

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.Write("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();
        }
    }
}
```

```
Pr Enter the number of transactions: 2
[>] Enter transaction 1: 400
[>] Enter transaction 2: 500
Total sum of transactions: 900
Developed by Manish Parmar.
```

The screenshot shows a Microsoft Visual Studio interface. The top menu bar includes File, Edit, View, Git, Project, Build, Debug, Test, Analyze, Tools, Extensions, Window, Help, and a Search bar. The title bar says "LabAssignment1". The main area displays a C# code editor with the following content:

```
90
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```

The output window below the editor shows the program's execution:

```
Pr Enter the number of transactions: 2
[>] Enter transaction 1: 400
[>] Enter transaction 2: 500
Total sum of transactions: 900
Developed by Manish Parmar.
```

The status bar at the bottom shows the weather as "Sunny 31°C", the date and time as "10/19/2025 12:25 PM", and system information like "ENG IN".

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:

```

C:\Users\DELL\source\repos\LabAssignment1\bin\Debug\LabAssignment1.exe - 0 errors, 0 warnings
Enter the number of students: 2
Enter score 1: 45
Enter score 2: 65
Average score of the class: 55
Developed by Manish Parmar.

90 %
Output
Show c
Show e
Show l
Show m
Show s
Show t
Show u
Show v
Show w
Show x
Show y
Show z
Error List
File Edit View Git Project Build Debug Test Analyze Tools Extensions Window Help | Search | LabAssignment1
GitHub Copilot
12:30 PM 10/19/2025

```

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:

The screenshot shows the Microsoft Visual Studio IDE interface. The top menu bar includes File, Edit, View, Git, Project, Build, Debug, Test, Analyze, Tools, Extensions, Window, Help, and a GitHub Copilot icon. The title bar says "LabAssignment1". The main window displays the output of a C# program. The output window shows the following text:

```

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.

```

The bottom status bar shows system information: "Breaking news Louvre Museum...", "Search", "7:40 PM", "ENG IN", and "10/19/2025".

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:

The screenshot shows the Microsoft Visual Studio IDE interface. The top menu bar includes File, Edit, View, Git, Project, Build, Debug, Test, Analyze, Tools, Extensions, Window, Help, and a Search bar. The title bar says "LabAssignment1". The main area has a code editor with "Program.cs" open and an output window below it. The output window shows the following text:

```

23 Enter the number of participants: 5
24 Enter code for participant 1: 102
25 Enter code for participant 2: 201
26 Enter code for participant 3: 121
27 Enter code for participant 4: 123
28 Enter code for participant 5: 321
29
30
31 Number of male participants: 1
32 Number of female participants: 4
33 Developed by Manish Parmar.
34
35
36
37
38
39
40
41
42

```

The status bar at the bottom shows the date and time as 7:42 PM on 10/19/2025.

