

Lab Assignment 1 in C#

Question 1. Imagine you are developing a basic calculator for a financial application. You need to calculate the total sum of all the transactions recorded in a day. Write a C# program to find the sum of all elements in an integer array using a loop.

Input: `int[] transactions = {200, -150, 340, 500, -100};`

Answer 1. `namespace LabAssignment1`

```
{
    internal class Program
    {
        static void Main(string[] args)
        {
            Console.WriteLine("Enter the number of transactions: ");
            int n = int.Parse(Console.ReadLine());

            int[] transactions = new int[n];

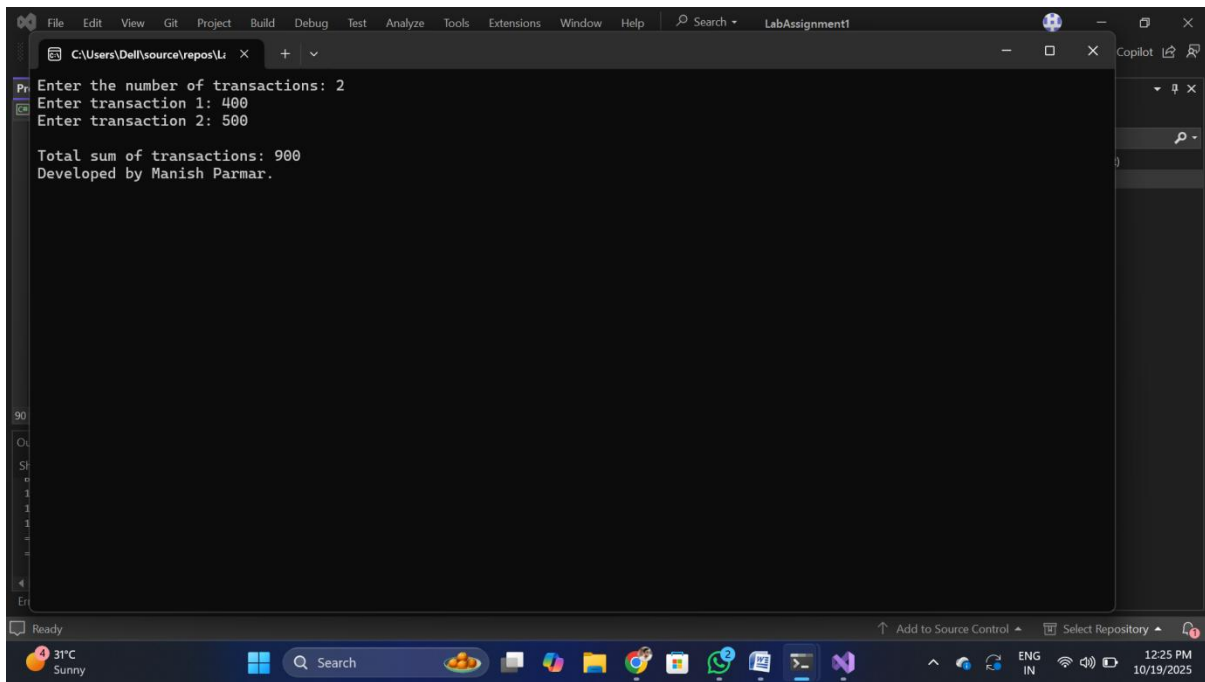
            for (int i = 0; i < n; i++)
            {
                Console.WriteLine("Enter transaction " + (i + 1) + ": ");
                transactions[i] = int.Parse(Console.ReadLine());
            }

            int total = 0;

            for (int i = 0; i < n; i++)
            {
                total += transactions[i];
            }

            Console.WriteLine("\nTotal sum of transactions: " + total);
            Console.WriteLine("Developed by Manish Parmar.");

            Console.ReadLine();
        }
    }
}
```



```
File Edit View Git Project Build Debug Test Analyze Tools Extensions Window Help Search LabAssignment1
C:\Users\Dell\source\repos\LabAssignment1
Enter the number of transactions: 2
Enter transaction 1: 400
Enter transaction 2: 500

Total sum of transactions: 900
Developed by Manish Parmar.
```

Output:

Question 2

You are working on an analytics tool that needs to find the average score of a class from a list of floating-point numbers. Create a C# program that calculates the average of values in a floating-point array using a loop.

