Day6 Morning Assignment

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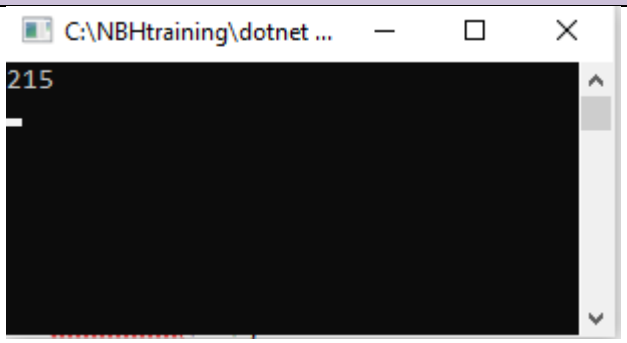
Question 1:Create a simple program to declare ArrayList and assign some values and find sum?

Program:

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

namespace Declaration_of_Arraylist
{
    internal class Program
    {
        static void Main(string[] args)
        {
            ArrayList data = new ArrayList();
            int sum=0;
            data.Add(25);
            data.Add(20);
            data.Add(30);
            data.Add(80);
            data.Add(60);

            foreach(var d in data)
            {
                sum = sum + (int)d;
            }
            Console.WriteLine(sum);
            Console.ReadLine();
        }
    }
}
```

Output:



Question2:
Research and find the values of ArrayList are stored in the memory?

Answer:
The element of an ArrayList are Stored in a chunk of contiguous memory(Consecutive blocks of memory allocated to user process are called Contiguous memory).
When that memory becomes full, a larger chunk of contiguous memory has to be allocated (usually twice the size) and the existing elements are into this chunk. We call this chunk the capacity of ArrayList object.

Question3:
Write the Disadvantages of ArrayList?

Disadvantages:

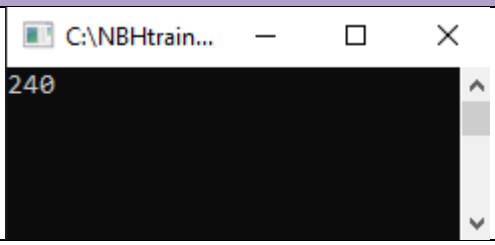
1. **When we run Program without any Compile error also gets Runtime error which is very dangerous and difficult to identify.**
2. **As the values in ArrayList are of Object type we have to do unboxing everytime.**

Question 4:
Create a simple C# program to declare List<int> and assign some values and find sum?

Program:

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

namespace Declare_Listtype
{
    internal class Program
    {
        static void Main(string[] args)
        {
            List<int> data = new List<int>();
            int sum = 0;
            data.Add(60);
            data.Add(50);
            data.Add(60);
            data.Add(40);
            data.Add(30);

            foreach(var d in data)
            {
                sum = sum + d;
            }
            Console.WriteLine(sum);
            Console.ReadLine();
        }
    }
}
```

Output:



Question 5: Difference between Collections and Generics

Ans:

Type	Collection	Generics
Namespace	`System.Collections;`	`System.Collections.Generic;`
Elements	Object type	Any type
Type Casting	Unboxing	Not required unboxing
Examples	ArrayList data=new ArrayList();	List<int> data= new List<int>();

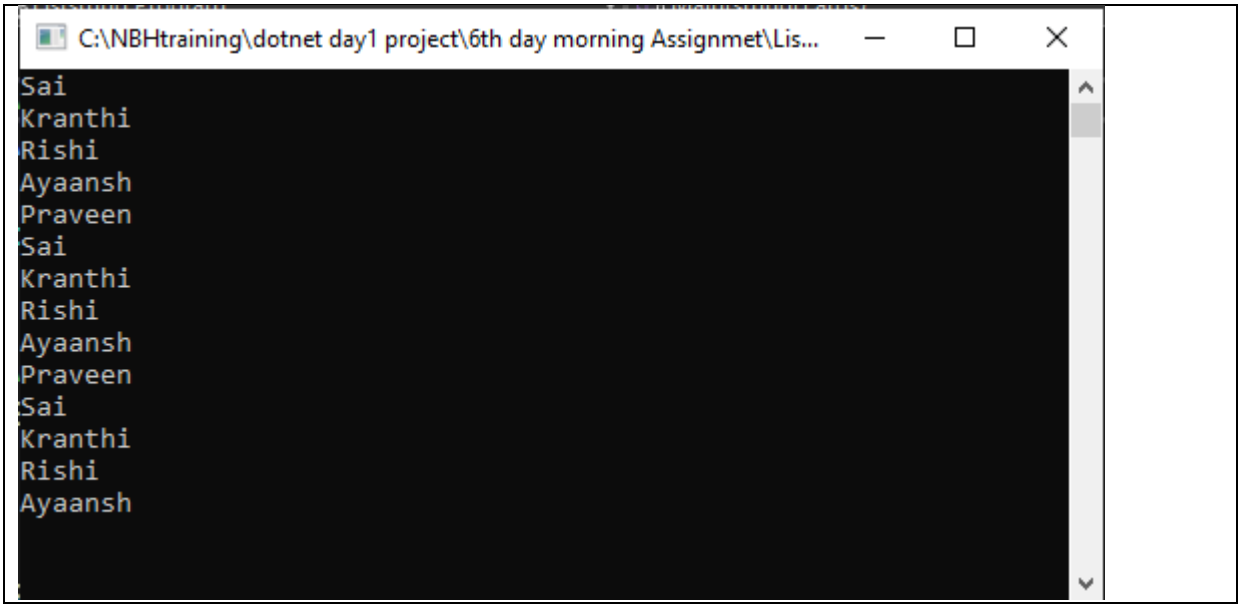
Question6: How the values of List<T> are stored in memory?
Ans: Memory Stored in Lists<T> as follows:
Lists are Stored in Distinct chunks of Memory which are linked together with pointers, Which enables efficient use of memory generally does not requires Resizing.

