Programación Orientada a Objetos

Entrada-Salida

CEIS

2022-1

Agenda

- Conceptos
  - En general
  - En java
- Objetos
  - Mecanismo
  - Batalla Naval
- Texto-Archivos
  - Mecanismo
  - Batalla Naval
- Caracteres-Estandar
  - Mecanismo
  - Batalla Naval
  - Final

Agenda

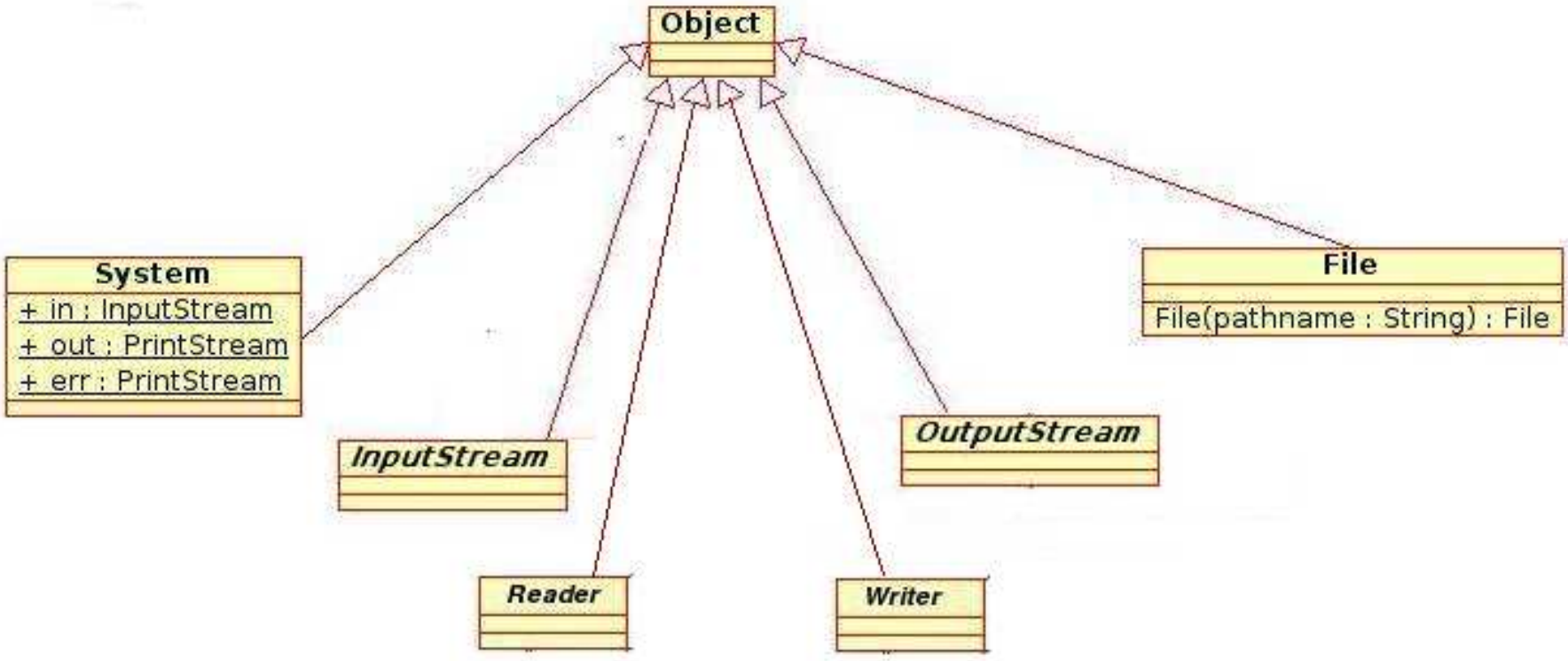
Entrada-Salida

¿Desde dónde? ¿Hacia dónde?

¿Cómo?

- Como máquina, ¿qué es lo real?
- Como humanos, ¿qué queremos ver?
- Como lenguaje O.O, ¿qué querría ver?

