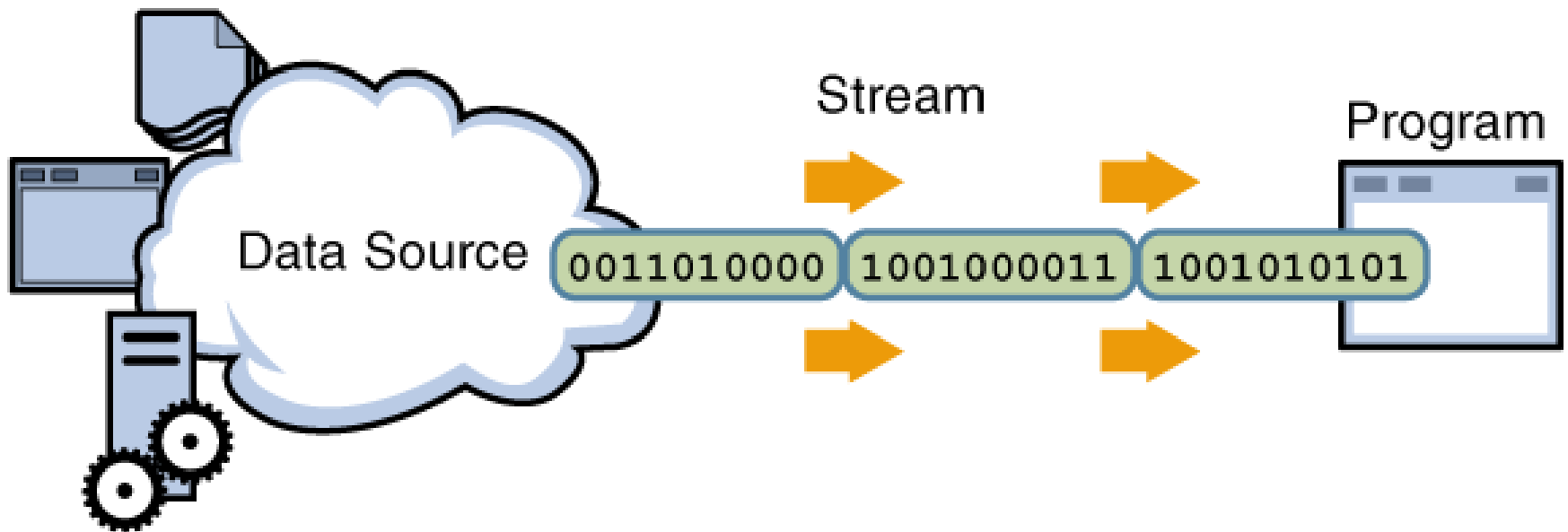


Streams (File Handling)

Streams (File Handling)





Streams (File Handling)

- Byte Streams
- Character Streams

Streams (File Handling)

- byte -128 to +127
- char -32,768 to 32,767

Streams (File Handling)

