**System Software Components**

Your system has three basic types of software: application programs, device drivers, and operating systems. Each type of software performs a completely different job, but all three work closely together to perform useful work. While some special-purpose programs do not fit neatly into any of these classes, most software does. Programs run in the memory portion of the system. While running, programs are known as *processes* or *jobs*. The following [illustration](https://sites.ualberta.ca/dept/chemeng/AIX-43/share/man/info/C/a_doc_lib/aixuser/aixqbeg/figures/aixqb15.jpg) shows the relationship between the different software programs and the hardware.

**Application Programs**

*Application programs* are the top software layer. You can perform specific tasks with these programs, such as using a word processor for writing, a spreadsheet for accounting, or a computer-aided design program for drawing. The other two layers, device drivers and the operating system, play important support roles. Your system might run one application program at a time, or it might run many simultaneously.

**Device Drivers**

*Device drivers* are a set of highly specialized programs. Device drivers help application programs and the operating system do their tasks. Device drivers (in particular, adapters), do not interact with you. They interact directly with computer hardware elements and shield the application programs from the hardware specifics of computers.

**Operating System**

An *operating system* is a collection of programs that controls the running of programs and organizes the resources of a computer system. These resources are the hardware components of the system, such as keyboards, printers, monitors, and disk drives. Your AIX operating system comes with programs, called *commands* or *utilities*, that maintain your files, send and receive messages, provide miscellaneous information about your system, and so on.

An application program relies on the operating system to perform many detailed tasks associated with the internal workings of the computer. The operating system also accepts commands directly from you to manage files and security. There are many extensions to the AIX operating system that allow you to customize your environment.

Below is a table of differences between Machine Language and Assembly Language:

| Machine Language | Assembly Language |
| --- | --- |
| Machine language is only understand by the computers. | Assembly language is only understand by human beings not by the computers. |
| In machine language data only represented with the help of binary format(0s and 1s), hexadecimal and octadecimal. | In assembly language data can be represented with the help of mnemonics such as Mov, Add, Sub, End etc. |
| Machine language is very difficult to understand by the human beings. | Assembly language is easy to understand by the human being as compare to machine language. |
| Modifications and error fixing cannot be done in machine language. | Modifications and error fixing can be done in assembly language. |
| Machine language is very difficult to memorize so it is not possible to learn the machine language. | Easy to memorize the assembly language because some alphabets and mnemonics are used. |
| Execution is fast in machine language because all data is already present in binary format. | Execution is slow as compared to machine language. |
| There is no need of translator.The machine understandable form is the machine language. | Assembler is used as translator to convert mnemonics into machine understandable form. |
| Machine language is hardware dependent. | Assembly language is the machine dependent and it is not portable. |