Entrada-Salida



Entrada-Salida

java.io

Class IOException

java.lang.Object
  └ java.lang.Throwable
    └ java.lang.Exception
      └ **java.io.IOException**

All Implemented Interfaces:

Serializable

Direct Known Subclasses:

ChangedCharSetException, CharacterCodingException, CharConversionException, ClosedChannelException, EOFException, FileLockInterruptionException, FileNotFoundException, HttpRetryException, IIOException, InterruptedIOException, InvalidPropertiesFormatException, JMXProviderException, JMXServerErrorException, MalformedURLException, ObjectStreamException, ProtocolException, RemoteException, SaslException, SocketException, SSLException, SyncFailedException, UnknownHostException, UnknownServiceException, UnsupportedEncodingException, UTFDataFormatException, ZipException

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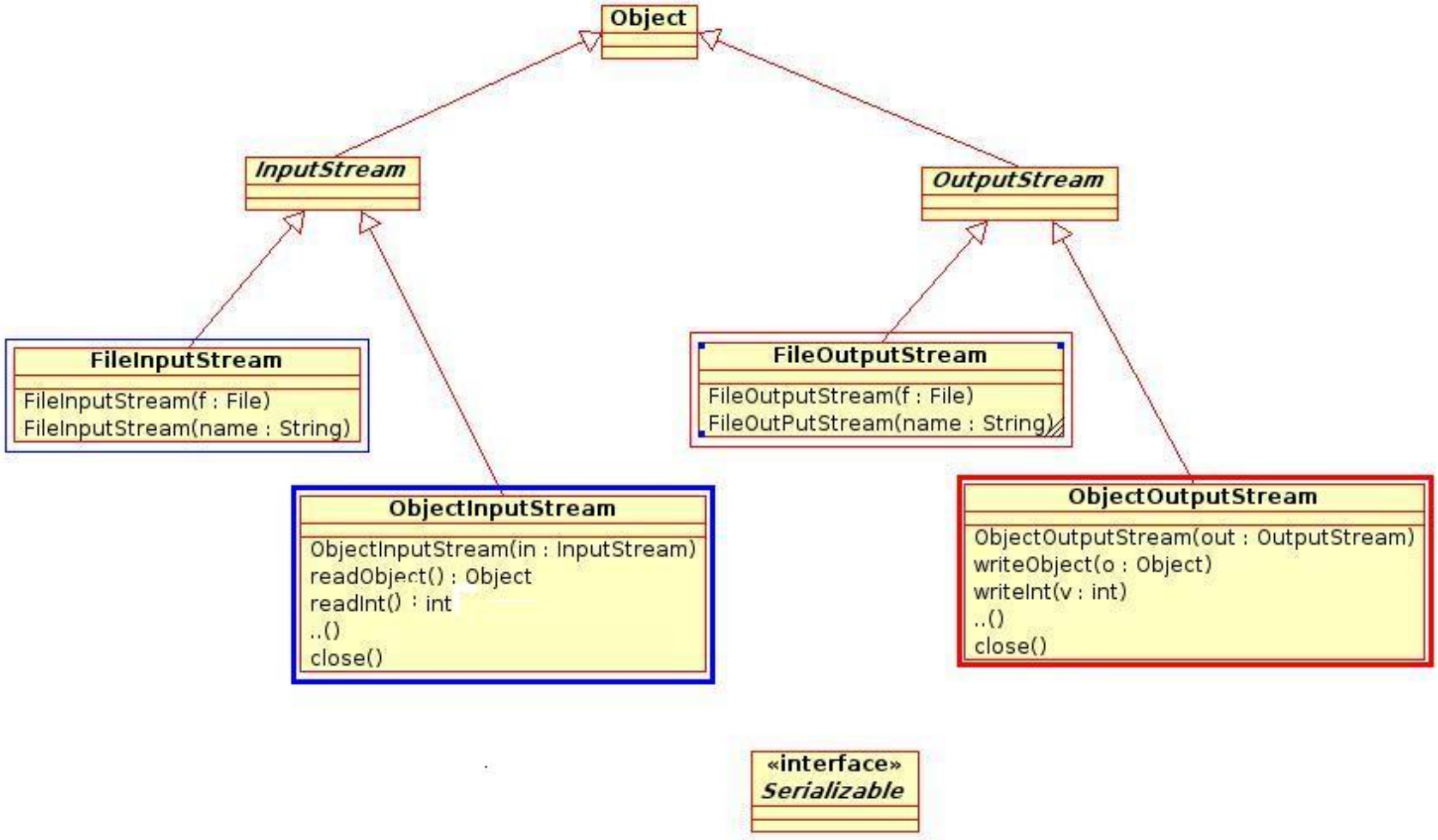
Agenda

