Day 10 Morning Assignments

By

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NB Health Care

1. Write the two points discussed about inheritance in the class

Inheritance is the process of reusing base class methods in the derived class.

Inheritance main goal is : reusability and to remove duplicate code

Inheritance types :
Single inheritance
Multiple inheritance
Multilevel inheritance

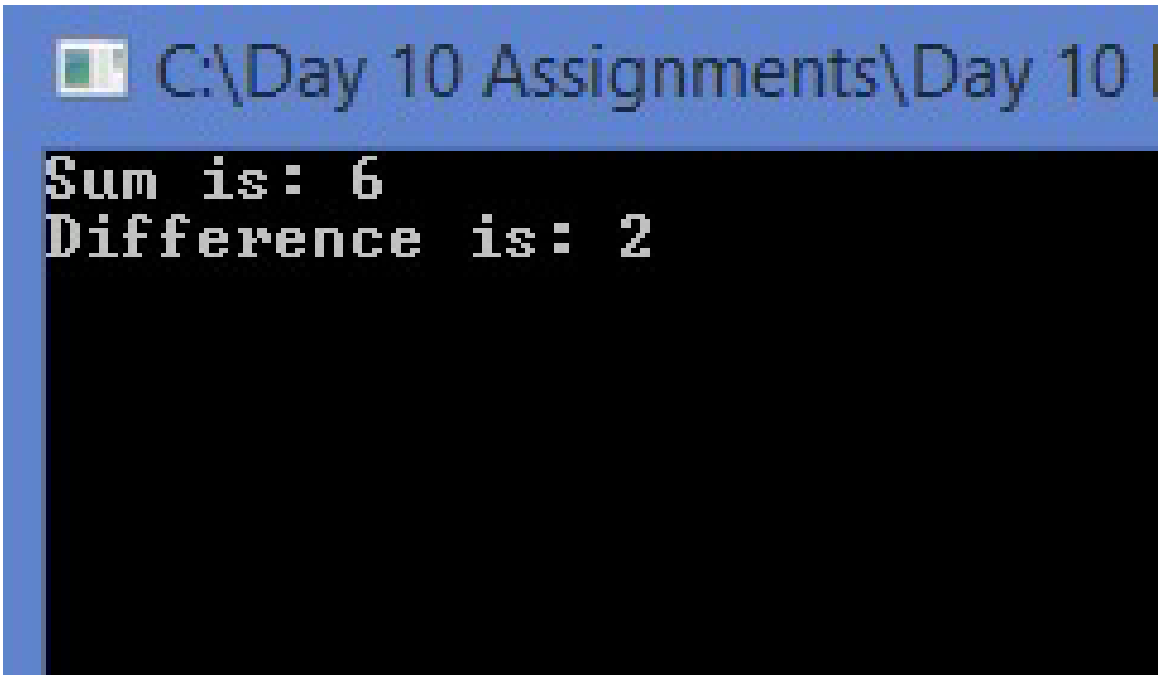
2. Write example code for
a. Single inheritance

Code:

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

namespace Day_10_Project_1
{
    // Author : Praveen Chakravarthi
    // Purpose : Example Code for Single Inheritance

    class Maths1
    {
        /// <summary>
        /// This Method Adds the given Numbers
        /// </summary>
        /// <returns></returns>
        public int Add(int a, int b)
        {
            return a + b;

        }
    }

    // Inheritance
    class Maths2 : Maths1  // Maths 2 is Child class whereas Maths1 is Parent Class
    {
        /// <summary>
        /// This Method Subtracts the given Numbers
        /// </summary>
```

```
        /// <returns></returns>
        public int Sub(int a, int b)
        {
            return a - b;
        }
    }

    internal class Program
    {
        static void Main(string[] args)
        {
            Maths2 data = new Maths2();
            Console.WriteLine($"Sum is: {data.Add(2,4)}");
            Console.WriteLine($"Difference is: {data.Sub(4,2)}");
            Console.ReadLine();

