A Review of IO, the old school way

To understand how that magical little method works, I want to roll back the clock a little bit, to the methods offered in Java 1.0.

These methods mirrored a bit, how data is really read from a file, vs. a black box method called readAllLines.

Disk Read

A disk read means, something is physically, or mechanically, occurring on your hard disk to read that character from the file.

This is expensive, and Java provides ways to reduce the number of disk reads being done.

What's a file buffer?

A file buffer is just computer memory temporarily used to hold data, while it's being read from a file.

Its primary purpose is to improve the efficiency of data transfer and processing.

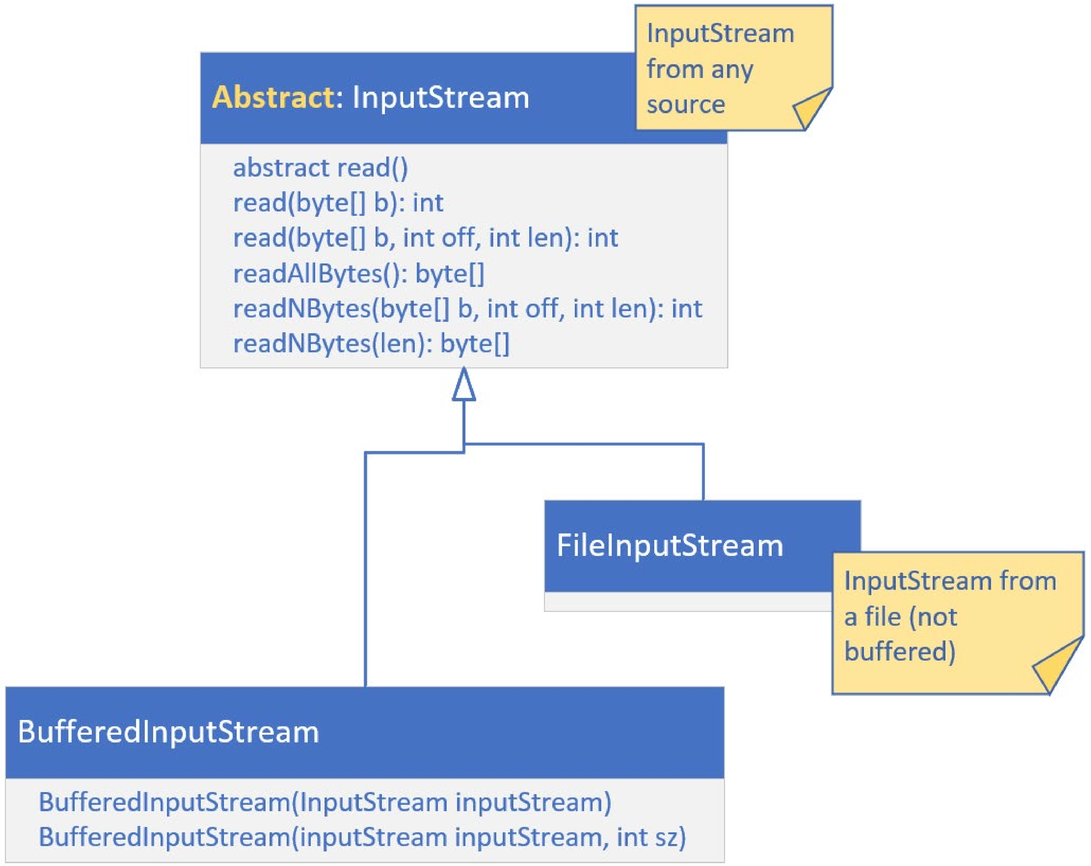
It reduces the number of direct interactions, or disk reads, against the actual storage device.

Input Streams

An **`InputStream`** is an abstract class, representing an input stream of bytes.

It represents a **source of data**, and a **common interface** for reading that data.

Input Streams can return a byte stream or a character stream.