byte 0 to 255

97 a 01100001

98 b 01100010

99 c 01100011

char 0 to 65,535

97 a 0000 0000 0110 0001

98 b 0000 0000 0110 0010

99 c 0000 0000 0110 0011

Byte Streams

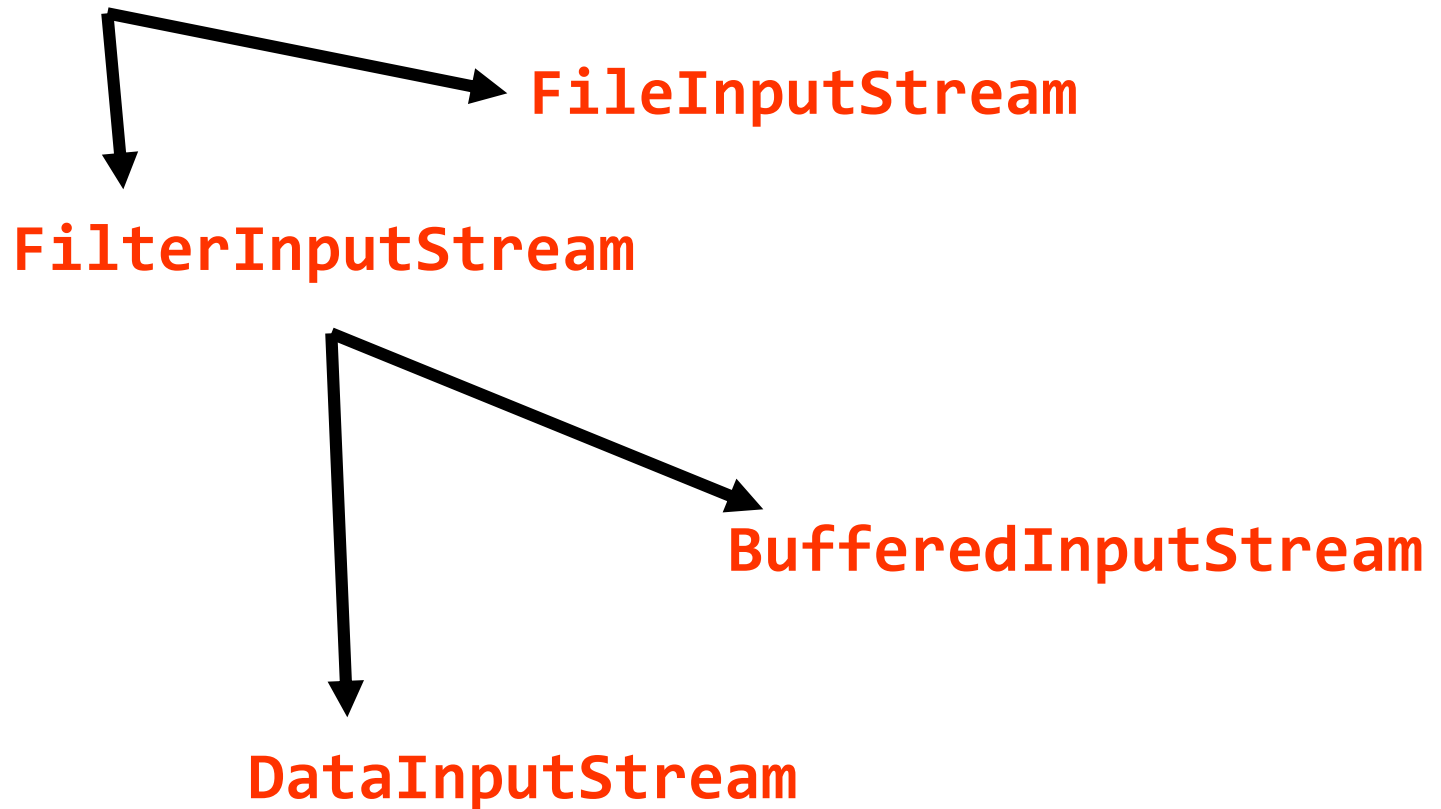
- **java.io.*;**

InputStream

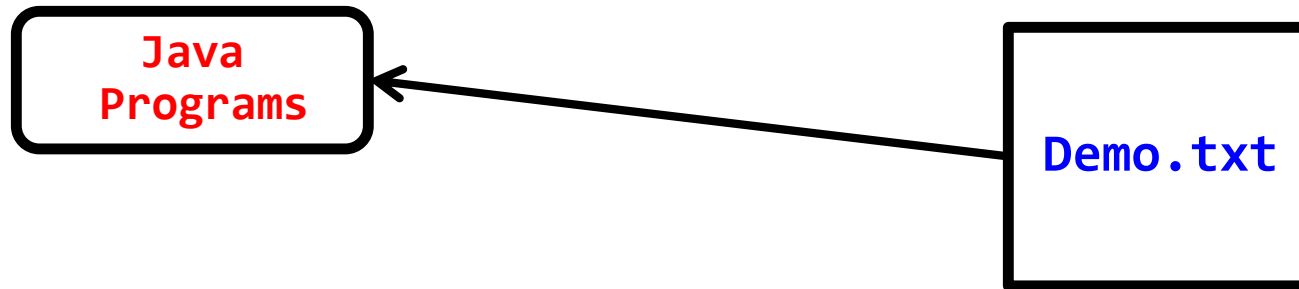
OutputStream

InputStream

