1 What is .NET and how does C# fit in?

C# is one of the family of languages that make up .NET, the idea being that VB programmers could pick up VB.NET easily and C++ or Java developers could move into C# without too many problems. This meant, potentially, that existing teams of VB and C++ or Java programmers could develop code in a familiar language and the compilers organise the code to run together.

Note that C# is case sensitive, thus Console.Write is not the same as console.write.

1.1 .NET FRAMEWORK AND THE COMMON LANGUAGE RUNTIME

The Common Language Runtime (CLR) is the end result of the source code when compiled. However, to get to the CLR the C# source is first compiled into Microsoft Intermediate Language (MSIL). The intermediate language is necessary as this allows the family of languages to all work together (C#, VB.NET, etc.), so in theory developers can work in C#, VB.NET and VC++ .NET simultaneously on the same project.

Once the .NET framework is installed for a platform then the compiled code (CLR) can run on the given platform.

A key feature of the CLR is memory management; whereas in C++ the programmer must ensure that the memory is allocated and released, CLR does it for you.

The class libraries are extensive in CLR with the addition of ADO.NET from the .NET framework.

COM is not supported in .NET although there are some tools to integrate ActiveX controls and DLLs.

Table 1.1 The .NET framework at a glance

VB.NET	C#	C++	J#
	Microsoft Intermediate Language		
	Common Language Runtime		