Discussion 13 – The Concept of Streams

<https://www.tutorialspoint.com/java/java_files_io.htm>

A Stream is a sequence of data and can be one of two types: an InputStream or an OutputStream. Byte Streams are used to perform I/O of 8-bit bytes, while Character Streams are used to perform I/O for 16-bit Unicode. Standard Streams allow a user’s program to take input from a keyboard and then produce an output on the computer screen. Streams are what facilitate the ability of a computer to read data from a source (InputStream) and write data to a destination (OutputStream).

Notes:

Using streams is how programmers leverage the Input/Output chain in computers. Using the basic chain of "User > Application > Operating System > Hardware" for input and "Hardware > Operating System > Application > User" for output, streams are what facilitate the passing of information between these layers in order to save and retrieve data for the user. They allow data on a system to be accessed and displayed to the user, as well as gives the user the ability to input and save data to the hardware level for later use. In their most basic form, this is the function that all computers serve, taking data from the user by various means and outputting calculations for use in other areas of programs or directly to the user.

A stream is defined into 2 different types, InputStream and OutputStream. The difference between these is the InputStream reads the data while the OutputStream writes the data to a certain location. There are also ByteStreams and CharacterStreams. ByteStreams are used to input and output 8-bit bytes. CharacterStreams are used to input and output 16-bit Unicode.

 Input is used to read data, while Output is used for writing data. ByteStreams are used for input and output of 8-bit bytes. Character streams are used for 16-bit Unicode. Standard streams are used for keyboard input that produce output on a computer screen. Java has three standard streams; Standard Input, Standard Output, and Standard Error.