Input: `float[] scores = {85.5f, 90.3f, 78.4f, 88.9f, 92.1f};`

Answer 2. `namespace LabAssignment1`

```
{
    internal class Program
    {
        static void Main(string[] args)
        {
            Console.Write("Enter the number of students: ");
            int n = int.Parse(Console.ReadLine());

            float[] scores = new float[n];

            for (int i = 0; i < n; i++)
            {
                Console.Write("Enter score " + (i + 1) + ": ");
                scores[i] = float.Parse(Console.ReadLine());
            }

            float total = 0;
            for (int i = 0; i < n; i++)
            {
                total += scores[i];
            }

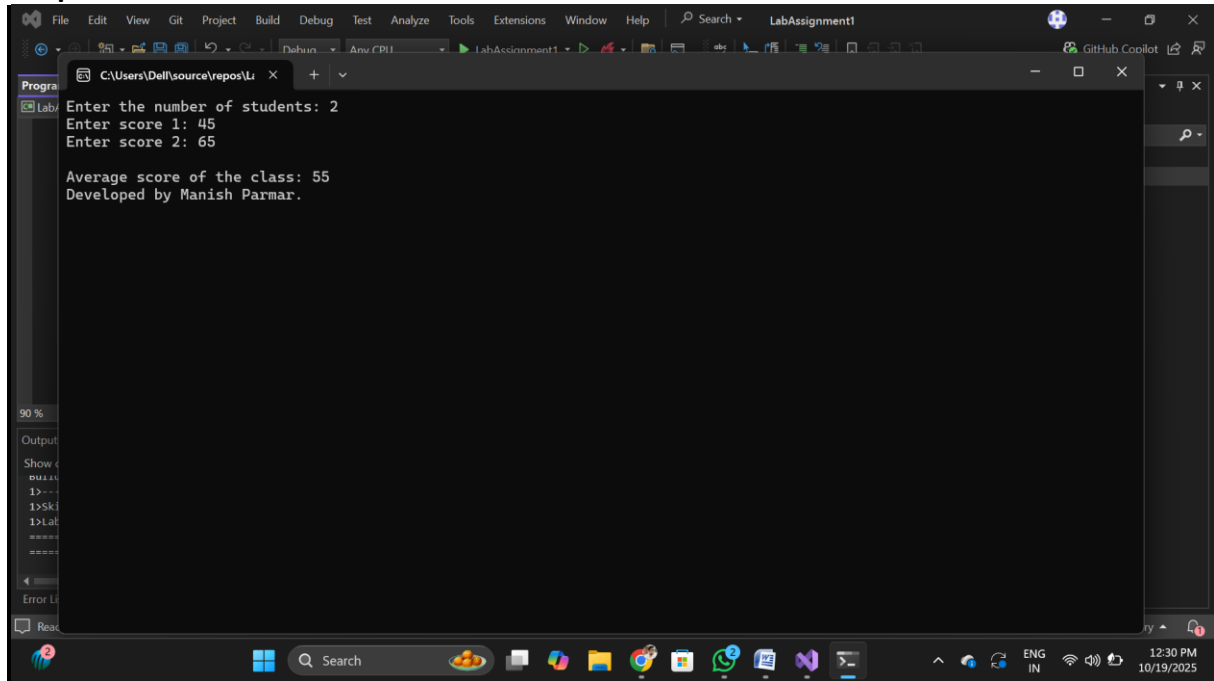
            float average = total / n;
            Console.WriteLine("\nAverage score of the class: " + average);
            Console.WriteLine("Developed by Manish Parmar.");
        }
    }
}
```

```

        Console.ReadLine();
    }
}

```

Output:



Question 3

You are tasked with developing a feature for an inventory management system that finds the most expensive item in stock. Develop a C# program that finds the largest element in an integer array using a loop and if-else statements.

Input: `int[] prices = {1500, 2300, 999, 3200, 1750};`

Answer 3. `namespace LabAssignment1`

```

{
    internal class Program
    {
        static void Main(string[] args)
        {
            Console.Write("Enter the number of items in stock: ");
            int n = int.Parse(Console.ReadLine());

            int[] prices = new int[n];

            for (int i = 0; i < n; i++)
            {
                Console.Write("Enter price of item " + (i + 1) + ": ");
                prices[i] = int.Parse(Console.ReadLine());
            }
        }
    }
}