Question 5

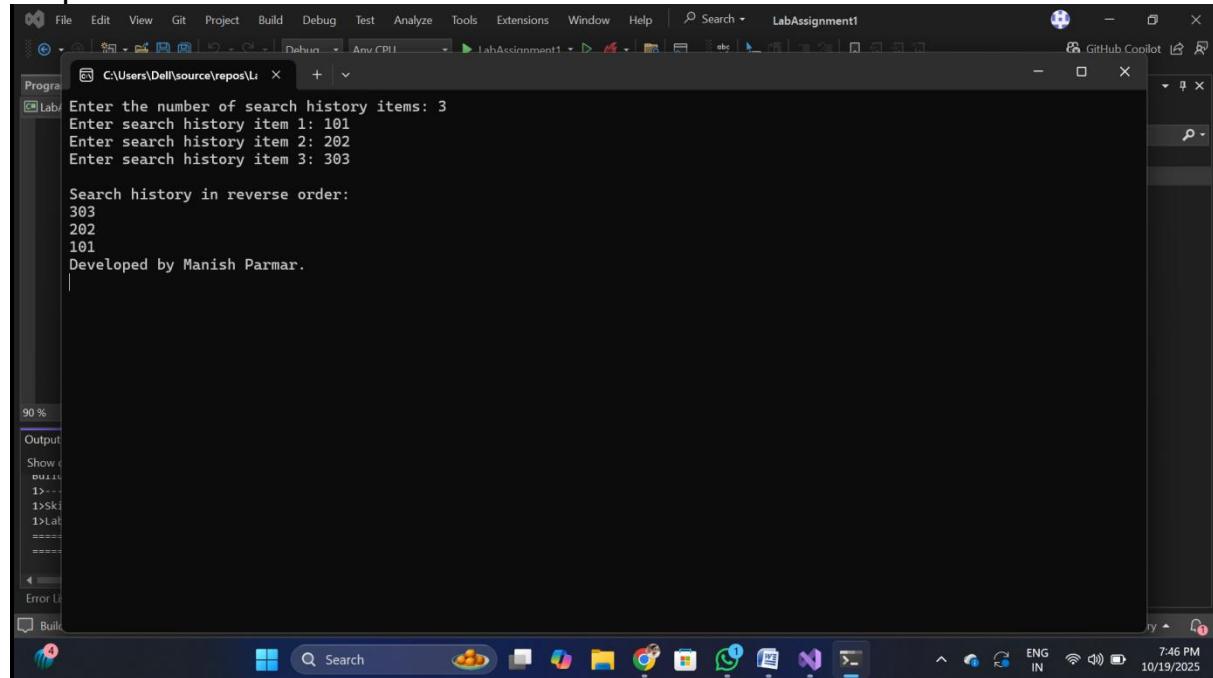
You are building a feature for an app that displays the recent search history in reverse order. Implement a C# program that reverses the elements of an integer array using a loop.

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.Write("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 the Microsoft Visual Studio interface with the 'Output' window open. The window displays the following text from the console application:

```
C:\Users\DELL\source\repos\LabAssignment1> 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.Write("Enter measurement " + (i + 1) + ": ");
                measurements[i] = int.Parse(Console.ReadLine());
            }

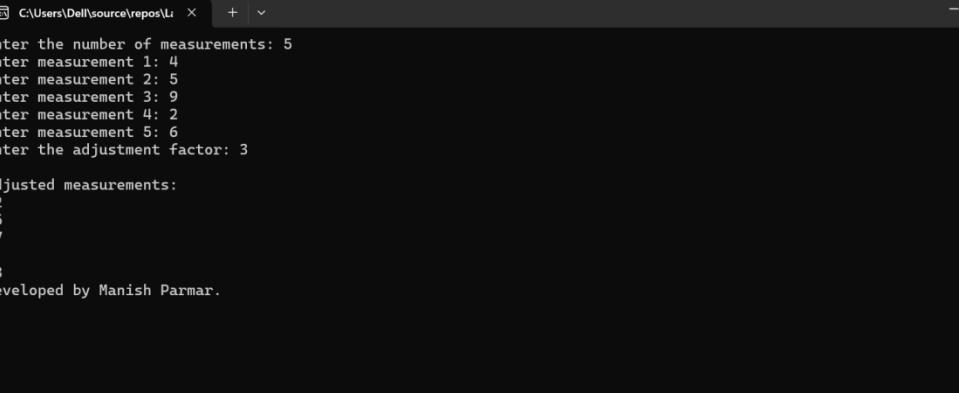
            Console.WriteLine("Enter the adjustment factor: ");
            int factor = int.Parse(Console.ReadLine());

            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:



The screenshot shows the Microsoft Visual Studio interface with a dark theme. The top menu bar includes File, Edit, View, Git, Project, Build, Debug, Test, Analyze, Tools, Extensions, Window, Help, and Search. The title bar says "LabAssignment1". The toolbar contains icons for file operations like Open, Save, and Print, along with symbols for GitHub Copilot, Undo, Redo, and others. A status bar at the bottom shows "ENG IN" and the date "10/19/2025".

The main window displays the code in "Program.cs" and its output in the "Output" window.