        }
    }
}
```

Output:



b. Multi level inheritance

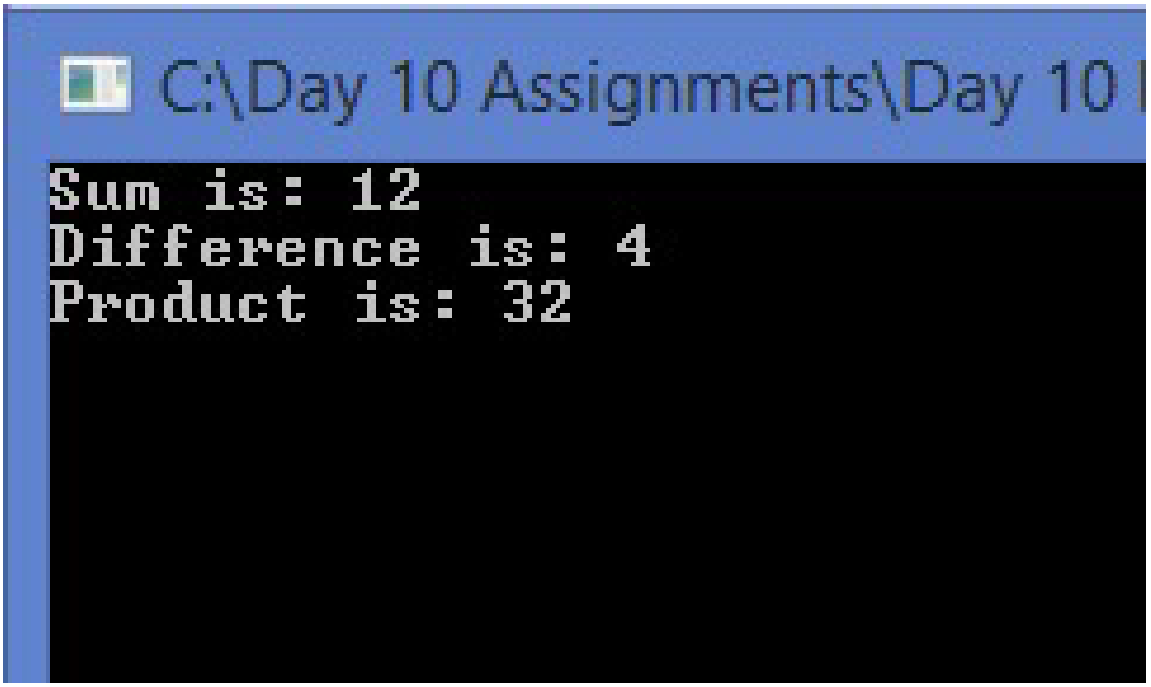
Code:

```
using System;
```

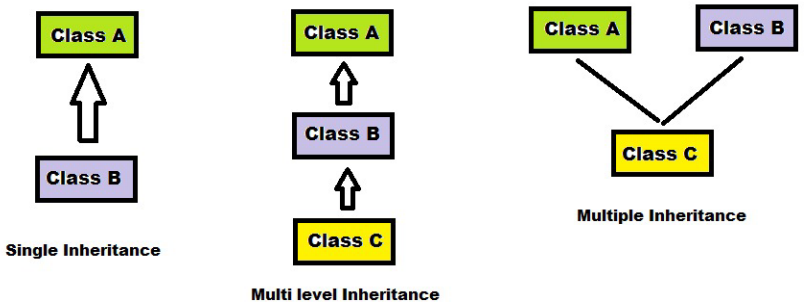
```
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;

namespace Day_10_Project_2
{
    // Author : Praveen Chakravarthi
    // Purpose : Example Code for Multilevel Inheritance
    class Maths1
    {
        /// <summary>
        /// This Method Adds the given Numbers
        /// </summary>
        /// <returns></returns>
        public int Add(int a, int b)
        {
            return a + b;

        }
    }

    // Inheritance
    class Maths2 : Maths1  // Maths 2 is Child class whereas Maths1 is Parent Class
    {
        /// <summary>
        /// This Method Subtracts the given Numbers
        /// </summary>
        /// <returns></returns>
        public int Sub(int a, int b)
        {
            return a - b;
        }
    }

    // Multilevel Inheritance
    class Maths3 : Maths2   // Maths 3 is Child class whereas Maths2 is Parent Class
    {
        /// <summary>
        /// This Method Multiplies the given Numbers
        /// </summary>
        /// <returns></returns>
        public int Mul(int a, int b)
        {
            return a* b;
        }
    }
    internal class Program
    {
        static void Main(string[] args)
        {
            Maths3 data = new Maths3();
            Console.WriteLine($"Sum is: {data.Add(8,4)}");
            Console.WriteLine($"Difference is: {data.Sub(8,4)}");
```

```
            Console.WriteLine($"Product is: {data.Mul(8,4)}");

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

Output:



3. Pictorially represent 3 types of inheritance discussed in the class



4. Why multiple inheritance is not supported for classes in C#

Multiple Inheritance is not supported in C# because adding multiple inheritance added too much complexity and less benefits, induce unpredictable bugs and difficult to debug

5. What is polymorphism?

Polymorphism:

The ability of an object to take many forms
It is of 2 types :
1. Method Overloading
2. Method OverRiding