```

```

        int maxPrice = prices[0];

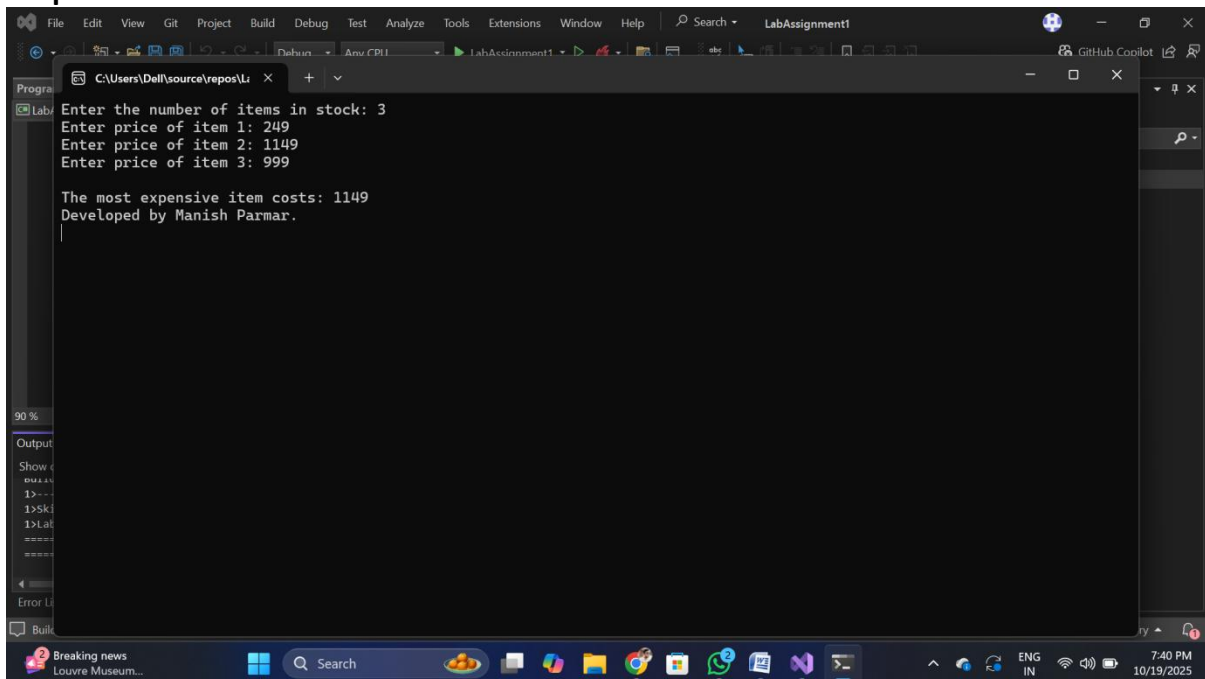
        for (int i = 1; i < n; i++)
        {
            if (prices[i] > maxPrice)
            {
                maxPrice = prices[i];
            }
        }

        Console.WriteLine("\nThe most expensive item costs: " + maxPrice);
        Console.WriteLine("Developed by Manish Parmar.");

        Console.ReadLine();
    }
}

```

Output:



```

C:\Users\Dell\source\repos\Li x + v
Program
LabAssignment1
Enter the number of items in stock: 3
Enter price of item 1: 249
Enter price of item 2: 1149
Enter price of item 3: 999

The most expensive item costs: 1149
Developed by Manish Parmar.

```

Question 4

You need to generate a report for a survey that counts the number of male and female participants based on their unique codes (even for males, odd for females). Write a C# program that counts the number of even and odd elements in an integer array using a loop and if-else statements.

Input: `int[] participantCodes = {102, 215, 324, 453, 536};`

Answer 4. `namespace LabAssignment1`

```

{
    internal class Program
    {
        static void Main(string[] args)
        {
            Console.Write("Enter the number of participants: ");
            int n = int.Parse(Console.ReadLine());