```
18
19
20
21 Enter the number of measurements: 5
22 Enter measurement 1: 4
23 Enter measurement 2: 5
24 Enter measurement 3: 9
25 Enter measurement 4: 2
26 Enter measurement 5: 6
27 Enter the adjustment factor: 3
28
29
30 Adjusted measurements:
31 12
32 15
33 34
34 27
35 6
36 18
37
38 Developed by Manish Parmar.
```

The "Output" window shows "Build succeeded".

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.Write("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:

The screenshot shows the Microsoft Visual Studio IDE interface. In the center, there is a terminal-like window displaying the following text:

```

Enter the number of book codes: 3
Enter book code 1: 101
Enter book code 2: 102
Enter book code 3: 103
Enter the book code to search: 102
Book found at index: 1
Developed by Manish Parmar

```

Below this window, the 'Output' window shows the build logs:

```

Show output from: Build started at 10/19/2025 7:51 PM
1>----- Build started: Project: LabAssignment1, Configuration: Debug Any CPU -----
1>LabAssignment1 -> C:\Users\DELL\source\repos\LabAssignment1\LabAssignment1\bin\Debug\LabAssignment1.exe
1>LabAssignment1 -> C:\Users\DELL\source\repos\LabAssignment1\LabAssignment1\bin\Debug\LabAssignment1.exe.manifest
1>LabAssignment1 -> C:\Users\DELL\source\repos\LabAssignment1\LabAssignment1\bin\Debug\LabAssignment1.pdb
1>LabAssignment1 -> C:\Users\DELL\source\repos\LabAssignment1\LabAssignment1\bin\Debug\LabAssignment1.dll
1>LabAssignment1 -> C:\Users\DELL\source\repos\LabAssignment1\LabAssignment1\bin\Debug\LabAssignment1.exe
Build succeeded.

```

The status bar at the bottom right indicates the date and time: 10/19/2025 7:51 PM.

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 Microsoft Visual Studio interface with the following details:

- Solution Explorer:** Shows the project structure with files like Program.cs, LabAssignment1.cs, and Main(string[] args).
- Output Window:** Displays the program's execution log, including the build process and the output of the console application.
- Console Window:** Shows the user input and the program's response. The user enters 5 student grades: 45, 65, 78, 23, and 56. The program then outputs "Second smallest grade is: 45" and "Developed by Manish Parmar."

```

Program.cs  x
LabAssignment1.cs  x
Main(string[] args)  x

C:\Users\Dee\source\repos\Li  x  +
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.

Show output from: Build
Build started at 7:15
1>----- Build start
1>Skipping analyzers
1>LabAssignment1 ->
1>===== Build: 1
1>===== Build complete

Error List  Output
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.Write("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\LabAssignment1> 
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.

Build succeeded

```

The screenshot shows a terminal window titled 'LabAssignment1' running on a Windows operating system. The user has entered the number of IDs as 6. The program then asks for six integer inputs: 101, 203, 213, 101, 203, and 121. It then prints out the unique IDs: 101, 203, 213, and 121. Finally, it prints the developer's name, 'Manish Parmar.'.

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.Write("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.Write("Enter element " + (i + 1) + " of dataset1: ");
                dataset1[i] = int.Parse(Console.ReadLine());
            }

            Console.Write("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.Write("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 Windows desktop environment with a Visual Studio Code terminal window open. The terminal displays the following text:

```
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.
```

The terminal window has tabs for "Programs" and "LabAssignment1". The status bar at the bottom right shows the date and time as 7:57 PM, 10/19/2025. The taskbar at the bottom includes icons for File Explorer, Edge, and other applications.