

字符流

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字符流：

- 输入字符流 Reader
- 输出字符流 Writer

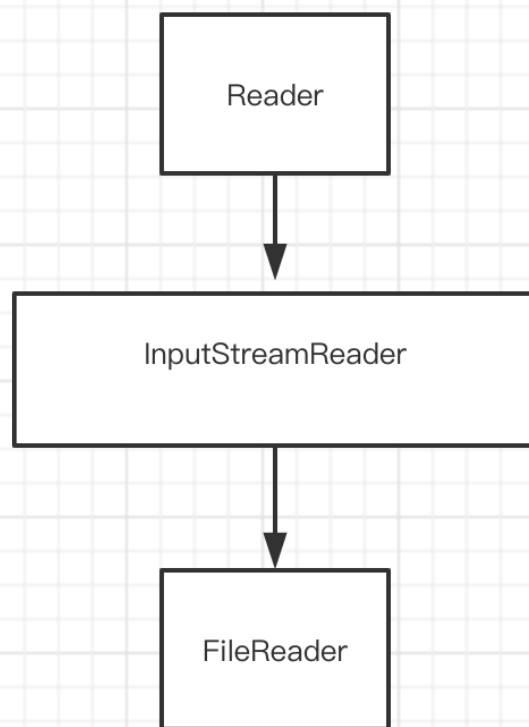
Reader

```
public abstract class Reader implements Readable, Closeable {
```

是一个抽象类

Readable 接口的作用？

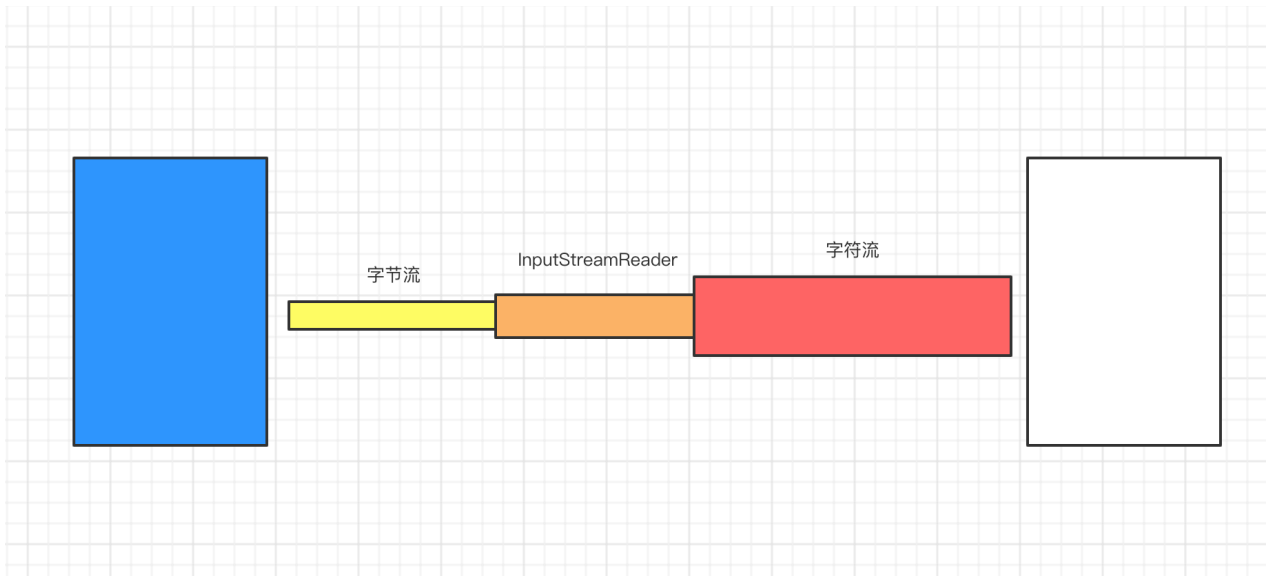
可以将数据以字符的形式读入到缓冲区



- 方向：输入+输出
- 单位：字节+字符
- 功能：节点流（字节流） + 处理流（对节点流进行处理，生成其他类型的流）

InputStream(字节输入流) ---》 Reader（字符输入流）

InputStreamReader 的功能是将字节输入流转换为字符输入流



英文、数字、符号

1 个字节 = 1 个字符

a 1 个字符、1 个字节

汉字

1 个字符 = 3 个字节

好 1 个字符、3 个字节

```
package com.southwind.demo;

import java.io.FileInputStream;
import java.io.FileReader;
import java.io.InputStream;
import java.io.Reader;

public class Test {
    public static void main(String[] args) throws
Exception {
        //字符流
```

```

        Reader reader = new
FileReader("/Users/southwind/Desktop/test.txt");
        int temp = 0;
        System.out.println("*****字符流读取
*****");
        while ((temp = reader.read()) != -1) {
            System.out.println(temp);
        }
        reader.close();

        //字节流
        InputStream inputStream = new
FileInputStream("/Users/southwind/Desktop/test.txt")
;
        temp = 0;
        System.out.println("*****字节流读取
*****");
        while ((temp = inputStream.read()) != -1) {
            System.out.println(temp);
        }
        inputStream.close();
    }
}