```

```

int[] participantCodes = new int[n];

for (int i = 0; i < n; i++)
{
    Console.Write("Enter code for participant " + (i + 1) + ": ");
    participantCodes[i] = int.Parse(Console.ReadLine());
}

int maleCount = 0;
int femaleCount = 0;

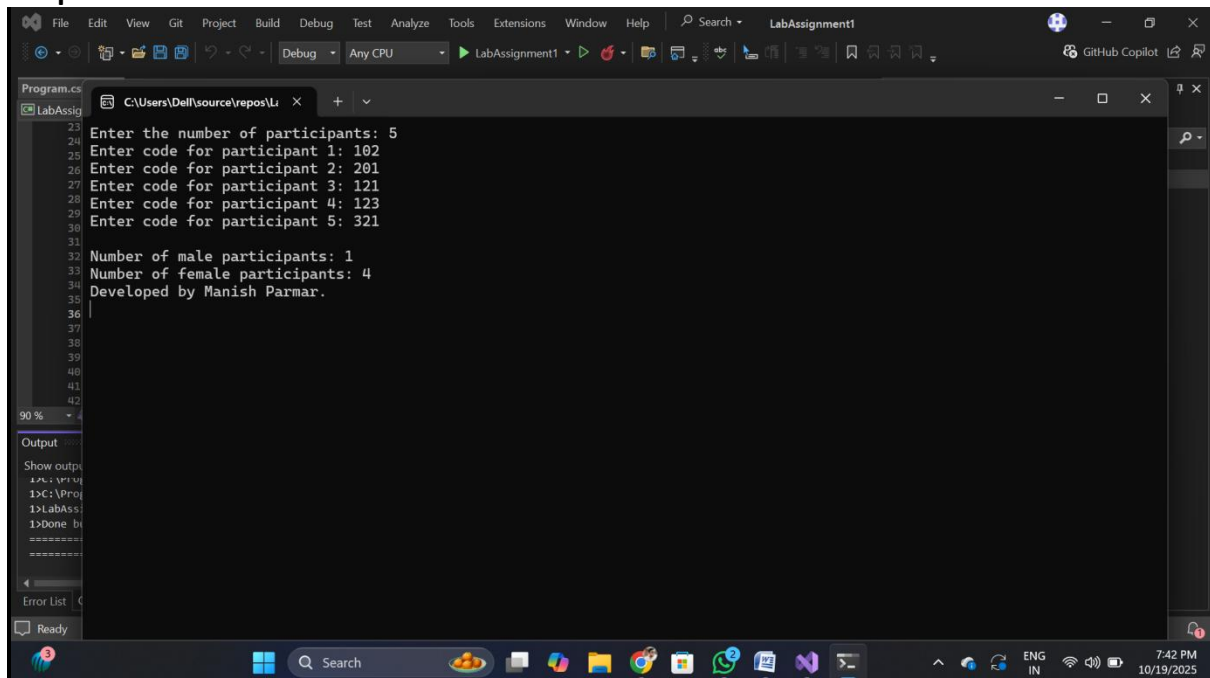
for (int i = 0; i < n; i++)
{
    if (participantCodes[i] % 2 == 0)
    {
        maleCount++;
    }
    else
    {
        femaleCount++;
    }
}

Console.WriteLine("\nNumber of male participants: " + maleCount);
Console.WriteLine("Number of female participants: " + femaleCount);
Console.WriteLine("Developed by Manish Parmar.");

Console.ReadLine();
}
}
}

```

Output:



```

C:\Users\Dell\source\repos\LabAssignment1
Enter the number of participants: 5
Enter code for participant 1: 102
Enter code for participant 2: 201
Enter code for participant 3: 121
Enter code for participant 4: 123
Enter code for participant 5: 321

Number of male participants: 1
Number of female participants: 4
Developed by Manish Parmar.

```

Question 5

You are building a feature for an app that displays the recent search history in reverse order. Implement a C# program that reverses the elements of an integer array using a loop.