Question7:
WACP to declare list of string and add 5 values
a)For loop
b)For each
c)Lambda Expression

Program:

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

namespace Liststring
{
    internal class Program
    {
        static void Main(string[] args)
        {
            List<string> data = new List<string>();
            data.Add("Praveen");
            data.Add("Sai");
            data.Add("Kranthi");
            data.Add("Rishi");
            data.Add("Ayaansh");

            //print value using For loop
            for(int i=0;i<data.Count;i++)
            {
                Console.WriteLine(data[i]);
            }
            //print value using For each
            foreach(var d in data)
            {
                Console.WriteLine(d);
            }

            //print value using Lambda Expression
            data.ForEach(v => Console.WriteLine(v));



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

Output: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Sai
Kranthi
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Ayaansh

Question 8:

WACP to declare list<int> and read 5 values from user and find sum using
a)For loop
b)For each
c)Lambda Expression

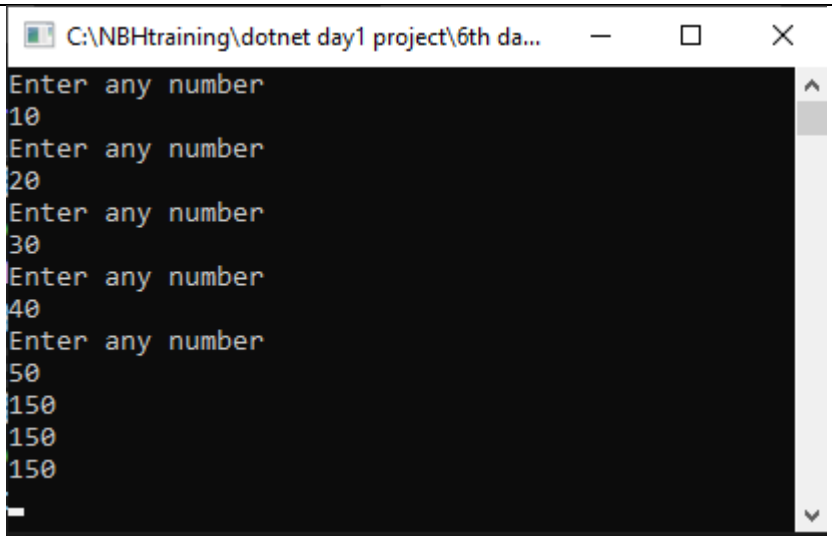
Program:

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

namespace Listtype_integers
{
    internal class Program
    {
        static void Main(string[] args)
        {
            List<int> data = new List<int>();
            int temp;
            int sum1=0; int sum2=0;int sum3=0;
            //Read data from User
            for (int i = 1; i <= 5; i++)
            {
                Console.WriteLine("Enter any number");
                temp = Convert.ToInt32(Console.ReadLine());
                data.Add(temp);
            }
            //sum using For loop
            for(int i = 0; i<data.Count;i++)
            {
                sum1 = sum1 + data[i];
            }
            //sum using For each
            foreach(var d in data)
            {
                sum2 = sum2 + d;
            }
            //sum using Lambda expression
            data.ForEach(v => sum3 = sum3 + v);

            Console.WriteLine(sum1);
            Console.WriteLine(sum2);
            Console.WriteLine(sum3);
            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
150
150
150

Question 9: Tabular format of alias name for Data types:

Data types	Alias Names
Byte	Byte
Ushort	UInt16
Uint	UInt32
Ulong	UInt64
Sbyte	SByte
Short	Int16
Int	Int32
Long	Int64
Float	Single
Double	Double
Decimal	Decimal
Char	Char
String	String
Bool	Boolean

Question 10:
Write a Simple example program for implicit and explicit?

Program:

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

namespace Typecasting
{
    internal class Program
    {
        static void Main(string[] args)
        {
            //Implicit Casting
            int a = 10;
            long b = a;
            Console.WriteLine(b);

            //Explicit Casting
            long c = 22;
            int d = (int)c;


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

Output: