Component Development in C#

Note :-

(i) A Component is reusable piece of code.

(ii) Component in .net is called as a class library or Assembly.

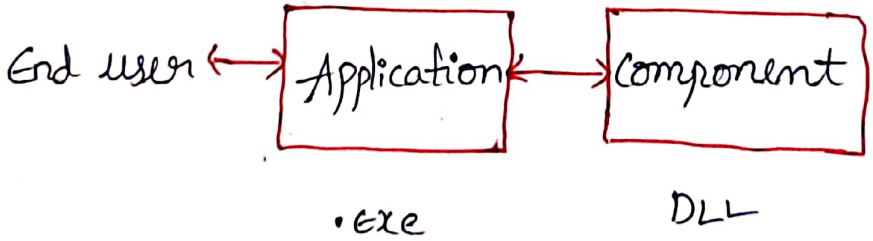
(iii) Component in Java is called as a package.

(iv) End user will never Interact with component.

(v) other Applications or other components will Interact with components.

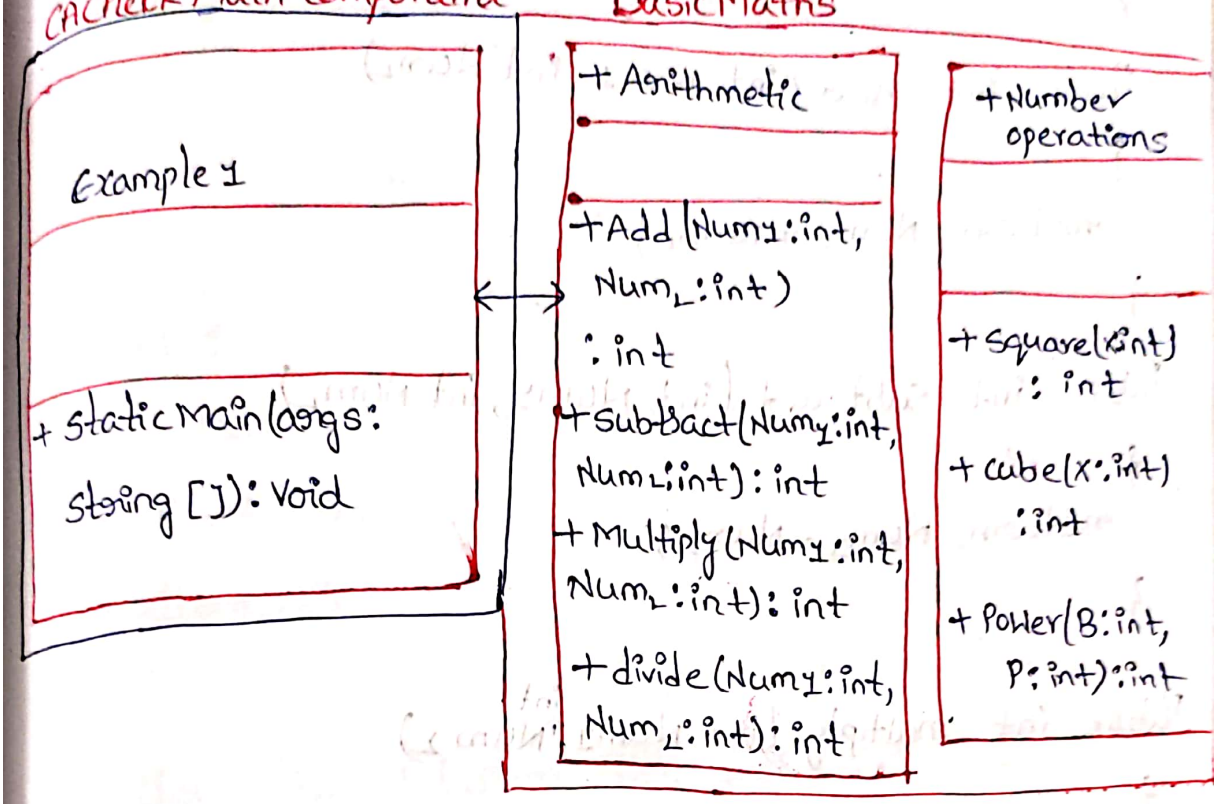
(vi) A component in .net will exit in the form of a DLL.

(vii) To create a component in .net we use class-library Template.



(viii) Components of the shelf (COTS)

* Example to Create a Component



* Creating the Component's

→ Go to Visual Studio click on file, click on new, click on project, search for class library template select class library (.net frame work) with C# programming language Template. click on next. Type the class library Name (Basic Maths) Choose the location to save, click on create.

→ Go to solution explorer change the class name Class1 to Arithmetic write the following code.

```
Public class Arithmetic
{
Public int Add (int Num1, int Num2)
{
 return Num1 + Num2;
}
Public int subtract (int Num1, int Num2)
{
 return Num1 - Num2;
}
Public int multiply (int Num1, int Num2)
{
 return Num1 * Num2;
}
Public int divide (int Num1, int Num2)
{
 return Num1 / Num2;
}
}
```

→ Create a class with the name number operations change the accessibility of class to Public. Write the following code.

```
Public class Number operations
{
Public int square (int x)
{
 return x * x
}
```

```
Public int cube (int x)
{
 return square (x) * x;
}
Public int Power (int B, int p)
{
   int R=1;
   for (int i=1; i<=p; i++)
     R = R*B;
   return R;
}
```

→ Build the solution this will create a DLL With the name Basic Maths. DLL.

→ Creating console application and consuming basic Maths. DLL.

→ Create a NEW Console Application with the name CACheckMath component.

→ Go to Solution Explorer select the solution click With right mouse button, click on add reference. Go to the location Where Basic Math. dLL is available, select the DLL, click on add, click on OK. Write the following code.

```
using BasicMaths;

namespace CACheckMathComponent
{
 class example1
 {
  static void Main(string[]args)
  {
   Arithmetic obj1=new Arithmetic();
   Numberoperations obj2=new Numberoperations();
   int x,Y;
  Console.Write("Enter Any two Numbers");
  X=Convert.ToInt32(Console.ReadLine());
  Y=Convert.ToInt32(Console.ReadLine());
  Console.WriteLine("sum is"+obj1.Add(x,Y));
  Console.WriteLine("Difference is"+obj1.Subtract(x,Y));
  Console.WriteLine("Product is"+obj1.Multiply(x,y));
  Console.WriteLine("Quotient is"+obj1.divide(x,y));
  Console.Write("Enter a number to find square"+
                "And cube values");
  X=Convert.ToInt32(Console.ReadLine());
  Console.WriteLine("Square Value is"+obj2.Square(x));
  Console.WriteLine("Cube Value is"+obj2.Cube(x));
  Console.Write("Enter Any Two Number to find power");
  X=Convert.to int32(Console.ReadLine());
  Y=Convert.to int32(Console.ReadLine());
```

```
Console.WriteLine(X+" To the power " + Y + "is" +
    Obj2.Power(X,Y));
```

* Example to Create a Component by using Properties to perform database operations.

CLIBDB operations

Emp Details
-EmpID : int -EName : string -Designation : string -DOJ : date -Salary : double -DeptNO : int +PEmpID : int, Set and get +PEName : string, Set and get +PDesignation : string, Set & get +PDOJ : date, Set & get +Psalary : double, Set & get +DeptNO : int, Set & get
-Sql Connection Con -Sql Command cmd -Sql DataReader DR
+Add Employee() : int +update Employee() : int +Delete Employee() : int +Find Employee() : boolean +Emp Details() :