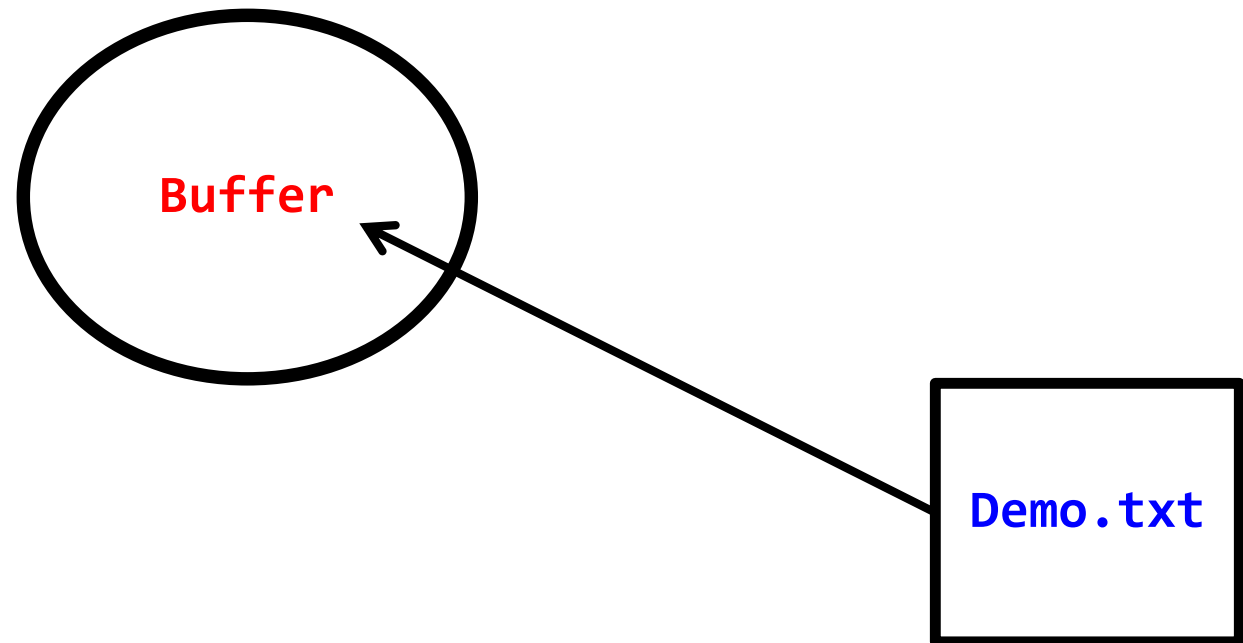
InputStream



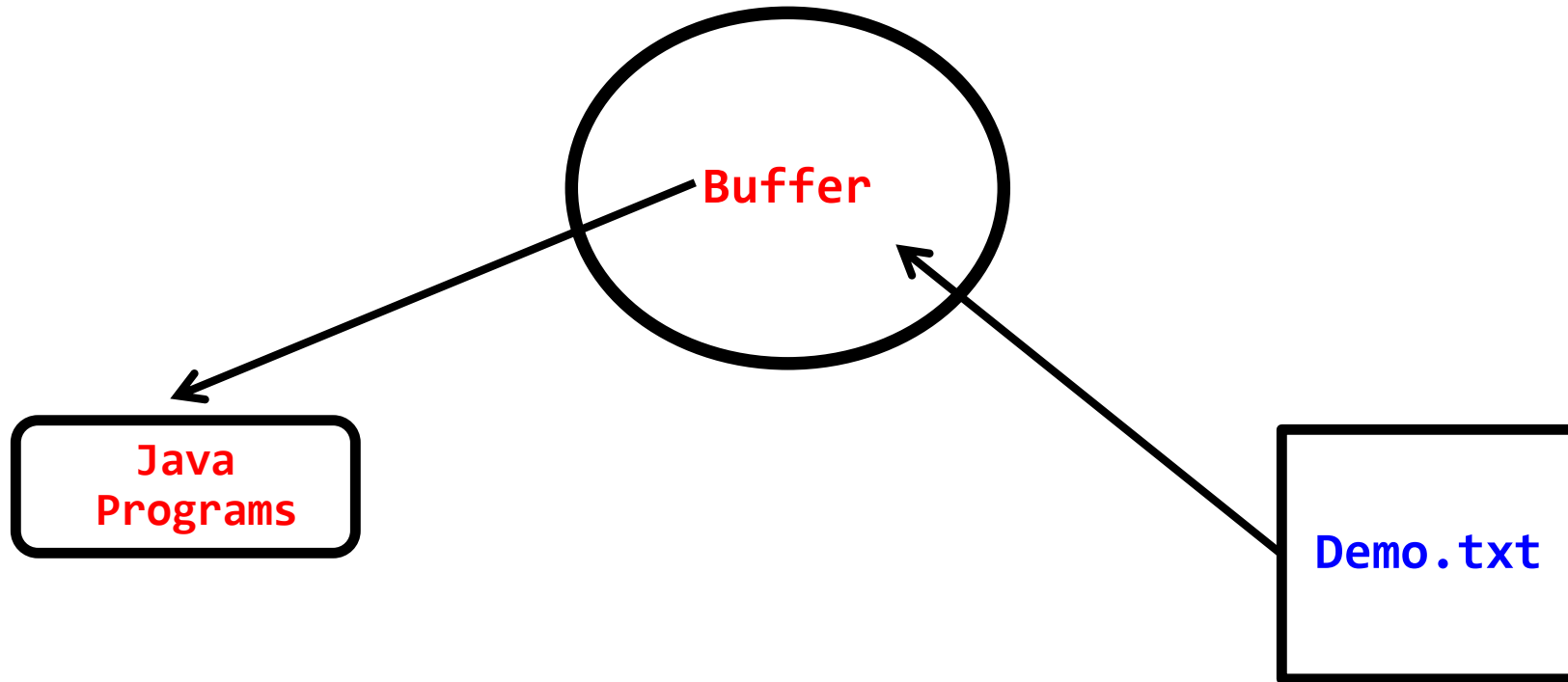
FileInputStream



BufferedInputStream



BufferedInputStream



InputStream

```
class InputStream
{
    int    read()
    int    read(byte[])
    int    available()
}
```

FileInputStream

- ✓ `FileInputStream(String)`
- ✓ `FileInputStream(File)`
- ✓ `FileInputStream(FileDescriptor);`

BufferedInputStream

- ✓ **BufferedInputStream(InputStream)**
- ✓ **BufferedInputStream(InputStream, int)**

FileInputStream

```
FileInputStream fis=new FileInputStream("Test.txt");
```

```
int c;
```

```
while((c=fis.read())!=-1)
```

