



Java Programming I

Session 8

Streams

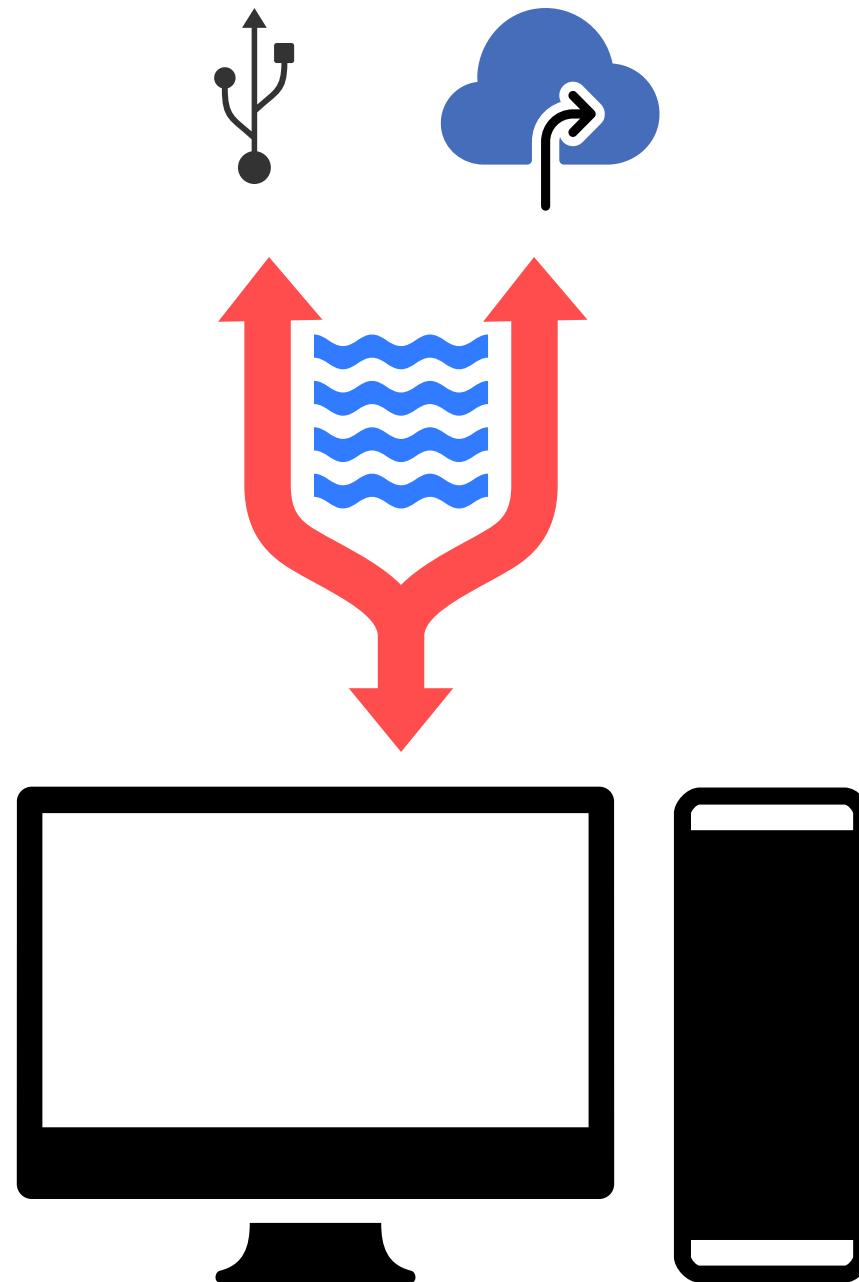
Juan Carlos Moreno - UCLA Ex

Agenda

- **Streams**
- **Byte vs Character Streams**
- **Usage**
- **I/O Example**
- **RandomAccessFile**

