**ASSIGNMENT 1**

**Shiva Gupta C# Assignment**

**1. Write a C# program to find the sum of all elements in an integer array using a loop.**

**2. Create a C# program that calculates the average of values in a floating-point array using a loop.**

**3. Develop a C# program that finds the largest element in an integer array using a loop and if-else statements.**

**4. Write a C# program that counts the number of even and odd elements in an integer array using a loop and if-else statements.**

**5. Implement a C# program that reverses the elements of an integer array using a loop.**

**6. Create a C# program that multiplies each element in an integer array by a specified factor using a loop.**

**7. Write a C# program that searches for a specific value in an integer array using a loop and returns its index if found.**

**8. Develop a C# program that finds the second smallest element in an integer array using loops and sorting techniques.**

**9. Create a C# program that removes all duplicates from an integer array using loops and additional data structures.**

**10. Write a C# program that finds the common elements between two integer arrays using loops.**

**PROGRAM 1**

using System;

namespace \_2smallest\_array

{

internal class Program

{

static void Main(string[] args)

{

//Input Array

int n;

Console.Write("Enter size: ");

n = Convert.ToInt32(Console.ReadLine());

int[] a = new int[n];

for (int i = 0; i < a.Length; i++)

{

Console.Write("Enter element {0}: ", i + 1);

a[i] = Convert.ToInt32(Console.ReadLine());

}

//Sorting Array using bubble sort

int x, p;

for (int i = 0; i < a.Length; i++)

{

x = a[i];

p = i;

while(p > 0 && a[p-1] > x)

{

a[p] = a[p-1];

p--;

}

if (p != i)

{

a[p] = x;

}

}

//Finding 2nd smallest element

Console.Write("Second smallest element: {0}", a[1]);

Console.ReadKey();

}

}

}

**PROGRAM 2**

using System;

namespace avg\_array

{

internal class Program

{

static void Main(string[] args)

{

int n;

Console.Write("Enter size: ");

n = Convert.ToInt32(Console.ReadLine());

Double[] a = new Double[n];

for (int i = 0; i < a.Length; i++)

{

Console.Write("Enter element {0}: ", i + 1);

a[i] = Convert.ToDouble(Console.ReadLine());

}

Double sum = 0;

for (int i = 0; i < a.Length; i++)

{

sum += a[i];

}

Console.WriteLine("Average: " + (sum/n));

Console.ReadKey();

}

}

}

**PROGRAM 3**

using System;

namespace common\_2array

{

internal class Program

{

static void Main(string[] args)

{

int n1, n2, f, index=0, i, j, k;

Console.Write("Enter size1: ");

n1 = Convert.ToInt32(Console.ReadLine());

int[] a = new int[n1];

Console.WriteLine("Enter elements for first array:");

for (i = 0; i < a.Length; i++)

{

Console.Write("Enter element {0}: ", i + 1);

a[i] = Convert.ToInt32(Console.ReadLine());

}

Console.Write("Enter size2: ");

n2 = Convert.ToInt32(Console.ReadLine());

int[] b = new int[n2];

Console.WriteLine("Enter elements for second array:");

for (i = 0; i < b.Length; i++)

{

Console.Write("Enter element {0}: ", i + 1);

b[i] = Convert.ToInt32(Console.ReadLine());

}

int[] ab = new int[n1>n2?n1:n2];

for(i = 0; i < n1; i++)

{

for(j=0; j < n2; j++)

{

if (a[i] == b[j])

{

f = 0;

for(k=0; k < index ; k++)

{

if (ab[k] == a[i])

f++;

}

if (f == 0)

{

ab[index] = a[i];

Console.Write(a[i] + " ");

index++;

}

}

}

}

Console.ReadKey();

}

}

}

**PROGRAM 4**

using System;

namespace large\_array

{

internal class Program

{

static void Main(string[] args)

{

int n;

Console.Write("Enter size: ");

n = Convert.ToInt32(Console.ReadLine());

int[] a = new int[n];

for (int i = 0; i < a.Length; i++)

{

Console.Write("Enter element {0}: ", i + 1);

a[i] = Convert.ToInt32(Console.ReadLine());

}

int ne = 0, no = 0;

for (int i = 0; i < a.Length; i++)

{

if (a[i]%2 == 0)

{

ne++;

}

else

{

no++;

}

}

Console.WriteLine("Number of Even numbers: {0}\nNumber of Odd numbers: {1} " , ne, no);