Objetos


Object
InputStream
OutputStream
FileInputStream
FileInputStream(f : File)
FileInputStream(name : String)
FileOutputStream
FileOutputStream(f : File)
FileOutPutStream(name : String)
ObjectInputStream
ObjectInputStream(in : InputStream)
readObject() : Object
readInt() : int
..()
close()
ObjectOutputStream
ObjectOutputStream(out : OutputStream)
writeObject(o : Object)
writeInt(v : int)
..()
close()
«interface»
Serializable

Objetos

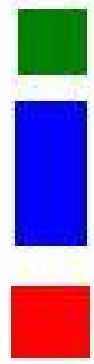
Para escribir

```
Worm w = new Worm(6, 'a');
System.out.println("w = " + w);
ObjectOutputStream out = new ObjectOutputStream(
  new FileOutputStream("worm.out"));
out.writeObject("Worm storage\n");
out.writeObject(w);
out.close();
```

Objetos

Para leer

```
ObjectInputStream in = new ObjectInputStream(
  new FileInputStream("worm.out"));
String s = (String)in.readObject();
Worm w2 = (Worm)in.readObject();
System.out.println(s + "w2 = " + w2);
in.close();
```



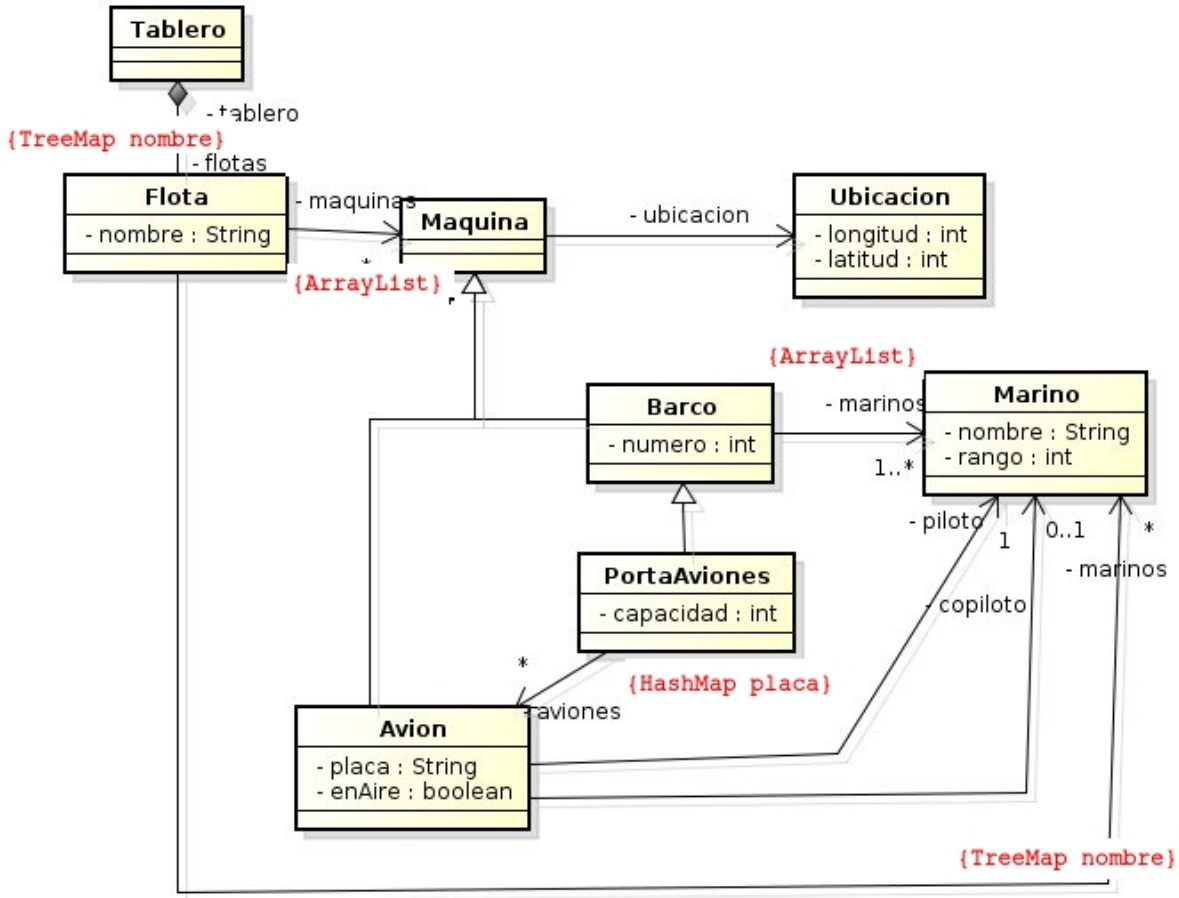
Objetos

Excepciones

```
// Throw exceptions to console:
public static void main(String[] args)
                                throws ClassNotFoundException,
                                       IOException {
```

Batalla Naval

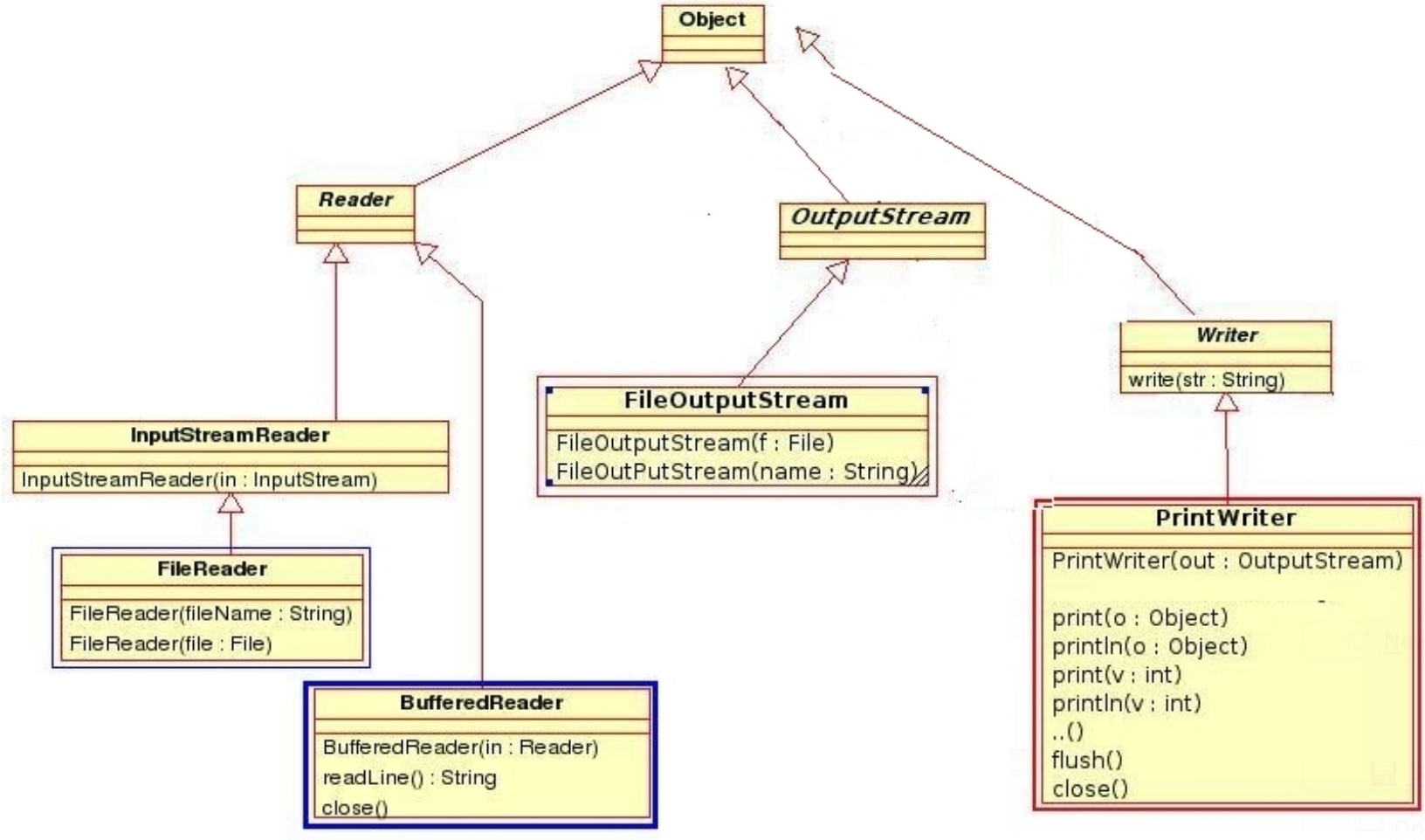
Como objeto



- salve(archivo:String)
- cargue(archivo:String)