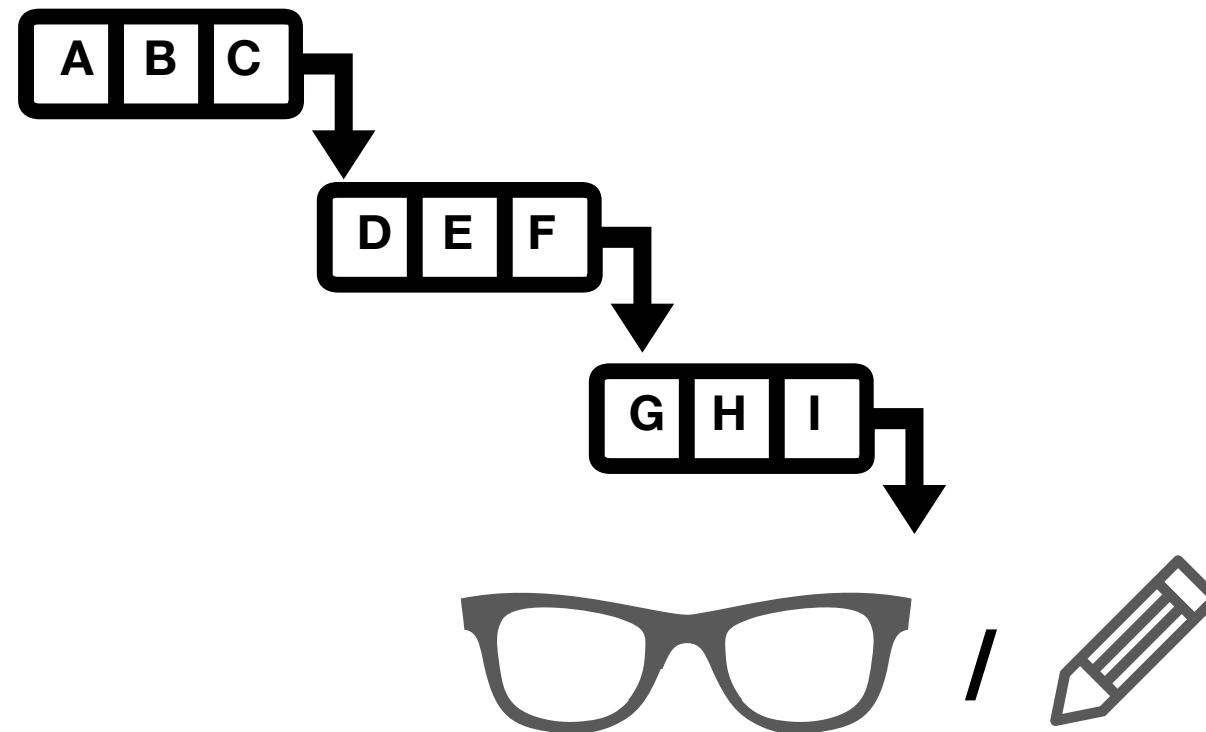
Streams

Flowing I/O



java.io

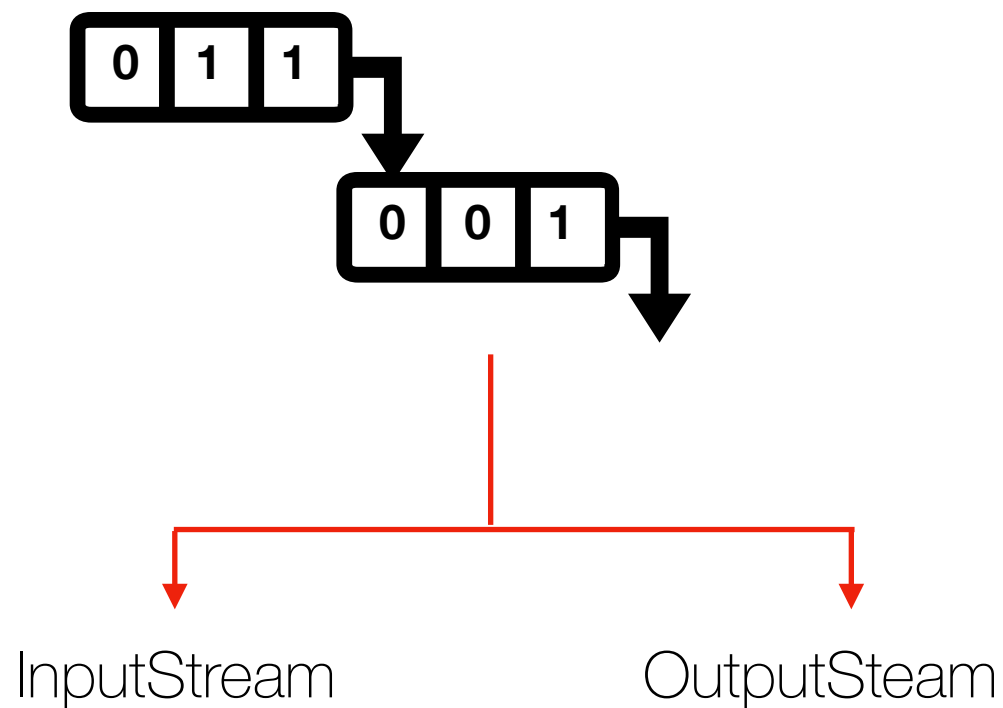
Read/Write while there's something...