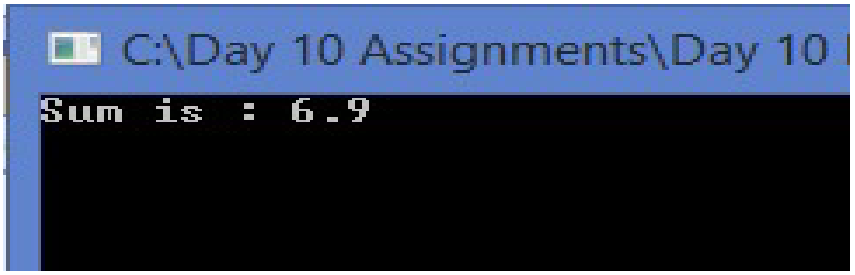
6. Write sample code for method overloading

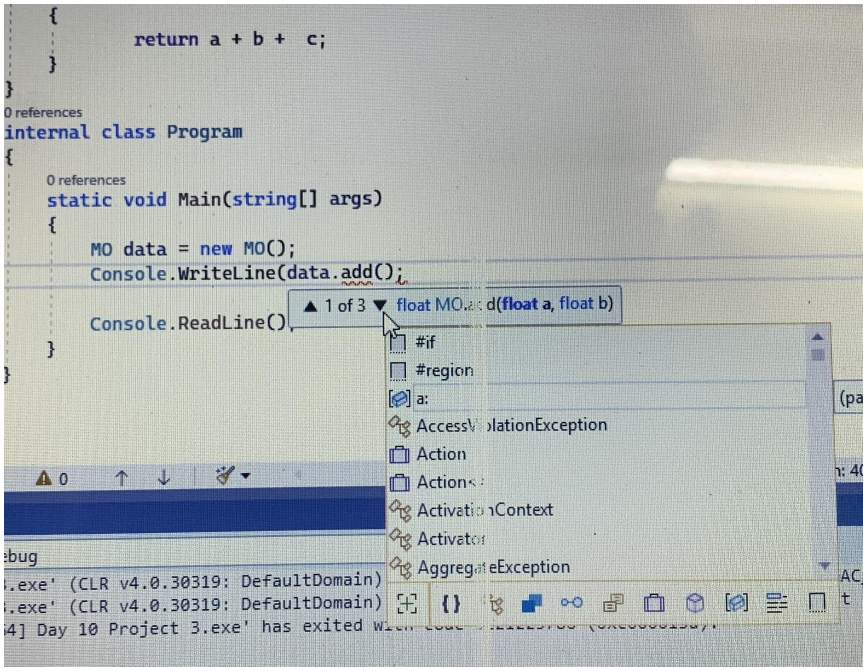
Code:

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

namespace Day_10_Project_3
{
    // Author : Praveen Chakravarthi
    // Purpose : Sample Code for Method Overloading

    class MO
    {
        public int Add(int a, int b)
        {
            return a + b;
        }

        public float Add(float a, float b)
        {
```

```
            return a + b;
        }

        public int Add(int a, int b, int c)
        {
            return a + b +  c;
        }
    }
    internal class Program
    {
        static void Main(string[] args)
        {
            MO data = new MO();
            Console.WriteLine($"Sum is : {data.Add(2.4f,4.5f)}");

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

Output:





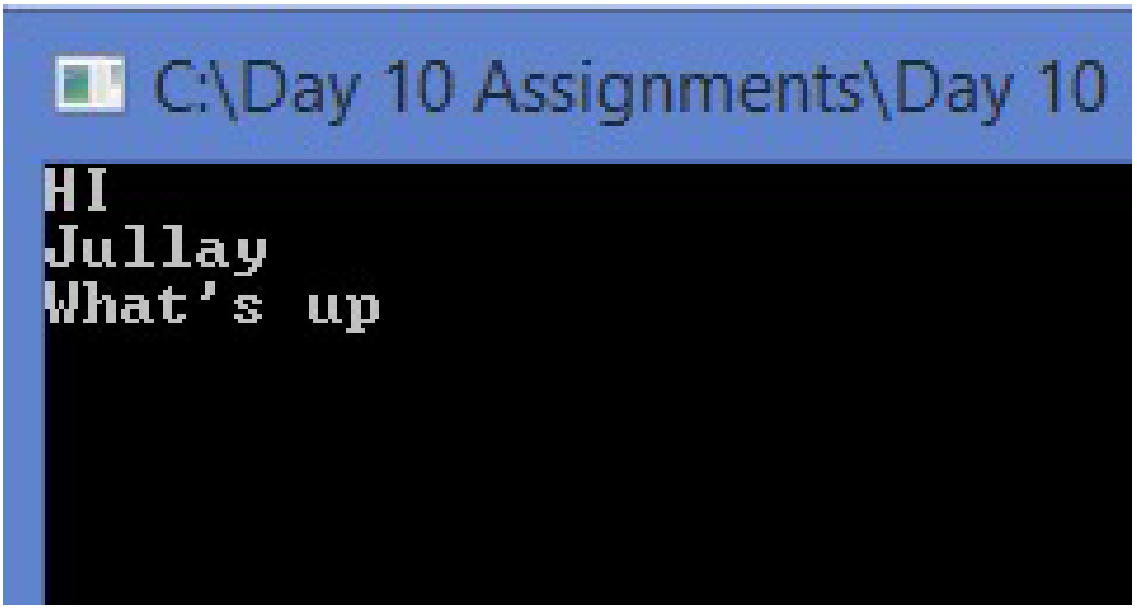
7. Write sample code for method overriding using new key word

