Delete
Do u wanna continue : y
Enter 1 to view Values
Enter 2 to add value
Enter 3 to delete a value
Enter 4 to search a element
2
Enter How many values you wanna add : 55
Enter a number to add : 5
Enter a number to add : 4
Enter a number to add : 3
Enter a number to add : 2
Enter a number to add : 1
Enter a number to add : u
Input string was not in a correct format. , Enter only number
Array is Updated till the value u entered


Microsoft Visual Studio Debug Console
Do u wanna continue : y
Enter 1 to view Values
Enter 2 to add value
Enter 3 to delete a value
Enter 4 to search a element
1
values of array are :
5
4
3
2
1
Do u wanna continue : y
Enter 1 to view Values
Enter 2 to add value
Enter 3 to delete a value
Enter 4 to search a element
3
Enter a number to delete : 6
Number You entered is not present in array , can't delete
Do u wanna continue : y
Enter 1 to view Values
Enter 2 to add value
Enter 3 to delete a value
Enter 4 to search a element
3
Enter a number to delete : 3
Updated array is :
5
4
2
1
Do u wanna continue : y
Enter 1 to view Values
Enter 2 to add value
Enter 3 to delete a value



Question 2.

Design, Develop and Implement a Program in C# for the following Array operations

a. Transpose of Multidimensional Array

b. Merging Of 2 One Dimensional array into single array

c. Create a Multidimensional array and do addition of row elements and addition of column elements

e. Exit.

Support the program with functions for each of the above operations.