Agenda

Texto

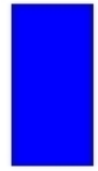

Object
Reader
OutputStream
Writer
write(str : String)
FileOutputStream
FileOutputStream(f : File)
FileOutPutStream(name : String)
InputStreamReader
InputStreamReader(in : InputStream)
FileReader
FileReader(fileName : String)
FileReader(file : File)
BufferedReader
BufferedReader(in : Reader)
readLine() : String
close()
PrintWriter
PrintWriter(out : OutputStream)
print(o : Object)
println(o : Object)
print(v : int)
println(v : int)
..()
flush()
close()

Texto

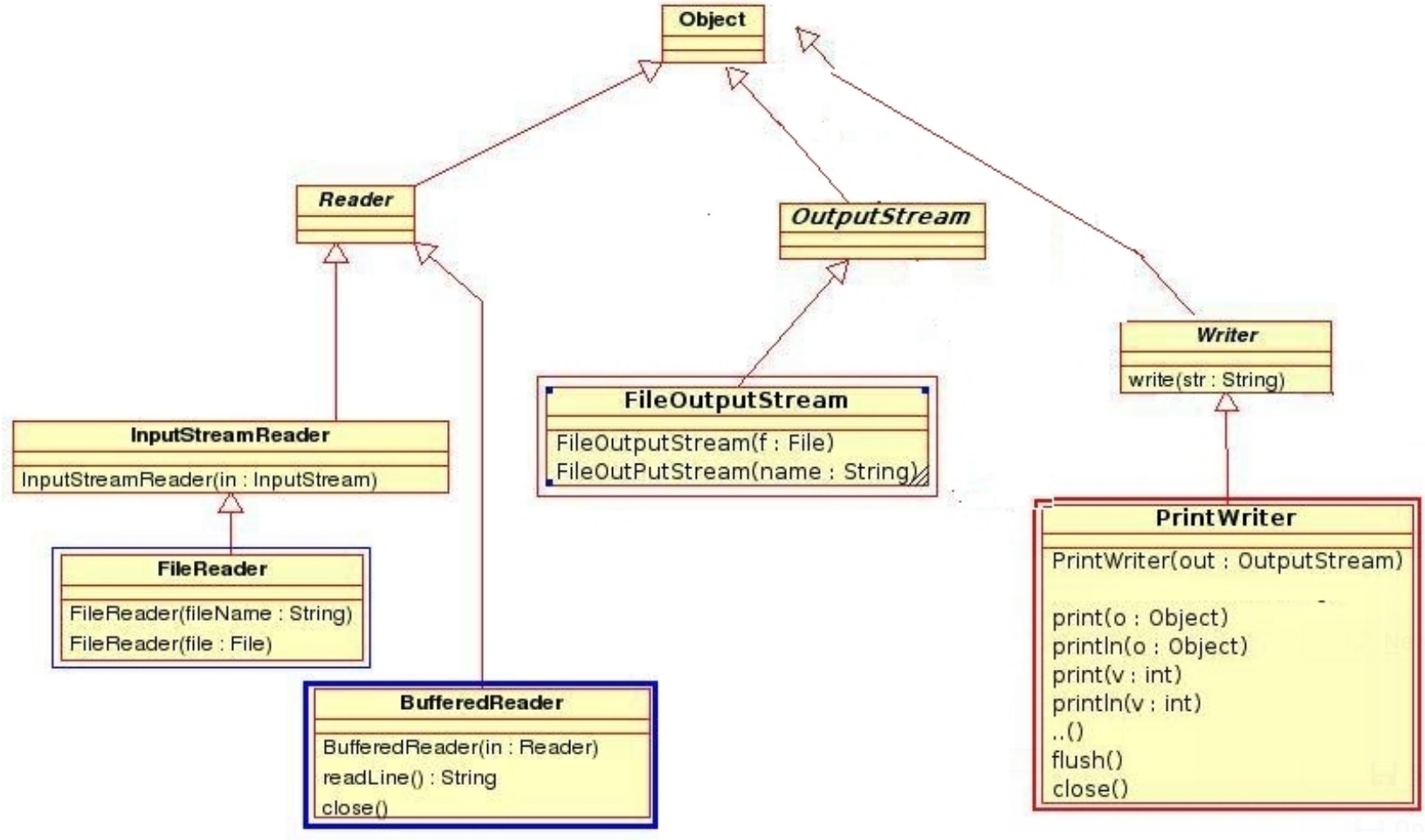
Escribir

```
PrintWriter pw = new PrintWriter(
                     new FileOutputStream(nameOfFileToBeWrittenTo) );

while (we still have more data to output) {
    pw.println(whatever data we wish to output);
}
// Close the PrintWriter, which automatically closes
// the encapsulated FileOutputStream, as well.
pw.close();
```