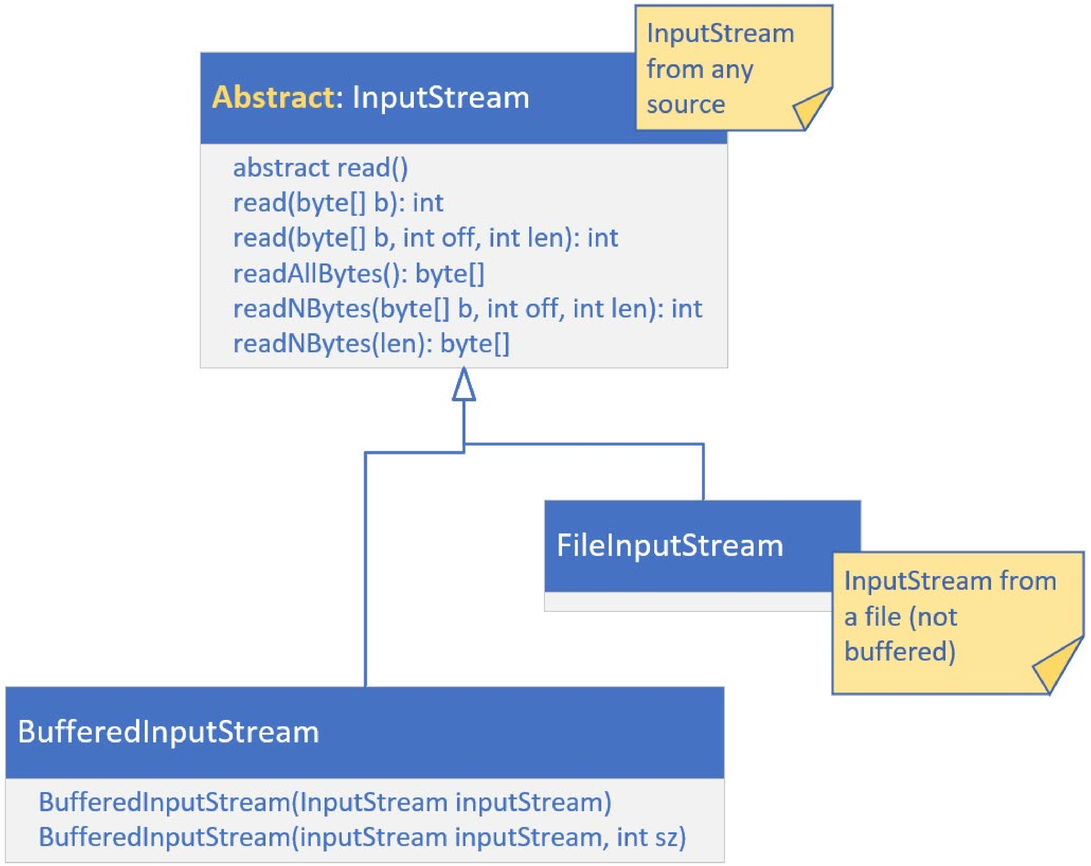


Input Streams

For files, the implementation is the **`FileInputStream`**.

This class is used for files containing binary data, so we'll be getting back to it later.

Using the read method on a FileInputStream is very inefficient, so if you're going to use a FileInputStream, you'll want to wrap it in a BufferedInputStream.



An InputStream is not a source for a Stream pipeline

We've talked a lot about streams before this, but an input stream is not that kind of stream.

It's a similar concept, in that we get a stream of data, in some kind of sequential way.

However, an InputStream can't be used in a Stream pipeline, without first transforming it.

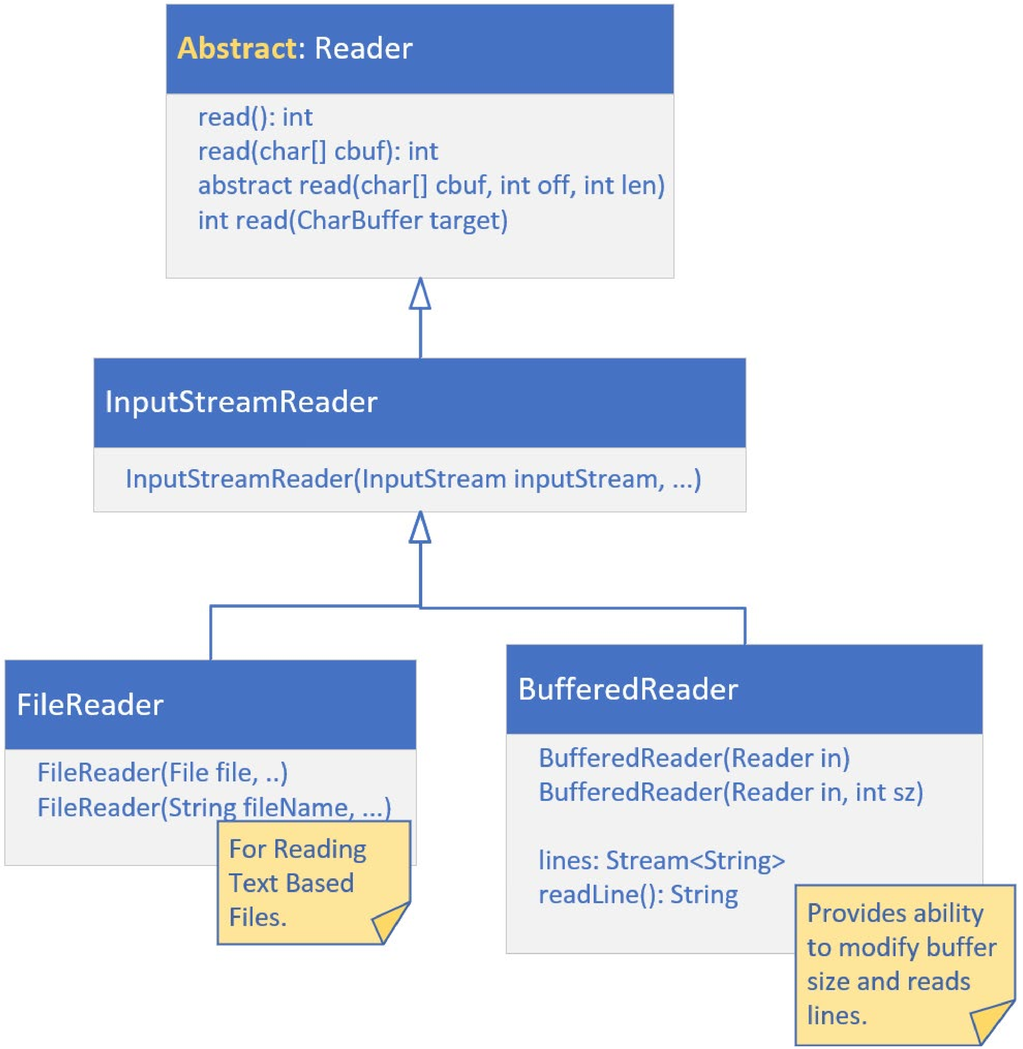
Readers

Readers read **characters**, as you can see from the methods on the abstract parent shown on this slide.

An `InputStreamReader` is a bridge, from byte streams to character streams.

If you want to read a character stream, it's recommended you use a FileReader.

FileReader is doing buffered reading.



Readers

A BufferedReader will also do buffered reading, using a much larger buffer size than the FileReader.

You can modify the size of the buffer on BufferedReader.

The default buffer size is large enough for most purposes.

The BufferedReader also provides convenience methods for reading lines of text.