**2- what's the difference between compiled and interpreted languages and in this way what about Csharp?**

**Compiled language vs interpreted languages**

**1- Compiled Languages:**These languages are translated into machine code (binary) by a compiler *before* running. This machine code is what the computer understands(0/1). The program runs faster because the computer doesn’t need to translate the code while running it. Examples of compiled languages are C, C++, and C#.

**2- Interpreted Languages:**These are executed directly by an interpreter, which translates the code *while* the program runs. This makes the program slower because translation happens in real time. Examples include Python and JavaScript.

**What About C#**

It’s a compiled language but not directly into machine code. Instead, it’s compiled into an intermediate code called MSIL (Microsoft Intermediate Language). Then, when you run the program, the .NET runtime (JIT compiler) converts this intermediate code into machine code for your computer to execute.

**3- Compare between implicit, explicit, Convert and parse casting?**

1. **Implicit Casting:** Automatic type conversion done by the compiler without any special syntax.

* Use it converting a smaller type to a larger type

int num = 10;

double result = num;

1. **Explicit Casting:** Manual conversion using parentheses, where the programmer tells the compiler to perform the conversion.

* Use it converting a larger type to a smaller type  
  double num = 10.5;

int result = (int)num;

1. **Convert:** A method in the System.Convert class that can handle various types of conversions.- Use it When you want to convert between incompatible types, like string to int or double  
   string str = "123";   
   int result = Convert.ToInt32(str);
2. **Parse:**  A method provided by specific types (like int, double) to parse a string into that type.  
   -Use it When you need to convert a string representation of a number into its numeric type.string str = "123";  
   int result = int.Parse(str);