Texto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FileOutputStream
FileOutputStream(f : File)
FileOutPutStream(name : String)
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FileReader
FileReader(fileName : String)
FileReader(file : File)
BufferedReader
BufferedReader(in : Reader)
readLine() : String
close()
PrintWriter
PrintWriter(out : OutputStream)
print(o : Object)
println(o : Object)
print(v : int)
println(v : int)
..()
flush()
close()

Texto

Leer

```
BufferedReader bIn = new BufferedReader(
                              new FileReader(nameOfFileToBeReadFrom) );
// Read the first line from the file.
String line = bIn.readLine();
while (line != null) {
      line = line.trim();
       line = bIn.readLine();
}
bIn.close();
```

Java API

trim

`public String trim()`

Returns a copy of the string, with leading and trailing whitespace omitted.

If this `String` object represents an empty character sequence, or the first and last characters of character sequence represented by this `String` object both have codes greater than `'\u0020'` (the space character), then a reference to this `String` object is returned.

Otherwise, if there is no character with a code greater than `'\u0020'` in the string, then a new `String` object representing an empty string is created and returned.

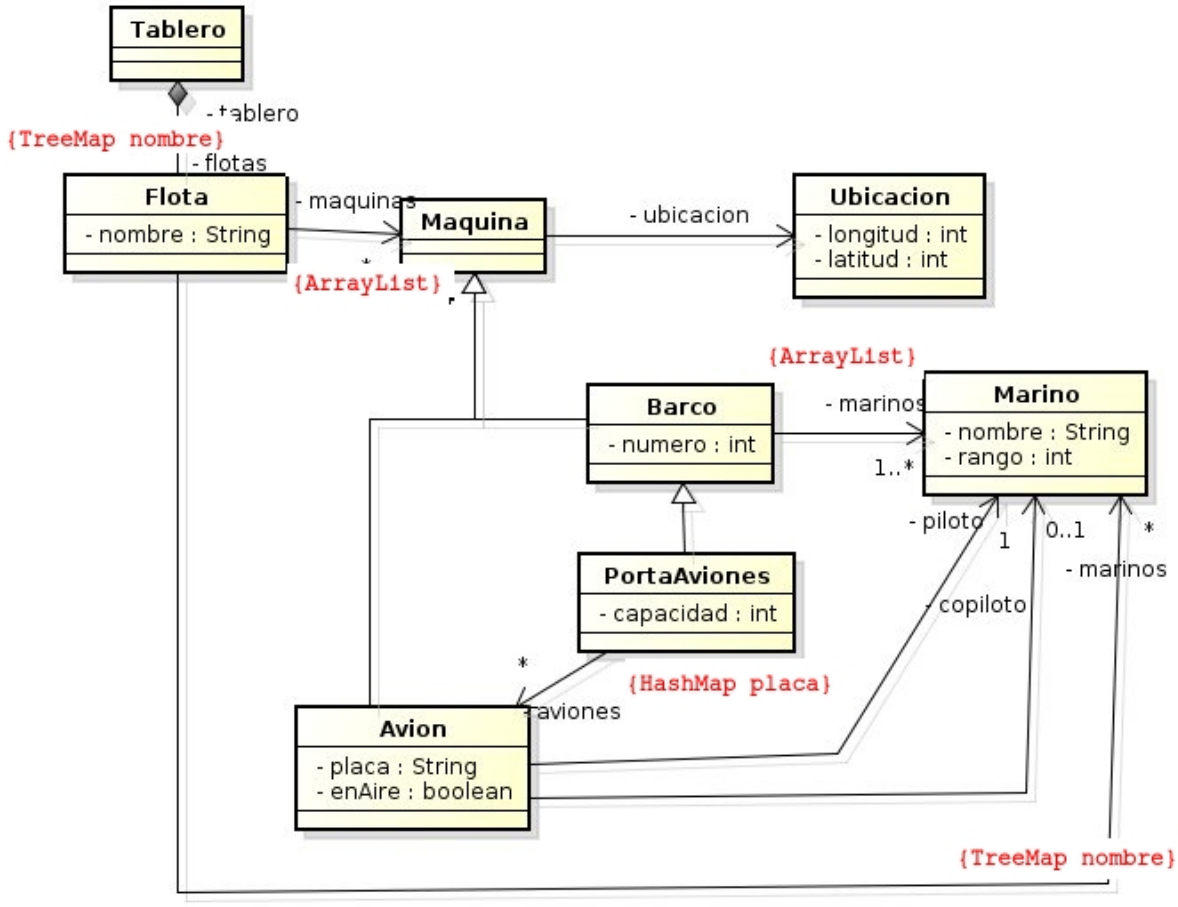
Otherwise, let k be the index of the first character in the string whose code is greater than `'\u0020'`, and let m be the index of the last character in the string whose code is greater than `'\u0020'`. A new `String` object is created, representing the substring of this string that begins with the character at index k and ends with the character at index m-that is, the result of `this.substring(k, m+1)`.

