

Day 6 Morning Assignments

By

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1. WACP to declare ArrayList and assign some values and find sum.

Code:

```
using System;
using System.Collections;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;

namespace Array_List_Program_to_Find_Sum
{
    internal class Program
    {
        static void Main(string[] args)
        {
            ArrayList data = new ArrayList();
            int sum=0;

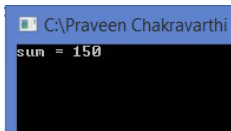
            data.Add(10);
            data.Add(20);
            data.Add(30);
            data.Add(40);
            data.Add(50);

            for (int i = 0; i < data.Count; i++)
                sum = sum + (int)data[i];

            Console.WriteLine("sum = {0}", sum);

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

Output:



2. Research and find how the values of ArrayList are stored in the memory.

ArrayList changes memory allocation as it grows.

When we specify the capacity while initialising the ArrayList, it allocates enough memory to store objects up to that capacity. The logical size remains 0. When it is time to expand the capacity, a new, larger array is created, and the values are copied to it.

3. What are the dis-advantages of ArrayList (Collections ArrayList)

Disadvantages of Array List:

1. As they operate on Object data type, we have to do unboxing of the data.
2. We might get runtime errors due to Object data type (because it can store any type of value into the collection) which prevents the operations .
3. Not Type-Safe.

4. WACP to declare List<int> and assign some values and find sum

Code:

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;

namespace List_Program_to_find_sum
{
    internal class Program
    {
        static void Main(string[] args)
        {
            List<int> data = new List<int>();
            int sum = 0;

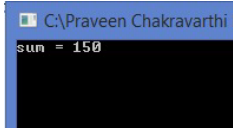
            data.Add(10);
            data.Add(20);
            data.Add(30);
            data.Add(40);
            data.Add(50);
```

```

        for (int i=0; i< data.Count; i++)
            sum = sum + data[i];
        Console.WriteLine("sum = {0}", sum);
        Console.ReadLine();
    }
}

```

Output:



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sum = 150

5. In a tabular format write the differences between Collections and Generic

Differences between Collections and Generics

Collections	Generic
Namespace : System.Collections	Namespace : System.Collections.Generic
Type of Element : Object Type	Type of Element : Parameter Type
Type Casting Needed? Yes (to convert one type of data type to another)	Type Casting Needed? No (as all the values will be of same data type)
Example : ArrayList	Example : List<T>
Unboxing is performed	No boxing or unboxing is performed
Runtime errors may occur	No runtime errors

6. Research and find how the values of List<T> are stored in the memory

Lists are Stored in Distinct chunks of Memory which are linked together with pointers, Which enables efficient use of memory generally does not requires Resizing.

7. WACP to declare List<String> and add 5 values and print the values using a. for loop b. foreach loop c. Lambda Expression

Code:

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;

namespace Printing_List_program_using_various_loop
{
    internal class Program
    {
        static void Main(string[] args)
        {
            List<string> data = new List<string>();

            data.Add("Pacific Ocean");
            data.Add("Indian Ocean");
            data.Add("Arctic Ocean");
            data.Add("Atlantic Ocean");
            data.Add("Southern Ocean");

            // printing values using For loop
            Console.WriteLine("*****");
            Console.WriteLine("using for loop");
            Console.WriteLine("*****");

            for (int i=0; i<data.Count; i++)

                Console.WriteLine(data[i]);

            // printing values using foreach loop
            Console.WriteLine("*****");
            Console.WriteLine("using foreach loop");
            Console.WriteLine("*****");

            foreach (var d in data)
```

```

        Console.WriteLine(d);

        // printing values using Lambda Expression
        Console.WriteLine("*****");
        Console.WriteLine("using lambda exprssion");
        Console.WriteLine("*****");

        data.ForEach(p=> Console.WriteLine(p));

        Console.ReadLine();
    }
}
}

```

Output :



```

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*****
using for loop
*****
Pacific Ocean
Indian Ocean
Arctic Ocean
Atlantic Ocean
Southern Ocean
*****
using foreach loop
*****
Pacific Ocean
Indian Ocean
Arctic Ocean
Atlantic Ocean
Southern Ocean
*****
using lambda expression
*****
Pacific Ocean
Indian Ocean
Arctic Ocean
Atlantic Ocean
Southern Ocean

```

- 8. WACP to declare List<int> and read 5 values from user and find sum using**
- for loop**
 - foreach loop**
 - Lambda Expression**

Code:

```

using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;

namespace List_Program_to_find_sum_using_various_loops
{
    internal class Program
    {
        static void Main(string[] args)

```

```

{
    List<int> data = new List<int>();
    int sum = 0, sum1 = 0, sum2 = 0;
    int temp;

    // read from the user
    for (int i = 1; i <= 5; i++)
    {
        Console.WriteLine("enter any number: ");
        temp = Convert.ToInt32(Console.ReadLine());
        data.Add(temp);
    }

    // finding sum using for loop
    for (int i=0; i<data.Count; i++)
        sum = sum + data[i];

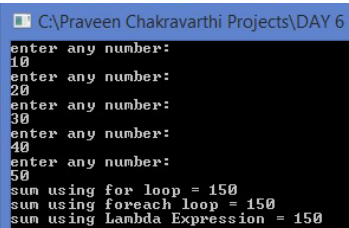
    // finding sum using foreach loop
    foreach (var d in data)
        sum1 = sum1 + d;

    // finding sum using Lambda Expression
    data.ForEach(d=> sum2 = sum2 + d);

    Console.WriteLine("sum using for loop = {0}", sum);
    Console.WriteLine("sum using foreach loop = {0}", sum1);
    Console.WriteLine("sum using Lambda Expression = {0}", sum2);
    Console.ReadLine();
}
}
}

```

Output:



```

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enter any number:
10
enter any number:
20
enter any number:
30
enter any number:
40
enter any number:
50
sum using for loop = 150
sum using foreach loop = 150
sum using Lambda Expression = 150

```

9. In a tabular format write all data types in C# and write the respective alias name

Data Type	Alias Name
Byte	byte
UInt16	ushort
UInt32	uint
UInt64	ulong
SByte	sbyte
Int16	short
Int32	int
Int64	long
Single	float
Double	double
Decimal	decimal
Char	char
String	string
Boolean	bool

10. Write example programs for implicit and explicit type casting.

Code:

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;

namespace Implicit_and_Explicit_Casting
{
    internal class Program
```



```
{
    static void Main(string[] args)
    {
        // Implicit Type Casting

        float p = 45.235f;
        double q = p;

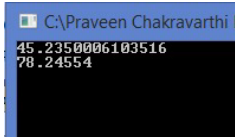
        Console.WriteLine(q);

        // Explicit Type Casting

        double a = 78.2455455776888d;
        float b = (float)a;
        Console.WriteLine(b);

        Console.ReadLine();
    }
}
```

Output:



```
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45.2350006103516
78.24554
```