Simple File Input And Output

Types of Java Files

Simple File Output in Java

Simple File Input in Java

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Storing Information On Files
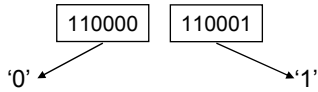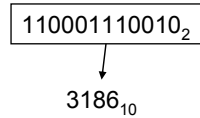
Types of files
- Text files
- Binary files

Text Files

Text files
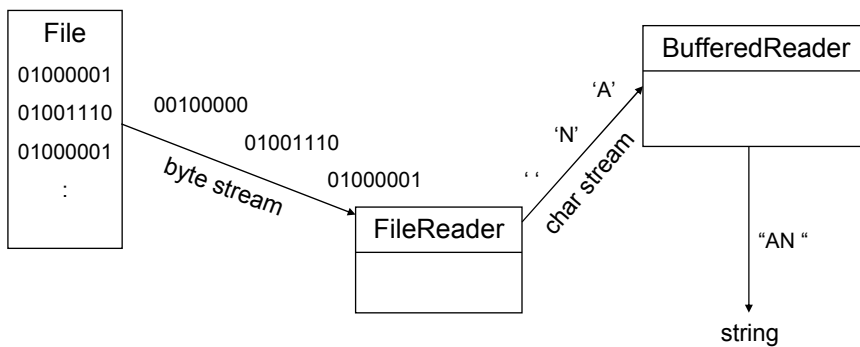- Every 8 bits represents a character
- e.g., '0' = 48, '1' = 49

110000		110001

'0'   '1'

Binary files
- Includes all other types of files (it's a catch all term)
- e.g., Interpret the bit pattern as a 16 bit unsigned short
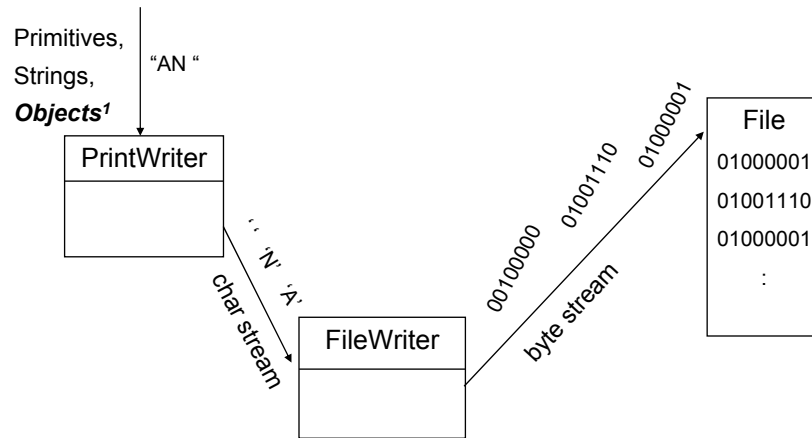
$$110001110010_2$$

$$3186_{10}$$

Reading Text Input From A File

File

01000001
01001110
01000001
:

00100000

01001110

01000001

byte stream

FileReader

' '

'N'

'A'

char stream

BufferedReader

"AN "

string

Writing Text Output To A File

Primitives,
Strings,
Objects[1]

"AN "

PrintWriter

char stream

"A" "N"

FileWriter

00100000 01001110 01000001

byte stream

01000001

File
01000001
01001110
01000001
:

1 By objects we of course mean references to objects

An Example Of Simple Input And Output

The full example can be found in Unix in the directory:
/home/233/examples/fileIO

Class IntegerWrapper

```
class IntegerWrapper
{
    private int num;

    public IntegerWrapper ()
    {
        num = (int) (Math.random() * 100);
    }
    public void setNum (int no)
    {
        num = no;
    }
    public int getNum ()
    {
        return num;
    }
}
```

Class SimpleIO

```
import java.io.*;

class SimpleIO
{
    public static void main (String [] argv)
    {
        IntegerWrapper iw1 = new IntegerWrapper ();
        IntegerWrapper iw2 = new IntegerWrapper ();
        String filename = "data";
        PrintWriter pw;
        FileWriter fw;
        BufferedReader br;
        FileReader fr;
```

Class SimpleIO (2)

```
try
{
    fw = new FileWriter (filename);
    pw = new PrintWriter (fw);

    System.out.println("Written to file: " + iw1.getNum());
    pw.println(iw1.getNum());
    System.out.println("Written to file: " + iw2.getNum());
    pw.println(iw2.getNum());
    pw.close();
```

Class SimpleIO (3)

```
    fr = new FileReader(filename);
    br = new BufferedReader(fr);
    System.out.println("Read from file: " + br.readLine());
    System.out.println("Read from file: " + br.readLine());
}
```

Class SimpleIO (4)

```
        catch (IOException e)
        {
          System.out.println("File IO error: Exception thrown");
          e.printStackTrace();
        }
    }
}
```

Summary

Writing text information to files with Java classes
- FileWriter
- PrintWriter

Reading text information to files with Java classes
- FileReader
- BufferedReader