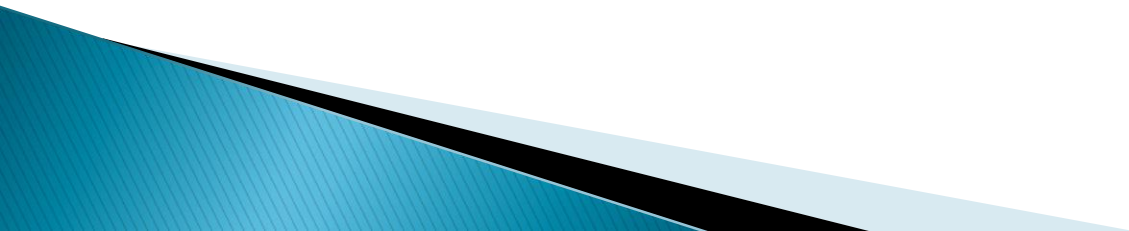


# Input / Output

## Exploring java.io



# Java I/O Classes & Interfaces

## I/O Classes

BufferedInputStream	BufferedOutputStream	BufferedReader
BufferedWriter	DataInputStream	DataOutputStream
File	FileInputStream	FileOutputStream
FileWriter	FileReader	InputStreamReader
OutputStreamWriter	PrintWriter	SequenceInputStream

## I/O Interfaces

DataInput	DataOutput	FileFilter
ObjectInput	ObjectOutput	Serializable

# File

- File does not operate on streams
- Deals with File & File System
- Describes properties of the files
- Can manipulate on file permissions, time, date, path etc

# Different Forms of creating a File

- `File(String directoryPath)`
- `File(String directoryPath, String filename)`
- `File(File dirObj, String filename)`

## Examples

- `File f1 = new File("/");`
- `File f2 = new File("/", "autoexec.bat");`
- `File f3 = new File(f1, "autoexec.bat");`

# File Methods

F1.getName()	F2.getPath()	F1.getAbsolutePath()
F1.getParent()	F1.exists()	F1.canWrite()
F1.canRead()	F1.isDirectory()	F1.isFile()
F1.lastModified()	F1.length()	F1.isDirectory()

# The Byte Stream Classes

- Provide convenient means for handling input and output of bytes
- Used for reading and writing binary data
- Included in java 1.0
- Has two class Hierarchies
  - ✓ InputStream
  - ✓ OutputStream
- Can handle disk files, Network connections & buffers
- Two important function read() & write() & are abstract

# The Character Stream Classes

- Provide convenient means for handling input and output of bytes
- Used for reading and writing character data
- Included in java 1.1
- Has two class Hierarchies
  - ✓ Reader
  - ✓ Writer
- Can handle disk files, Network connections & buffers
- Two important function read() & write() & are abstract

# Reading Console Input

- In Java Console input is done by `System.in`
- Wrap `System.in` in a `BufferedReader`
- General form
  - `BufferedReader(Reader inputReader)`
- `Reader` is an abstract class
- User `InputStreamReader` object that is linked to `System.in` to read
  - `InputStreamReader(InputStream inputStream)`
- `read()` & `readLine()` to read characters from console



# Writing to Console

- Accomplished with `print` & `println`
- Defined in `PrintStream` (type of `System.out`)
- Syntax
  - `void write(int byteval)`

# PrintWriter

- Recommended method of writing to the console us through `PrintWriter Stream`
- One of the character-based classes
- Defines many constructors, the simples one is  
`PrintWriter(OutputStream os, boolean  
flushOnNewline)`
- Support `print()` & `println()`
- Calls implicitly `toString()` and then prints

# Reading & Writing Files

- Most commonly used stream classes are `FileInputStream` & `FileOutputStream`

- General Form

`FileInputStream(String fileName)` throws `FileNotFoundException`

`FileOutputStream(String fileName)` throws `FileNotFoundException`

- If file does not exist, then `FileNotFoundException` is thrown
- Call `close()` to close the file
  - `void close()` throws `IOException`
- To read the content of the file
  - `void read()` throws `IOException`
- `read()` returns -1 at EOF