Console.ReadKey();

}

}

}

**PROGRAM 5**

using System;

namespace large\_array

{

internal class Program

{

static void Main(string[] args)

{

int n;

Console.Write("Enter size: ");

n = Convert.ToInt32(Console.ReadLine());

int[] a = new int[n];

for (int i = 0; i < a.Length; i++)

{

Console.Write("Enter element {0}: ", i + 1);

a[i] = Convert.ToInt32(Console.ReadLine());

}

int m = 0;

for (int i = 0; i < a.Length; i++)

{

if (a[i] > m)

{

m = a[i];

}

}

Console.WriteLine("Largest Element: " + m);

Console.ReadKey();

}

}

}

**PROGRAM 6**

using System;

namespace multiply\_array

{

internal class Program

{

static void Main(string[] args)

{

int n, f;

Console.Write("Enter size: ");

n = Convert.ToInt32(Console.ReadLine());

int[] a = new int[n];

for (int i = 0; i < a.Length; i++)

{

Console.Write("Enter element {0}: ", i + 1);

a[i] = Convert.ToInt32(Console.ReadLine());

}

Console.Write("Enter Factor: ");

f = Convert.ToInt32(Console.ReadLine());

for (int i = 0; i < n; i++)

{

a[i] \*= f;

}

Console.WriteLine("New array:");

for (int i = 0; i < a.Length; i++)

{

Console.Write(a[i] + " ");

}

Console.ReadKey();

}

}

}

**PROGRAM 7**

using System;

using System.Linq;

namespace remove\_duplicate\_array

{

internal class Program

{

static void Main(string[] args)

{

int n;

Console.Write("Enter size: ");

n = Convert.ToInt32(Console.ReadLine());

int[] a = new int[n];

for (int i = 0; i < a.Length; i++)

{

Console.Write("Enter element {0}: ", i + 1);

a[i] = Convert.ToInt32(Console.ReadLine());

}

int[] unique = a.Distinct().ToArray();

Console.WriteLine("Array after removing duplicate values: ");

Array.ForEach(unique, j => Console.Write(j + " "));

Console.ReadKey();

}

}

}

**PROGRAM 8**

using System;

namespace reverse\_array

{

internal class Program

{

static void Main(string[] args)

{

int n;

Console.Write("Enter size: ");

n = Convert.ToInt32(Console.ReadLine());

int[] a = new int[n];

for (int i = 0; i < a.Length; i++)

{

Console.Write("Enter element {0}: ", i + 1);

a[i] = Convert.ToInt32(Console.ReadLine());

}

int t;

for (int i = 0; i < n/2; i++)

{

t = a[i];

a[i] = a[n-i-1];

a[n-i-1] = t;

}

Console.WriteLine("Reversed array:");

for (int i = 0; i < a.Length; i++)

{

Console.Write(a[i]+" ");

}

Console.ReadKey();

}

}

}

**PROGRAM 9**

using System;

namespace search\_array

{

internal class Program

{

static void Main(string[] args)

{

int n, i;

Console.Write("Enter size: ");

n = Convert.ToInt32(Console.ReadLine());

int[] a = new int[n];

Console.WriteLine("Enter Elements:");

for (i = 0; i < a.Length; i++)

{

Console.Write("Enter element {0}: ", i + 1);

a[i] = Convert.ToInt32(Console.ReadLine());

}

int x,f = 0;

Console.Write("Enter element to find: ");

x = Convert.ToInt32(Console.ReadLine());

for (i = 0; i < a.Length; i++)

{

if (a[i] == x)

{

f = 1;

break;

}

}

if (f == 1)

Console.WriteLine("Element found at index: " + i);

else

Console.WriteLine("Element not found");

Console.ReadKey();

}

}

}

**PROGRAM 10**

using System;

namespace sum\_array

{

internal class Program

{

static void Main(string[] args)

{

int n;

Console.Write("Enter size: ");

n = Convert.ToInt32(Console.ReadLine());

int[] a = new int[n];

for (int i = 0; i < a.Length; i++)

{

Console.Write("Enter element {0}: ", i + 1);

a[i] = Convert.ToInt32(Console.ReadLine());

}

int sum = 0;

for (int i = 0; i < a.Length; i++)

{

sum += a[i];

}

Console.WriteLine("Sum: " + sum);

Console.ReadKey();

}

}

}