Input: `int[] searchHistory = {101, 202, 303, 404, 505};`

Answer 5. `namespace LabAssignment1`

```
{
    internal class Program
    {
        static void Main(string[] args)
        {
            Console.WriteLine("Enter the number of search history items: ");
            int n = int.Parse(Console.ReadLine());

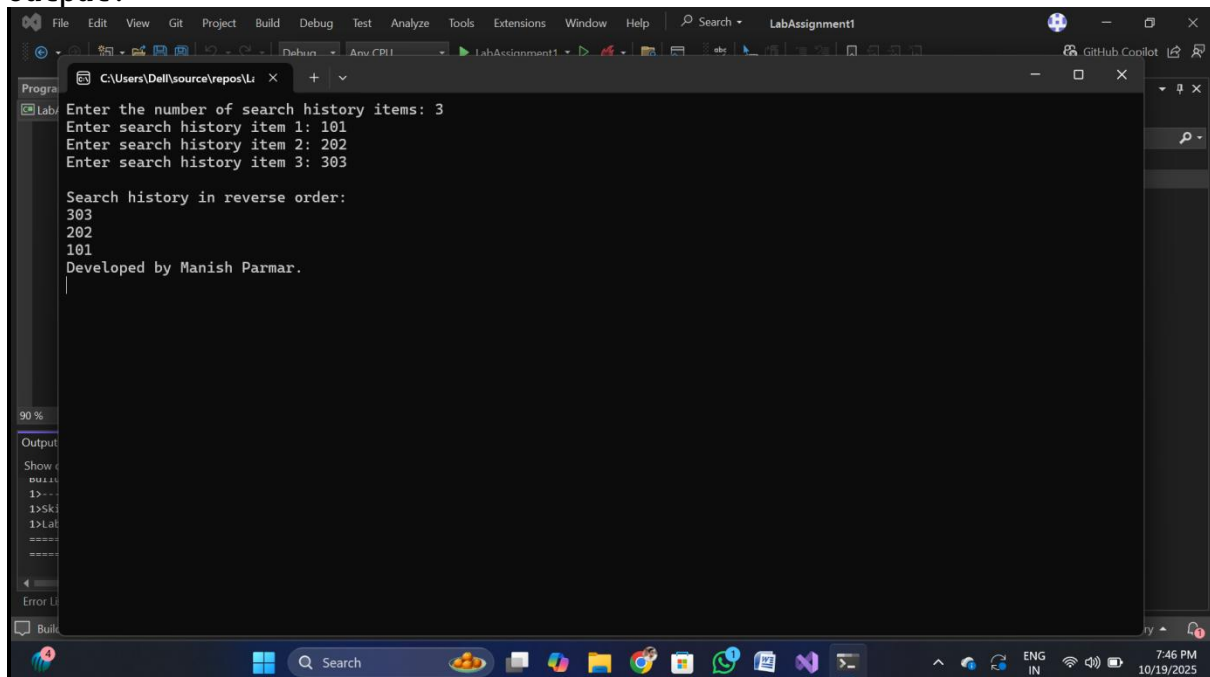
            int[] searchHistory = new int[n];

            for (int i = 0; i < n; i++)
            {
                Console.WriteLine("Enter search history item " + (i + 1) + ": ");
                searchHistory[i] = int.Parse(Console.ReadLine());
            }

            Console.WriteLine("\nSearch history in reverse order:");
            for (int i = n - 1; i >= 0; i--)
            {
                Console.WriteLine(searchHistory[i]);
            }
            Console.WriteLine("Developed by Manish Parmar.");

            Console.ReadLine();
        }
    }
}
```

Output:



The screenshot shows a Visual Studio Code window with the file `LabAssignment1` open. The console output is as follows:

```
Enter the number of search history items: 3
Enter search history item 1: 101
Enter search history item 2: 202
Enter search history item 3: 303

Search history in reverse order:
303
202
101
Developed by Manish Parmar.
```

Question 6

You are developing a simulation tool where you need to adjust the measurements by a certain factor. Create a C# program that multiplies each element in an integer array by a specified factor using a loop.

Input: int[] measurements = {2, 4, 6, 8}; int factor = 3;