Code:

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

namespace Day_10_Project_4
{
    // Author : Praveen Chakravarthi
    // Purpose : Sample Code for Method OverRiding

    class Hyderabad
    {
        public void PrintHi()
        {
            Console.WriteLine("HI");
        }

        public void PrintHello()
        {
            Console.WriteLine("Hello");
        }

        public void PrintWU()
        {
            Console.WriteLine("What's up");
        }
    }

    class Ladakh : Hyderabad
    {
        public new void PrintHello()
        {
            Console.WriteLine("Jullay");
        }
    }


    internal class Program
    {
        static void Main(string[] args)
        {
            Ladakh data = new Ladakh();
            data.PrintHi();
            data.PrintHello();
            data.PrintWU();
```

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

Output:



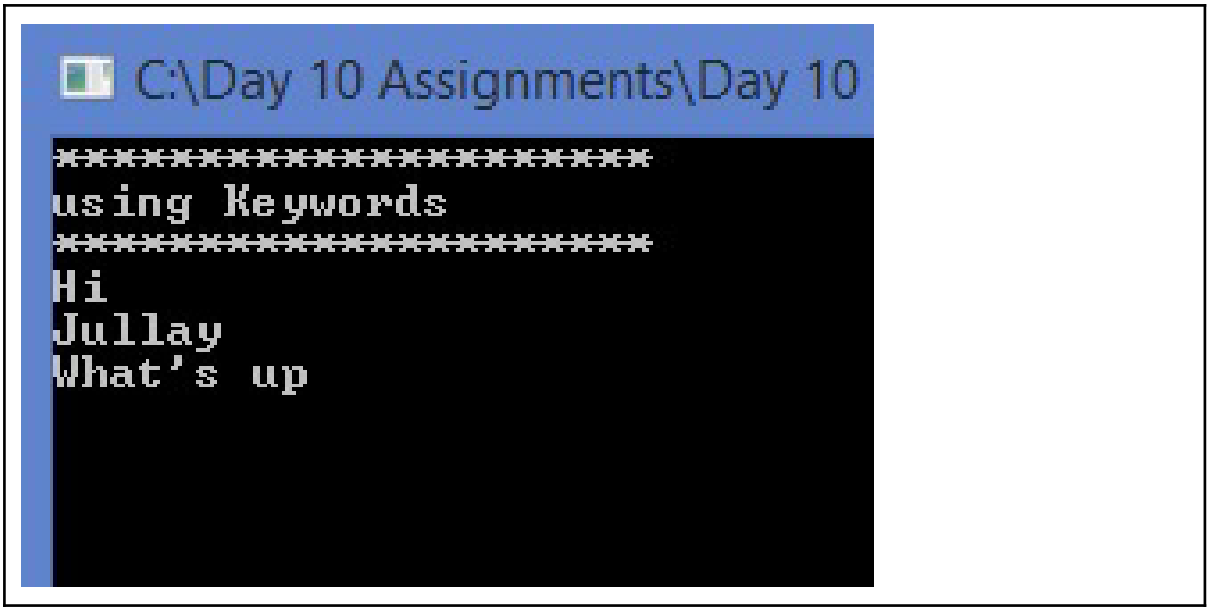
8. Research and write sample code for method overriding using virtual, override keyword.

Code:

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

namespace Day_10_Project_5
{
    // Author : Praveen Chakravarthi
    // Purpose : Sample Code for Method OverRiding using keywords

    class Hyderabad
    {
        public void PrintHi()
        {
            Console.WriteLine("Hi");
        }
```

```
        public virtual void PrintHello()
        {
            Console.WriteLine("Hello");
        }

        public void PrintWU()
        {
            Console.WriteLine("What's up");
        }
    }

    class Ladakh : Hyderabad
    {
        public override void PrintHello()
        {
            Console.WriteLine("Jullay");
        }
    }
    internal class Program
    {
        static void Main(string[] args)
        {
            Ladakh data = new Ladakh();

            Console.WriteLine("**********************");
            Console.WriteLine("using Keywords");
            Console.WriteLine("**********************");
            data.PrintHi();
            data.PrintHello();
            data.PrintWU();


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

Output:


C:\Day 10 Assignments\Day 10
****
using Keywords
****
Hi
Jullay
What's up