```

```

package com.southwind.demo;

import java.io.FileReader;
import java.io.Reader;

public class Test2 {
    public static void main(String[] args) throws
Exception {

```

```
        Reader reader = new
FileReader("/Users/southwind/Desktop/test.txt");
        char[] chars = new char[8];
        int length = reader.read(chars);
        System.out.println("数据流的长度是"+length);
        System.out.println("遍历数组");
        for (char aChar : chars) {
            System.out.println(aChar);
        }
    }
}
```

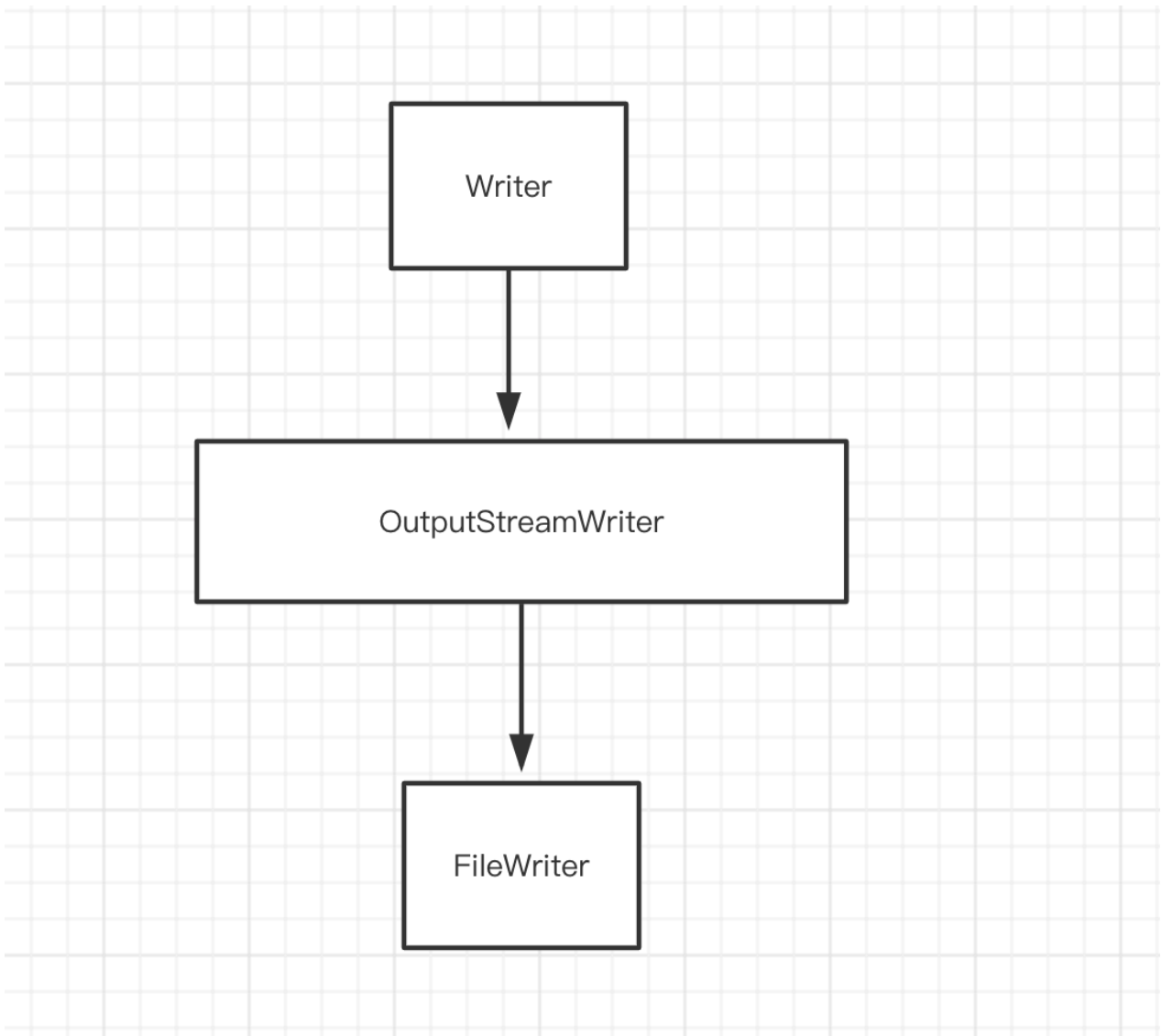
read() 返回的是 int ， 直接将字符转成字节 (1-1, 1-3)