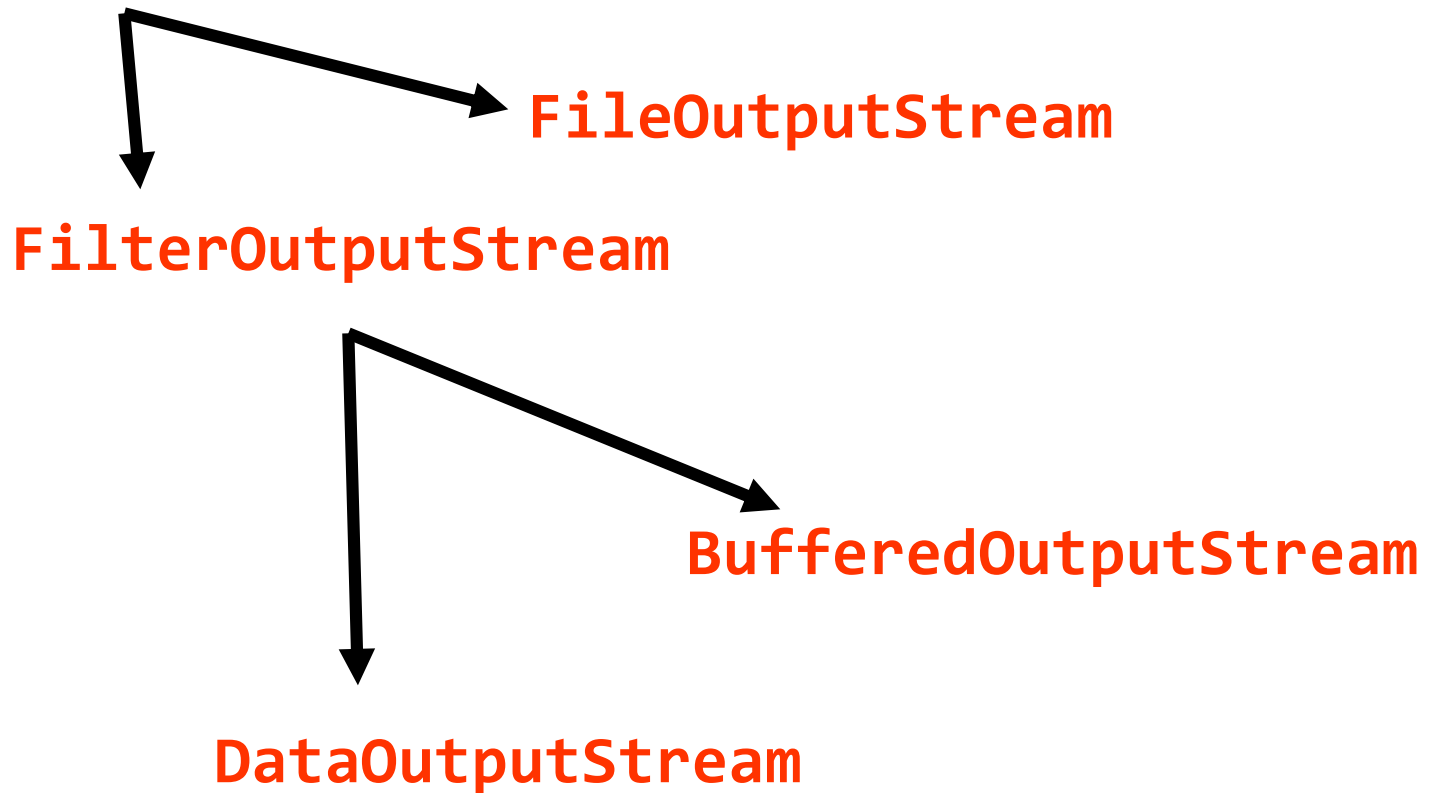
```
{
```

```
    System.out.print("  "+(char)c);
```

```
}
```

OutputStream

OutputStream



OutputStream

```
class OutputStream
{
    void    write(byte[])
    void    write(byte[], int, int)
    void    close()
}
```


Class and Objects

```
class Demo
{
    int a;
    void sum()
    {
        cout<<a;
    }
}
```

```
Demo o1=new Demo();
```

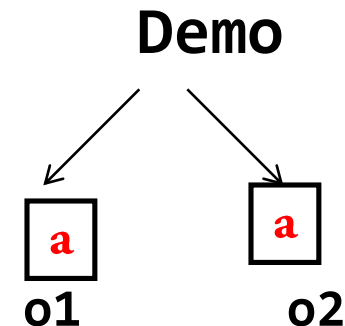
```
o1.a=1000;
```

```
o1.sum();
```

```
Demo o2=new Demo();
```

```
o2.a=3000;
```

```
o2.sum();
```



Serialization

java.io.*;

- Serializable

- E.g.

```
class Sample implements Serializable
{
}
```

Class and Objects

```
class Demo
{
    int a;
    void sum()
    {
        cout<<a;
    }
}
```

```
Demo o1=new Demo();
```