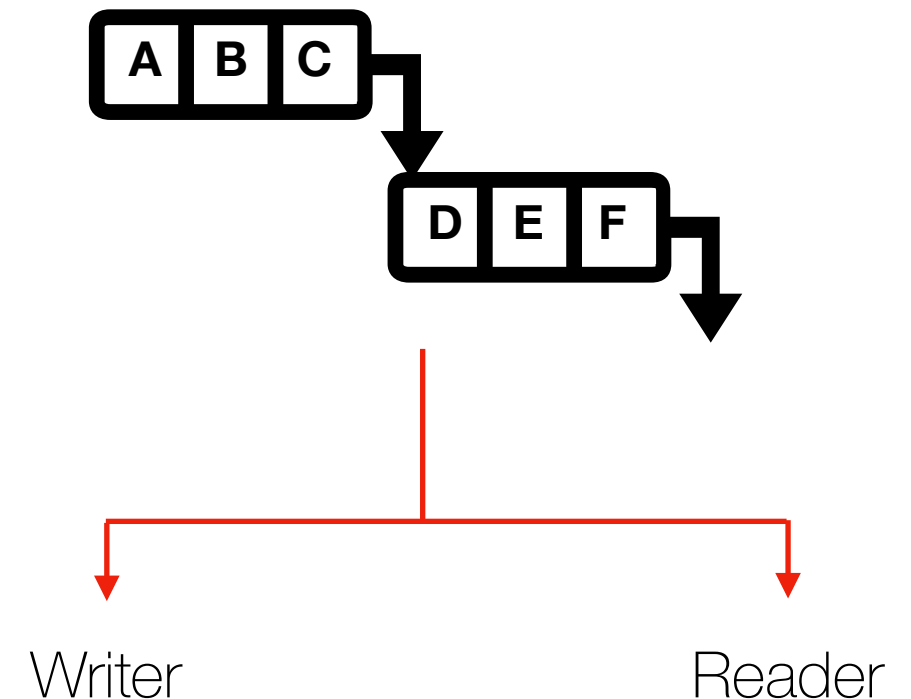
Byte vs Character

Read/Write while there's something...

binary



text



Byte vs Character

Read/Write while there's something...

Byte Streams		Character streams	
BufferedInputStream	Buffered Input stream	BufferedReader	Buffered input character stream
BufferedOutputStream	Buffered output stream	BufferedWriter	Buffered output character stream
ByteArrayInputStream	Input Stream that reads from a byte array	CharArrayReader	Input stream that reads from a character array
ByteArrayOutputStream	Input Stream that writes to a byte Array	CharArrayWriter	Output stream that writes to a character array
FileInputStream	Input stream that reads from a file	FileReader	Input stream that reads from a file
FileOutputStream	Input stream that writes to a file	FileWriter	Input stream that writes to a file

Common methods

Unhandled exceptions

		Description
void	close()	closes the source
int	read()	reads next available, returns -1 if its not available
long	skip(long size)	skips bytes
void	close()	closes the stream
void	write(int b)	Writes

SimpleURLReader

Reading from URL

```
import java.net.*;
import java.io.*;

public class SimpleURLReader {
    public static void main(String[] args) throws Exception {

        URL address = new URL("https://www.uclaextension.edu/");
        InputStreamReader r = new
        InputStreamReader(address.openStream());
        char x[] = new char[100];
        while(r.read(x) > -1)
        {
            System.out.println(x);
        }
    }
}
```