Answer 6. namespace LabAssignment1

```
{
    internal class Program
    {
        static void Main(string[] args)
        {
            Console.WriteLine("Enter the number of measurements: ");
            int n = int.Parse(Console.ReadLine());

            int[] measurements = new int[n];

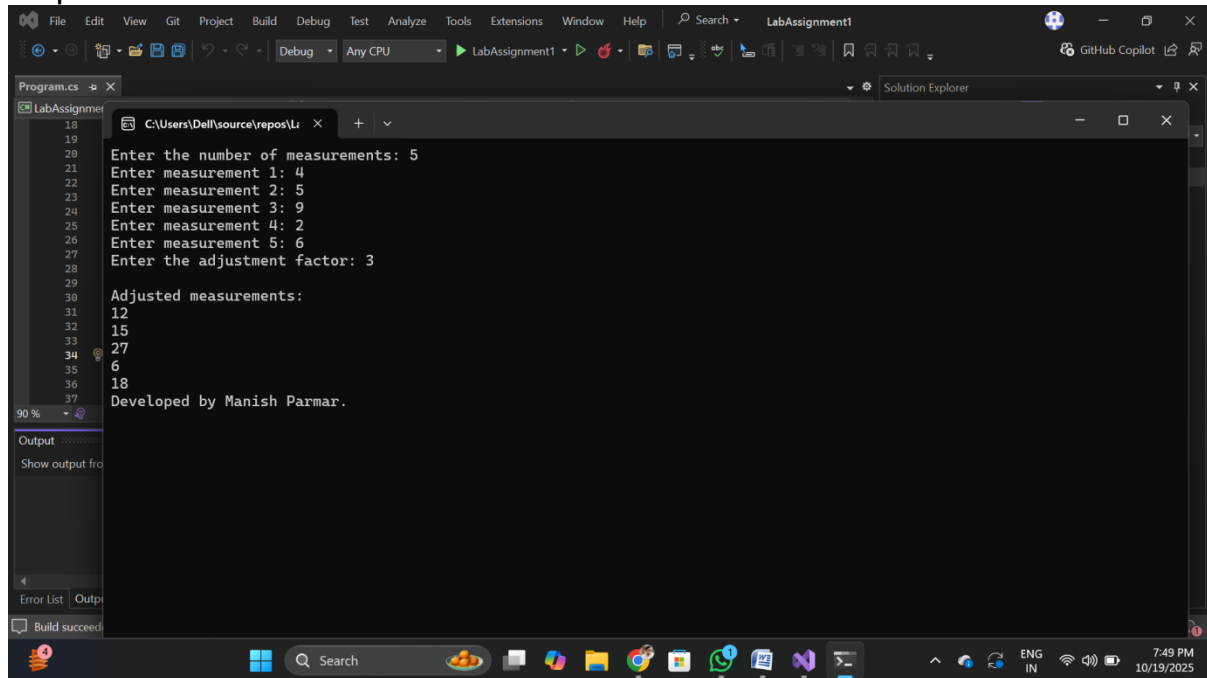
            for (int i = 0; i < n; i++)
            {
                Console.WriteLine("Enter measurement " + (i + 1) + ": ");
                measurements[i] = int.Parse(Console.ReadLine());
            }

            Console.WriteLine("Enter the adjustment factor: ");
            int factor = int.Parse(Console.ReadLine());

            for (int i = 0; i < n; i++)
            {
                measurements[i] = measurements[i] * factor;
            }

            Console.WriteLine("\nAdjusted measurements:");
            for (int i = 0; i < n; i++)
            {
                Console.WriteLine(measurements[i]);
            }
            Console.WriteLine("Developed by Manish Parmar ");
            Console.ReadLine();
        }
    }
}
```

Output:



```
18 Enter the number of measurements: 5
19
20 Enter measurement 1: 4
21 Enter measurement 2: 5
22 Enter measurement 3: 9
23 Enter measurement 4: 2
24 Enter measurement 5: 6
25 Enter the adjustment factor: 3
26
27 Adjusted measurements:
28 12
29 15
30 27
31 6
32 18
33 Developed by Manish Parmar.
```

Question 7

You are tasked with creating a search function for a library system that finds a specific book by its code. Write a C# program that searches for a specific value in an integer array using a loop and returns its index if found.

Input: `int[] bookCodes = {101, 203, 304, 405, 506}; int searchCode = 304;`

Answer 7. `namespace LabAssignment1`

```
{
    internal class Program
    {
        static void Main(string[] args)
        {
            Console.WriteLine("Enter the number of book codes: ");
            int n = int.Parse(Console.ReadLine());
            int[] bookCodes = new int[n];

            for (int i = 0; i < n; i++)
            {
                Console.WriteLine("Enter book code " + (i + 1) + ": ");
                bookCodes[i] = int.Parse(Console.ReadLine());
            }

            Console.WriteLine("Enter the book code to search: ");
            int searchCode = int.Parse(Console.ReadLine());
            int index = -1;

            for (int i = 0; i < n; i++)
            {
                if (bookCodes[i] == searchCode)
                {
                    index = i;
                    break;
                }
            }
        }
    }
}
```



```

    }

    if (index != -1)
        Console.WriteLine("Book found at index: " + index);
    else
        Console.WriteLine("Book not found.");
    Console.WriteLine("Developed by Manish Parmar.");
    Console.ReadLine();
}
}
}

```

Output:

```

C:\Users\Dell\source\repos\LabAssignment1\LabAssignment1\Program.cs
23
24
25
26
27 Enter the number of book codes: 3
28 Enter book code 1: 101
29 Enter book code 2: 102
30 Enter book code 3: 103
31
32 Enter the book code to search: 102
33 Book found at index: 1
34 Developed by Manish Parmar
35
36
37
38
39
40
41
42
90 %
Output
Show output from:
Build succeeded at
1>----- Build s
1>Skipping analy
1>LabAssignment1
===== Build
===== Build
Error List
Build succeeded

```

Question 8

In an academic project, you need to identify the second smallest grade in a list of student grades. Develop a C# program that finds the second smallest element in an integer array using loops and sorting techniques.

