Input and output stream in java-

Java I/O (Input and Output) is used *to* process the input *and* produce the output.

Java uses the concept of a stream to make I/O operation fast. The java.io package contains all the classes required for input and output operations.

We can perform **file handling in Java** by Java I/O API.

Stream

A stream is a sequence of data. In Java, a stream is composed of bytes.

In Java, 3 streams are created for us automatically. All these streams are attached with the console.

1) System.out: standard output stream

2) System.in: standard input stream

3) System.err: standard error stream

Let's see the code to print **output and an error** message to the console.

```
1. System.out.println("simple message");
2. System.err.println("error message");
```

The explanation of OutputStream and InputStream classes are given below:

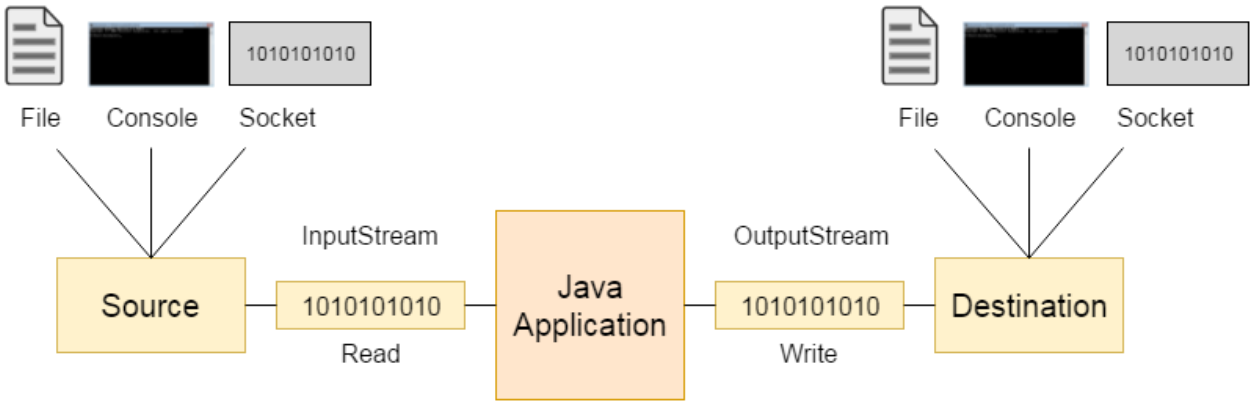
OutputStream

Java application uses an output stream to write data to a destination; it may be a file, an array, peripheral device or socket.

InputStream

Java application uses an input stream to read data from a source; it may be a file, an array, peripheral device or socket.

