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By using Inheritance, we are able to generalize the use of some data members and we avoid repeating the same information. For example, NUIDs only need to be declared and initialized in one place, rather than in six different places. This makes debugging much easier, as well as adding to reusability.

One hierarchy that can be represented by Inheritance is operating systems. The highest class would simply be “OperatingSystem”, and it would define some of the things that all operating systems have in common. The next level down would define the families of operating systems, so it would probably be Windows, OSX, and Linux. At this level the kernel that each different operating system uses would be defined. Below each of those would be the specific operating systems in each of these families. For example, Windows 7, Windows 8, and Windows 10 would all inherit from Windows. Similarly, Debian and RHEL would inherit from Linux. These could then have even more subclasses such as Ubuntu, Mint, or Fedora.

This hierarchy makes sense because operating systems are already grouped into their own families. We know what an operating system is, but there isn’t anything that’s just an operating system with nothing else to it. Similarly, most people know what Windows is, but there are differences between Windows versions, even though they’re mostly similar.