A system call is a mechanism that provides the interface between a process and the operating system.

system calls allow the user programs to ask OS to do some stuff on behalf of the user program. For example, read and write of file which requires the I/O from/to the storage device.

There are 5 different categories of system calls:

1. Process control,
2. File manipulation,
3. Device manipulation,
4. Information maintenance, and
5. Communication.

1. Process Control

A running program needs to be able to stop execution either normally or abnormally. When execution is stopped abnormally, often a dump of memory is taken and can be examined with a debugger.

2. File Management

Some common system calls are create, delete, read, write, reposition, or close. To determine the file attributes- get and set file attribute.

3. Device Management

Process usually require several resources to execute, if these resources are available, they will be granted and control returned to the user process. These resources are also thought of as devices. Some are physical, such as a video card, and others are abstract, such as a file.

User programs request the device, and when finished they release the device. Similar to files, we can read, write, and reposition the device.

4. Information Management

Some system calls exist purely for transferring information between the user program and the operating system. An example of this is time, or date.

The OS also keeps information about all its processes and provides system calls to report this information.

5. Communication

There are two models of interprocess communication,

1. The message-passing model
2. The shared memory model.

1. Message-passing uses a common mailbox to pass messages between processes.

2. Shared memory use certain system calls to create and gain access to create and gain access to regions of memory owned by other processes.

The two processes exchange information by reading and writing in the shared data.