Program

```
using System;
namespace MulitDimentionalArray
{
    //Class for transpose the array
    class TransposeArray
    {
        int[,] arr1 = new int[2,3];
        // method to get data
        void GetData()
        {
            for(int i = 0; i < 2; i++)
            {
                for (int j = 0; j < 3; j++)
                {
                    Console.Write("Enter a numer : ");
                    int tempVar = int.Parse(Console.ReadLine());
                    arr1[i,j] = tempVar;
                }
            }
        }
        // method to perform Transpose operation
        void Transpose()
        {
            Console.WriteLine("Array Before Transpose");
            for (int j = 0; j < 2; j++)
            {
                for (int i = 0; i < 3; i++)
                {
                    Console.Write(arr1[j, i] + "\t");
                }
                Console.WriteLine();
            }
            Console.WriteLine("Array After Transpose");

            for (int j = 0; j < 3; j++)
            {
                for(int i = 0; i < 2; i++)
                {
                    Console.Write(arr1[i,j] + "\t") ;
                }
                Console.WriteLine ();
            }
        }
        //method to call the functions
       public void Show()
        {
            GetData();
            Transpose();
        }
    }
    // class for Merging of two array
    class MergeArrays
    {
        int [] arr1 = new int[3];
```

```
int [] arr2 = new int[3];

// method for get data
void Getdata()
{
    Console.WriteLine("Enter Values for first Array : ");
    Console.WriteLine();
    for (int i = 0; i < arr1.Length; i++)
    {
        Console.Write("Enter a number : ");
        int TempVar = int.Parse(Console.ReadLine());
        arr1[i] = TempVar;

    }
    Console.WriteLine();
    Console.WriteLine("First array : ");
    for (int j = 0; j < arr1.Length; j++)
    {
        Console.Write(arr1[j] + "\t");

    }
    Console.WriteLine () ;
    Console.WriteLine("Enter Values for Second Array : ");
    Console.WriteLine();
    for (int i = 0; i < arr2.Length; i++)
    {
        Console.Write("Enter a number : ");
        int TempVar = int.Parse(Console.ReadLine());
        arr2[i] = TempVar;
    }
    Console.WriteLine();
    Console.WriteLine("Second array : ");
    for (int j = 0; j < arr2.Length; j++)
    {
        Console.Write(arr2[j] + "\t");

    }
    Console.WriteLine();



}
//method for Merge arrays
void MergeArray()
{
    int mergeLength = arr1.Length + arr2.Length;
    int pos = 0;
    int [] arr3 = new int[mergeLength];
    for(int i = 0; i < arr1.Length; i++)
    {
        arr3[pos] = arr1[i];
        pos++;

    }
    for(int j = 0; j < arr2.Length; j++)
    {
        arr3[pos] = arr2[j];
        pos++;
    }
    Console.WriteLine();
    Console.WriteLine("Merged Array is : ");
    Console.WriteLine();
    for(int i = 0; i < mergeLength; i++)
```

```
        {
            Console.Write(arr3[i] + "\t");
        }
        Console.WriteLine();

    }
    // method to call the functions
   public void Show2()
    {
        Getdata();
        MergeArray();
    }
}

// class for row column addition
class RCAddition
{
    int[,] arr1 = new int[2, 2];
    // method for get data
    void GetData()
    {
        for (int i = 0; i < 2; i++)
        {
            for (int j = 0; j < 2; j++)
            {
                Console.Write("Enter a numer : ");
                int tempVar = int.Parse(Console.ReadLine());
                arr1[i, j] = tempVar;
            }
        }
    }
    // method for row addition
    void RowAdd()
    {
        Console.WriteLine("Row addition");
        for (int i = 0; i < 2; i++)
        {
            int rAdd = 0;
            for( int j = 0; j < 2; j++)
            {
                rAdd = rAdd + arr1[i, j];


            }
            Console.Write(rAdd + "\t");
        }
        Console.WriteLine();
    }
    // method for column addition
    void ColAdd()
    {
        Console.WriteLine("Column addition");
        for (int i = 0; i < 2; i++)
        {
            int cAdd = 0;
            for (int j = 0; j < 2; j++)
            {

                cAdd = cAdd + arr1[j, i];


            }
            Console.Write(cAdd + "\t");
```

```
            }
            Console.WriteLine();

        }
        // method for for show the array from the get method
        void ShowArray()
        {
            for(int i = 0; i < 2; i++)
            {
                for(int j = 0; j < 2; j++)
                {
                    Console.Write(arr1[i, j] + "\t");
                }
                Console.WriteLine();
            }
        }
        // method for call the methods
        public void Show3()
        {
            GetData();
            Console.WriteLine("Array is : ");
            ShowArray();
            RowAdd();
            ColAdd();
        }

    }
    class MainClass
    {
        static void Main(string[] args)
        {
            TransposeArray obj = new TransposeArray();
            Console.WriteLine("Transpose of MultiDimensional Array ");
            obj.Show();
            Console.WriteLine();
            MergeArrays mergeArrays = new MergeArrays();
            Console.WriteLine("Merging of array");
            mergeArrays.Show2();
            Console.WriteLine();
            RCAddition rcaddition = new RCAddition();
            Console.WriteLine("Row Column addition");
            rcaddition.Show3();
            Console.WriteLine();
        }
    }
}
```

Output


Microsoft Visual Studio Debug Console
Transpose of MultiDimensional Array
Enter a numer : 1
Enter a numer : 2
Enter a numer : 3
Enter a numer : 4
Enter a numer : 5
Enter a numer : 6
Array Before Transpose
1 2 3
4 5 6
Array After Transpose
1 4
2 5
3 6
Merging of array
Enter Values for first Array :
Enter a number : 1
Enter a number : 2
Enter a number : 3
First array :
1 2 3
Enter Values for Second Array :
Enter a number : 4
Enter a number : 5
Enter a number : 6
Second array :
4 5 6
Merged Array is :
1 2 3 4 5 6
Row Column addition
Enter a numer : 1
Enter a numer : 2
Enter a numer : 3
Enter a numer : 4
Array is :
1 2
3 4
Row addition
3 7
Column addition
4 6
E:\.NET\dotnet\Create\bin\Debug\net6.0\Create.exe (process 968) exited with code 0.