Let's understand the working of Java OutputStream and InputStream by the figure given below as-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File
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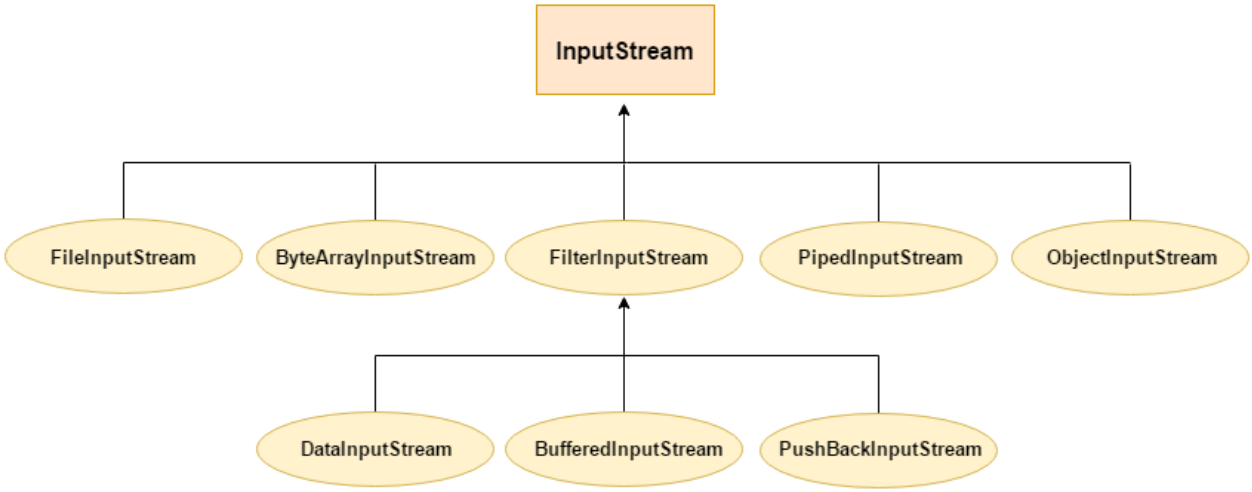
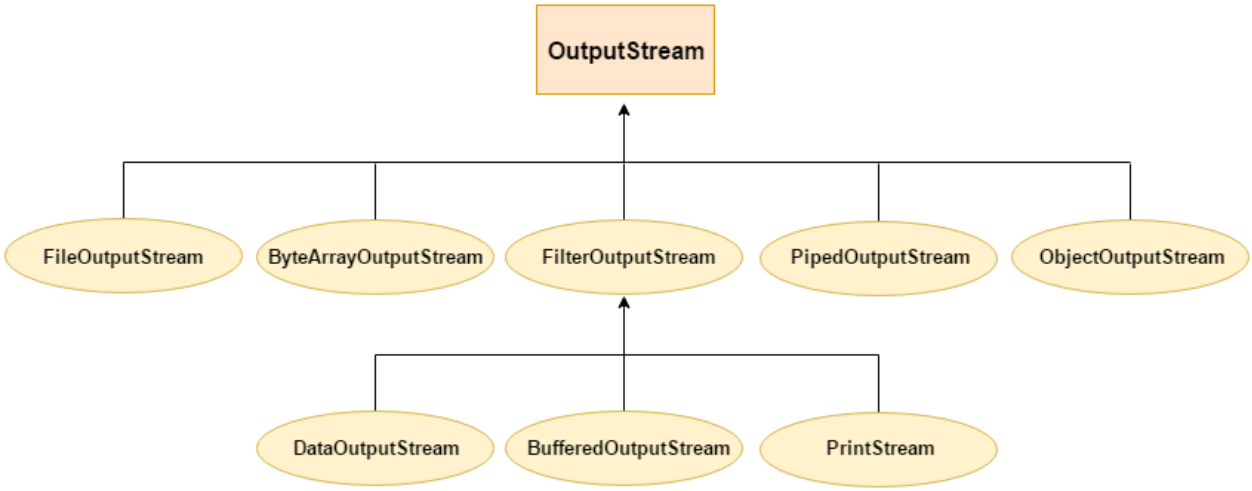

InputStream
FileInputStream
ByteArrayInputStream
FilterInputStream
PipedInputStream
ObjectInputStream
DataInputStream
BufferedInputStream
PushBackInputStream


OutputStream
FileOutputStream
ByteArrayOutputStream
FilterOutputStream
PipedOutputStream
ObjectOutputStream
DataOutputStream
BufferedOutputStream
PrintStream

Example-

1.Read a file line by line using Scanner class

```
import java.io.*;
import java.util.Scanner;

public class ReadLineByLineExample2 {
	public static void main(String args[]) {
		try {
//the file to be opened for reading
			FileInputStream fis = new FileInputStream("Demo.txt");
			Scanner sc = new Scanner(fis); // file to be scanned
//returns true if there is another line to read
			while (sc.hasNextLine()) {
				System.out.println(sc.nextLine()); // returns the line
that was skipped
			}
			sc.close(); // closes the scanner
		} catch (IOException e) {
			e.printStackTrace();
		}
	}
}
```

Example- Write the file using File Writer class In this example, we are writing the data in the file testout.txt using Java FileWriter class.

```
package com.test
import java.io.FileWriter;
public class FileWriterExample {
   public static void main(String args[]){
       try{
         FileWriter fw=new FileWriter("D:\\testout.txt");
         fw.write("Velocity corporate training center pune.");
         fw.close();
        }catch(Exception e){System.out.println(e);}
        System.out.println("Success...");
    }
}
```