read(char[] chars) 返回的是 char 数组， 直接就返回字符， 不会转成字节的。

Writer

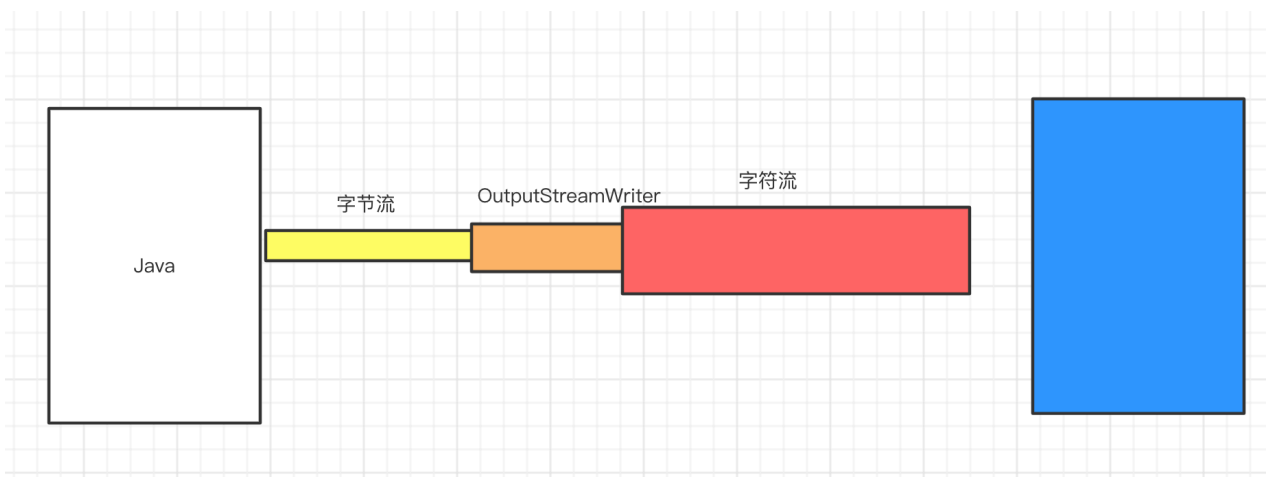
```
public abstract class Writer implements Appendable, Closeable, Flushable {
```

Appendable 接口可以将 char 类型的数据读入到数据缓冲区



OutputStreamWriter 处理流

OutputStreamWriter 的功能是将输出字节流转成输出字符流，与 InputStreamReader 相对应的，将输入字节流转成输入字符流



```
package com.southwind.demo2;

import java.io.FileOutputStream;
import java.io.FileWriter;
import java.io.OutputStream;
import java.io.Writer;

public class Test {
    public static void main(String[] args) throws
Exception {
        Writer writer = new
FileWriter("/Users/southwind/Desktop/copy.txt");
        //writer.write("你好");
        //    char[] chars = {'你','好','世','界'};
        //    writer.write(chars,2,2);
        String str = "Hello World,你好世界";
        writer.write(str,10,6);
        writer.flush();
        writer.close();
    }
}
```

处理流

```
package com.southwind.demo3;

import java.io.FileInputStream;
import java.io.InputStream;
import java.io.InputStreamReader;

public class Test {
```

```

    public static void main(String[] args) throws
Exception {
    //基础管道
    InputStream inputStream = new
FileInputStream("/Users/southwind/Desktop/test.txt")
;

    //处理流
    InputStreamReader inputStreamReader = new
InputStreamReader(inputStream);
    char[] chars = new char[1024];
    int length = inputStreamReader.read(chars);
    inputStreamReader.close();
    String result = new String(chars,0,length);
    System.out.println(result);
}
}

```

```

package com.southwind.demo3;

import java.io.FileOutputStream;
import java.io.OutputStream;
import java.io.OutputStreamWriter;

public class Test2 {
    public static void main(String[] args) throws
Exception {
        String str = "你好 世界";
        OutputStream outputStream = new
FileOutputStream("/Users/southwind/Desktop/copy.txt"
);

        OutputStreamWriter writer = new
OutputStreamWriter(outputStream);
        writer.write(str,2,1);
    }
}

```



```
        writer.flush();  
        writer.close();  
    }  
}
```