Input: `int[] grades = {56, 78, 89, 45, 67};`

Answer 8. `namespace LabAssignment1`

```

{
    internal class Program
    {
        static void Main(string[] args)
        {
            Console.Write("Enter the number of students: ");
            int n = int.Parse(Console.ReadLine());

            int[] grades = new int[n];

            for (int i = 0; i < n; i++)
            {
                Console.Write("Enter grade " + (i + 1) + ": ");
                grades[i] = int.Parse(Console.ReadLine());
            }
        }
    }
}

```

```

    }

    for (int i = 0; i < n - 1; i++)
    {
        for (int j = 0; j < n - i - 1; j++)
        {
            if (grades[j] > grades[j + 1])
            {
                int temp = grades[j];
                grades[j] = grades[j + 1];
                grades[j + 1] = temp;
            }
        }
    }

    if (n >= 2)
        Console.WriteLine("\nSecond smallest grade is: " + grades[1]);
    else
        Console.WriteLine("\nNot enough grades to determine the second
smallest.");
    Console.WriteLine("Developed by Manish Parmar.");
    Console.ReadLine();
}
}
}

```

Output:

The screenshot shows the Visual Studio IDE with a C# program running. The console output is as follows:

```

Enter the number of students: 5
Enter grade 1: 45
Enter grade 2: 65
Enter grade 3: 78
Enter grade 4: 23
Enter grade 5: 56

Second smallest grade is: 45
Developed by Manish Parmar.

```

The bottom status bar indicates "Build succeeded".

Question 9

You are improving a system where you need to clean up duplicate entries from a list of IDs. Create a C# program that removes all duplicates from an integer array using loops and additional data structures.

Input: `int[] ids = {102, 215, 102, 324, 215};`

Answer 9. `namespace LabAssignment1`

```

{
    internal class Program
    {
        static void Main(string[] args)
        {
            Console.WriteLine("Enter the number of IDs: ");
            int n = int.Parse(Console.ReadLine());

            int[] ids = new int[n];

            for (int i = 0; i < n; i++)
            {
                Console.WriteLine("Enter ID " + (i + 1) + ": ");
                ids[i] = int.Parse(Console.ReadLine());
            }

            List<int> uniqueIds = new List<int>();

            for (int i = 0; i < n; i++)
            {
                if (!uniqueIds.Contains(ids[i]))
                {
                    uniqueIds.Add(ids[i]);
                }
            }

            Console.WriteLine("\nUnique IDs:");
            foreach (int id in uniqueIds)
            {
                Console.WriteLine(id);
            }
            Console.WriteLine("Developed by Manish Parmar.");

            Console.ReadLine();
        }
    }
}

```

Output:

```

C:\Users\Dell\source\repos\L4 x + v
Pr Enter the number of IDs: 6
En Enter ID 1: 101
En Enter ID 2: 203
En Enter ID 3: 213
En Enter ID 4: 101
En Enter ID 5: 203
En Enter ID 6: 121

Unique IDs:
101
203
213
121
Developed by Manish Parmar.
90
Ou
St
u
1
1
1
=
4
Er
Build succeeded
Add to Source Control Select Repository
7:55 PM
10/19/2025

```

Question 10

You are developing a function that finds common elements in two different datasets for an analytics application. Write a C# program that finds the common elements between two integer arrays using loops.

Input: int[] dataset1 = {1, 2, 3, 4, 5}; int[] dataset2 = {3, 4, 5, 6, 7};