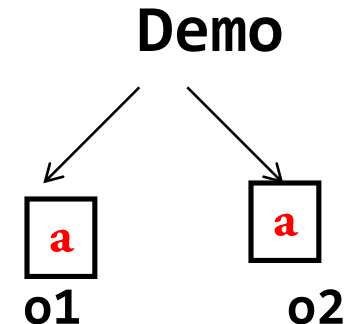
```
o1.a=1000;
```

```
o1.sum();
```

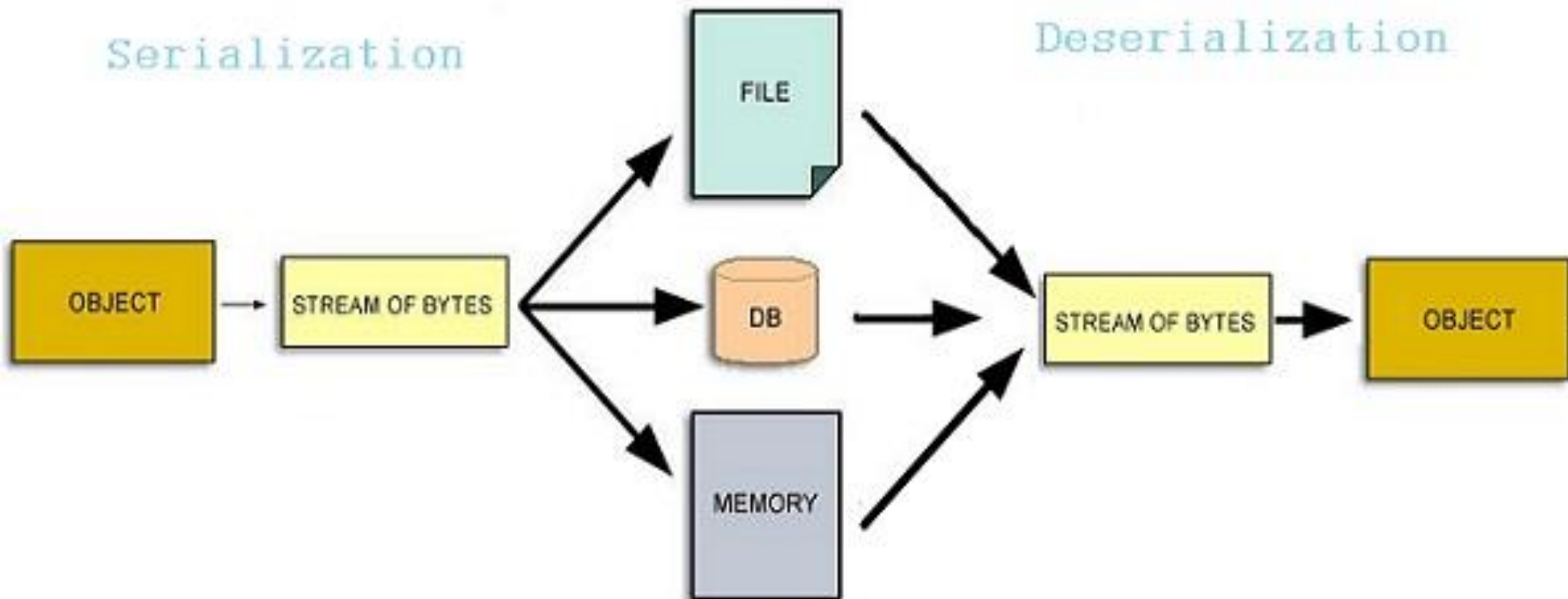
```
Demo o2=new Demo();
```

```
o2.a=3000;
```

