

What is the difference between an IDE, a Library, an API, SDK, a toolkit, and a framework?

An **IDE** is an integrated development environment - a suped-up text editor with additional support for developing (such as forms designers, resource editors, etc), compiling and debugging applications. e.g Eclipse, Visual Studio.

A **Library** is a chunk of code that you can call from your own code, to help you do things more quickly/easily. For example, a Bitmap Processing library will provide facilities for loading and manipulating bitmap images, saving you having to write all that code for yourself.

An **API** (application programming interface) is a term meaning the functions/methods in a library that you can call to ask it to do things for you - the interface to the library.

An **SDK** (software development kit) is a library (often with extra tool applications, data files and sample code) that aid you in developing code that uses a particular system (e.g. extension code for using features of an operating system (Windows SDK), drawing 3D graphics via a particular system (DirectX SDK), writing add-ins to extend other applications (Office SDK), or writing code to make a device like an Arduino or a mobile phone do what you want)

A **toolkit** is like an SDK - it's a group of tools (and often code libraries) that you can use to make it easier to access a device or system.

A **framework** is a big library that provides many services (rather than perhaps only one focused ability as most libraries do). For example, .NET provides an application framework - it provides most (if not all) of the services you need to write a vast range of applications - so one "library" provides support for pretty much everything you need to do. Often a framework supplies a base on which you build your own code, rather than you building an application that consumes library code.