Answer 10. namespace LabAssignment1

```
{
    internal class Program
    {
        static void Main(string[] args)
        {
            Console.WriteLine("Enter the number of elements in dataset1: ");
            int n1 = int.Parse(Console.ReadLine());
            int[] dataset1 = new int[n1];
            for (int i = 0; i < n1; i++)
            {
                Console.WriteLine("Enter element " + (i + 1) + " of dataset1: ");
                dataset1[i] = int.Parse(Console.ReadLine());
            }

            Console.WriteLine("Enter the number of elements in dataset2: ");
            int n2 = int.Parse(Console.ReadLine());
            int[] dataset2 = new int[n2];
            for (int i = 0; i < n2; i++)
            {
                Console.WriteLine("Enter element " + (i + 1) + " of dataset2: ");
                dataset2[i] = int.Parse(Console.ReadLine());
            }

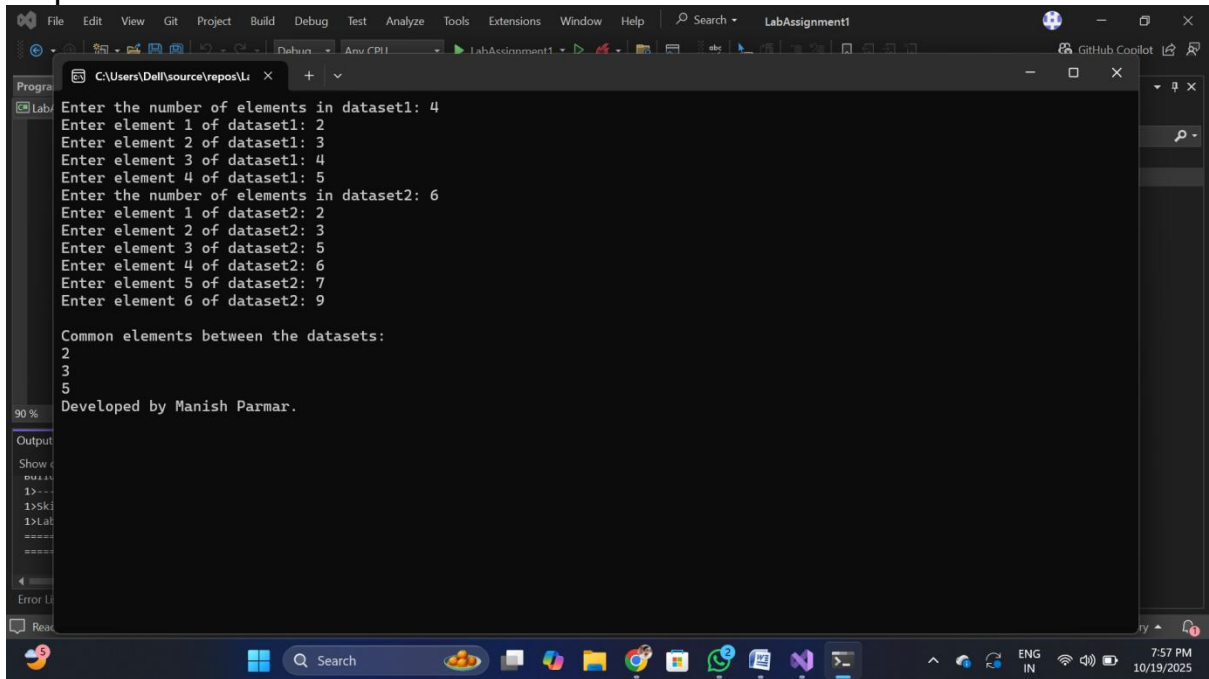
            List<int> commonElements = new List<int>();

            for (int i = 0; i < n1; i++)
            {
                for (int j = 0; j < n2; j++)
                {
                    if (dataset1[i] == dataset2[j] &&
!commonElements.Contains(dataset1[i]))
                    {
                        commonElements.Add(dataset1[i]);
                    }
                }
            }

            Console.WriteLine("\nCommon elements between the datasets:");
            if (commonElements.Count > 0)
            {
                foreach (int elem in commonElements)
                {
                    Console.WriteLine(elem);
                }
            }
            else
            {
                Console.WriteLine("No common elements found.");
            }
            Console.WriteLine("Developed by Manish Parmar.");
            Console.ReadLine();
        }
    }
}
```

}

Output:



The screenshot shows a Visual Studio Code window with a terminal running a C++ program. The program prompts the user to enter the number of elements in two datasets and then the elements themselves. It then outputs the common elements between the two datasets.

```
Enter the number of elements in dataset1: 4
Enter element 1 of dataset1: 2
Enter element 2 of dataset1: 3
Enter element 3 of dataset1: 4
Enter element 4 of dataset1: 5
Enter the number of elements in dataset2: 6
Enter element 1 of dataset2: 2
Enter element 2 of dataset2: 3
Enter element 3 of dataset2: 5
Enter element 4 of dataset2: 6
Enter element 5 of dataset2: 7
Enter element 6 of dataset2: 9

Common elements between the datasets:
2
3
5
Developed by Manish Parmar.
```