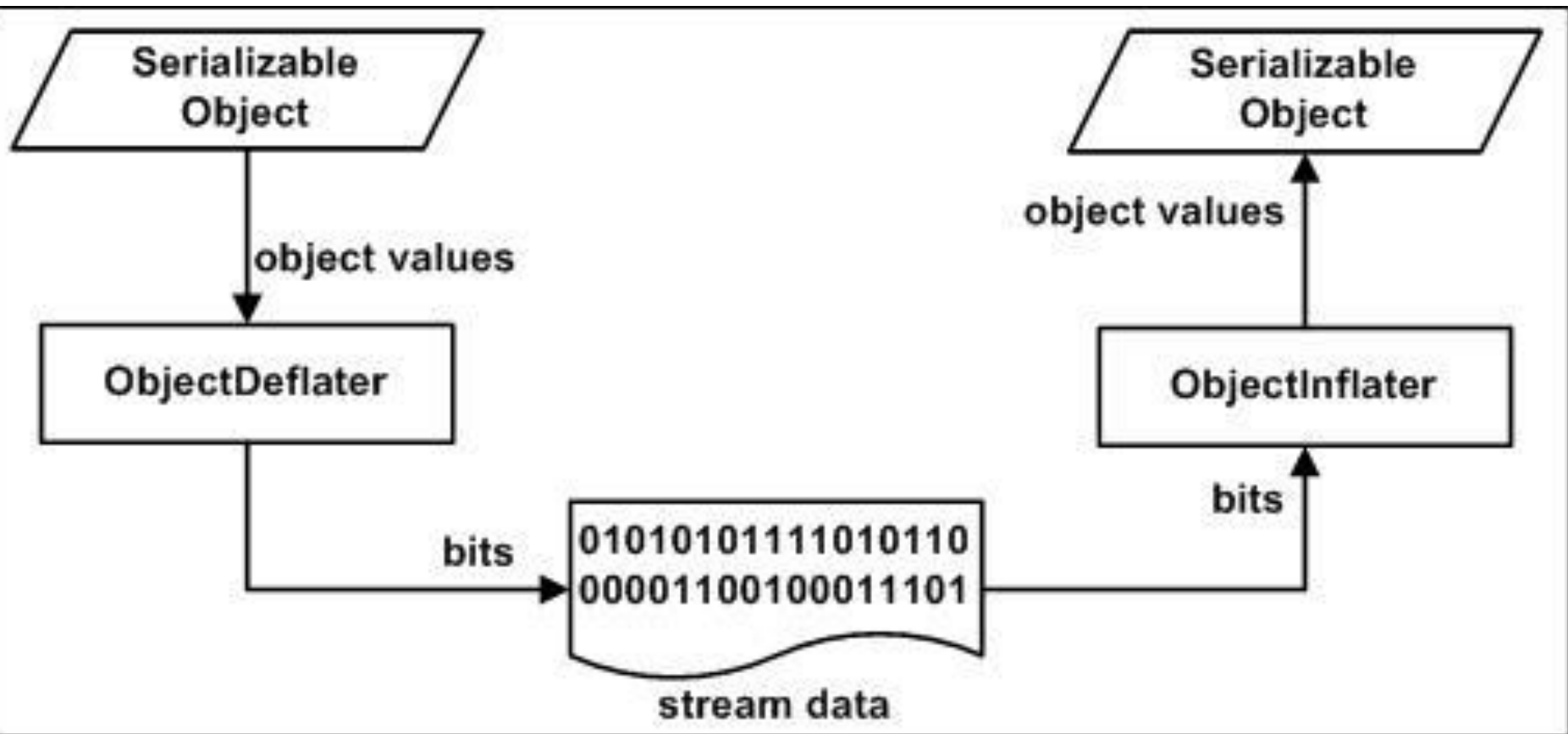
```
o2.sum();
```



Serialization



Serialization



ObjectOutputStream

```
class ObjectOutputStream
{
    void    writeObject(Object)
}
```

ObjectInputStream

```
class ObjectInputStream
{
    Object    readObject()
}
```

Character Streams

- **java.io.*;**

Reader

Writer

Character Streams

- **java.io.*;**

InputStream -----> Reader

OutputStream -----> Writer

Character Streams

- **java.io.*;**

