- **Important Note C++**
- *C++ is not a fully object-oriented programming language.*
- *It is a hybrid language that combines object-oriented* and *Linear programming techniques.*
- *Overall, C++ is a powerful and versatile programming language. However, it is not a fully object-oriented programming language.*

- **Important Note C#**

- *C# Modern Programming language.*
- *C# is Cross Platform.*
- *C# Is Managed Code (GC).*
- *C# MultiPorpose Programing Language.*
- *C# Is Fully object-oriented programming language.*
- *C# is a statically typed language.*
- *"That means that the data type of a variable must be declared before it can be use".*
- *C# Is Strongly Typed.*
- *"That meaning variables and objects must have a specific type declared at compile-time. "*
- *C# includes Garbage Collection.*
- *"That meaning automatic memory management through a garbage collector"*
- *C# Is Platform Independence(Cross Platform.)*

- ***OOP Concepts***
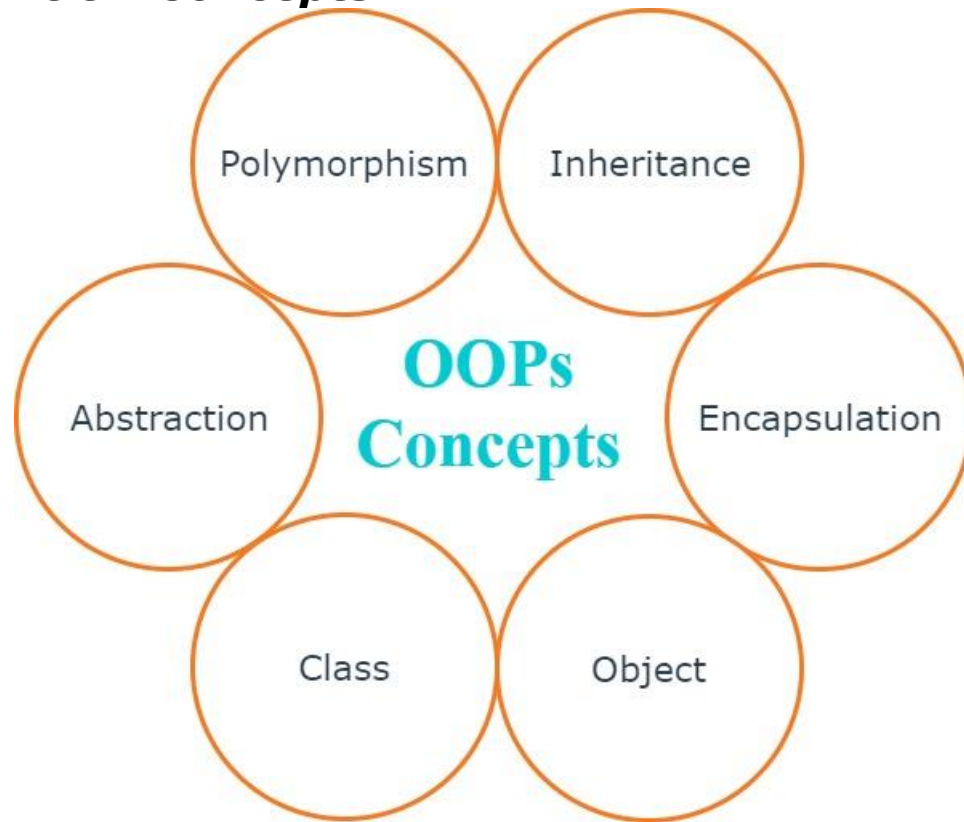
- **main goals of OOP**
- ***Encapsulation***
- *Encapsulation is the process of hiding the implementation details of an object from the outside world.*
- ***Abstraction***
- *Abstraction is the process of representing an object in terms of its essential features.*
- ***Polymorphism***
- *Polymorphism is the ability of an object to take on different forms.*
- *allows you to create code that is more flexible and adaptable.*

- **benefits of using OOP**
- *Reusability: OOP makes it easier to reuse code.*
- *Maintainability: OOP makes it easier to maintain code.*
- *Flexibility: OOP makes it easier to create flexible code.*

- *Variables*
- *Datatype must be*
  -> Size
  -> Validation
  -> Operation
- *Value Datatype Vs Reference Datatype .*

- *Note: Nullable Type*
  => int? X=null;

- *Note : Casting*

  ////Convert Same Data Type (int , lonng Decimal)

  //---------- implicit -> easy--------
          int x = 1200;
          long y = x;

  //---------------------------------

  //----------Exceplicit---------------
          long a = 54545454545;

```csharp
        int b = (int)a;// Casting Operation =>  //Over Flow Canbe Occure.

    //-----------------------------------
     // checked block Used To Check if over Flow occures Throw Exp..
        checked
        {
            long m = 54545454545;
            int n = (int)m;
        }
```

////Convert Different Data Type(String -> int || double)

```csharp
        string str= "125445";
        int x =Convert.ToInt32(str);
        int y =int.Parse(str);
          //---------
        int A = 254588556;
        string txt=A.ToString();
```