SimpleURLReader

Improved

```
import java.net.*;
import java.io.*;

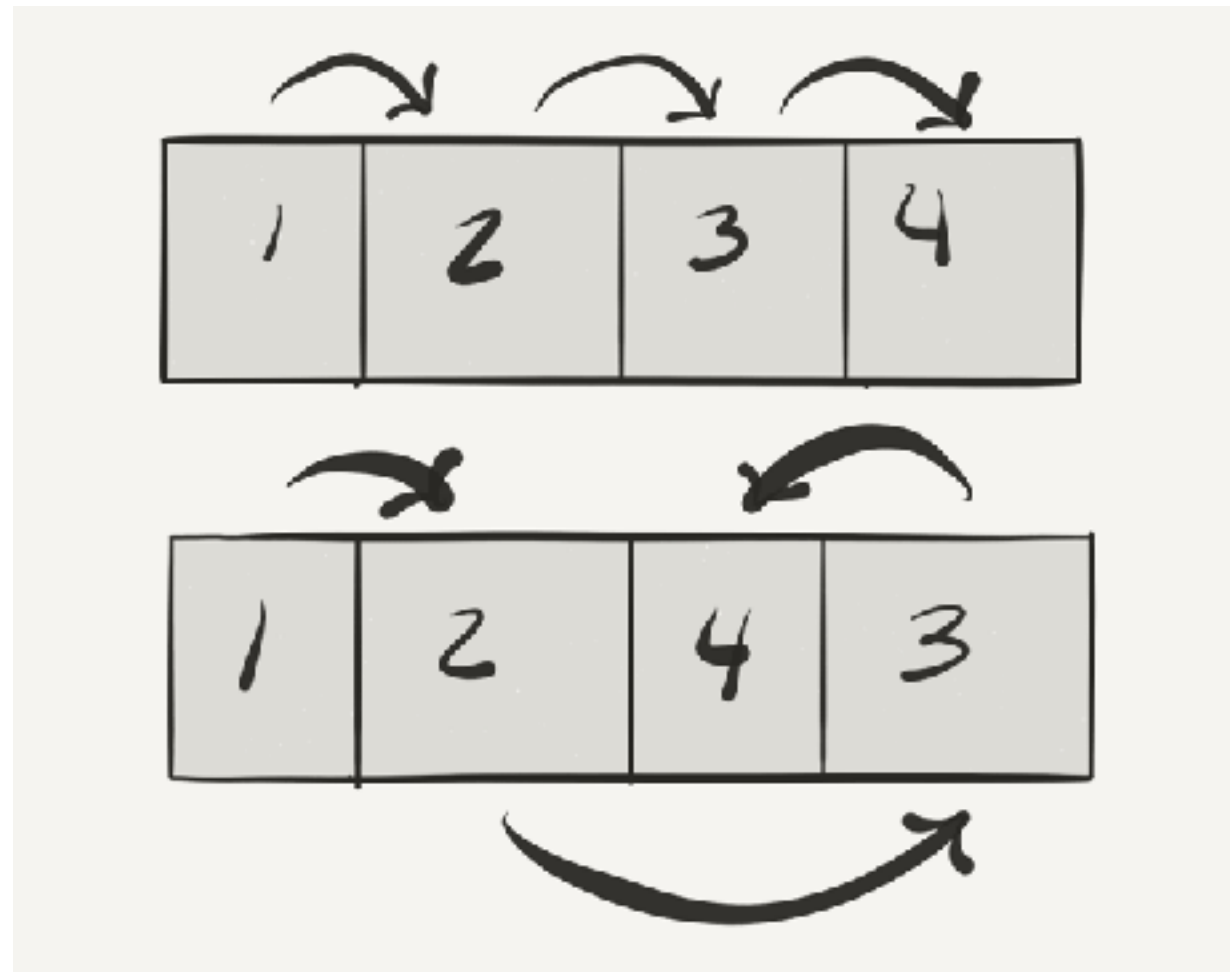
public class URLReader {
    public static void main(String[] args) throws Exception {

        URL addr = new URL("https://www.uclaextension.edu/");

        BufferedReader in = new BufferedReader(new
InputStreamReader(addr.openStream()));

        String inputLine;
        while ((inputLine = in.readLine()) != null)
            System.out.println(inputLine);
        in.close();
    }
}
```

RandomAccess files



Exercise

Unhandled exceptions

- Download source from uclaextension.edu
- Gzip compress the contents
- Save the file

Exercise

Unhandled exceptions

- Write a simple copy file command
- It receives 2 names as an argument (source & dest)
- Copy the file contents of file1 to file2