This method may be used to trim whitespace (as defined above) from the beginning and end of a string.

Returns:

A copy of this string with leading and trailing white space removed, or this string if it has no leading or trailing white space.

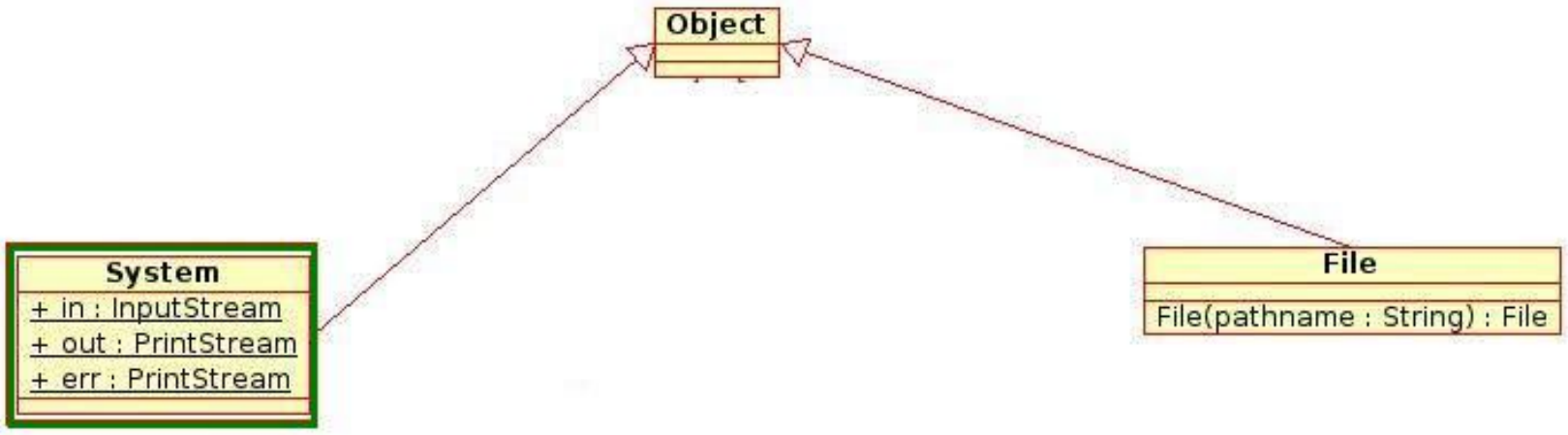
Batalla Naval



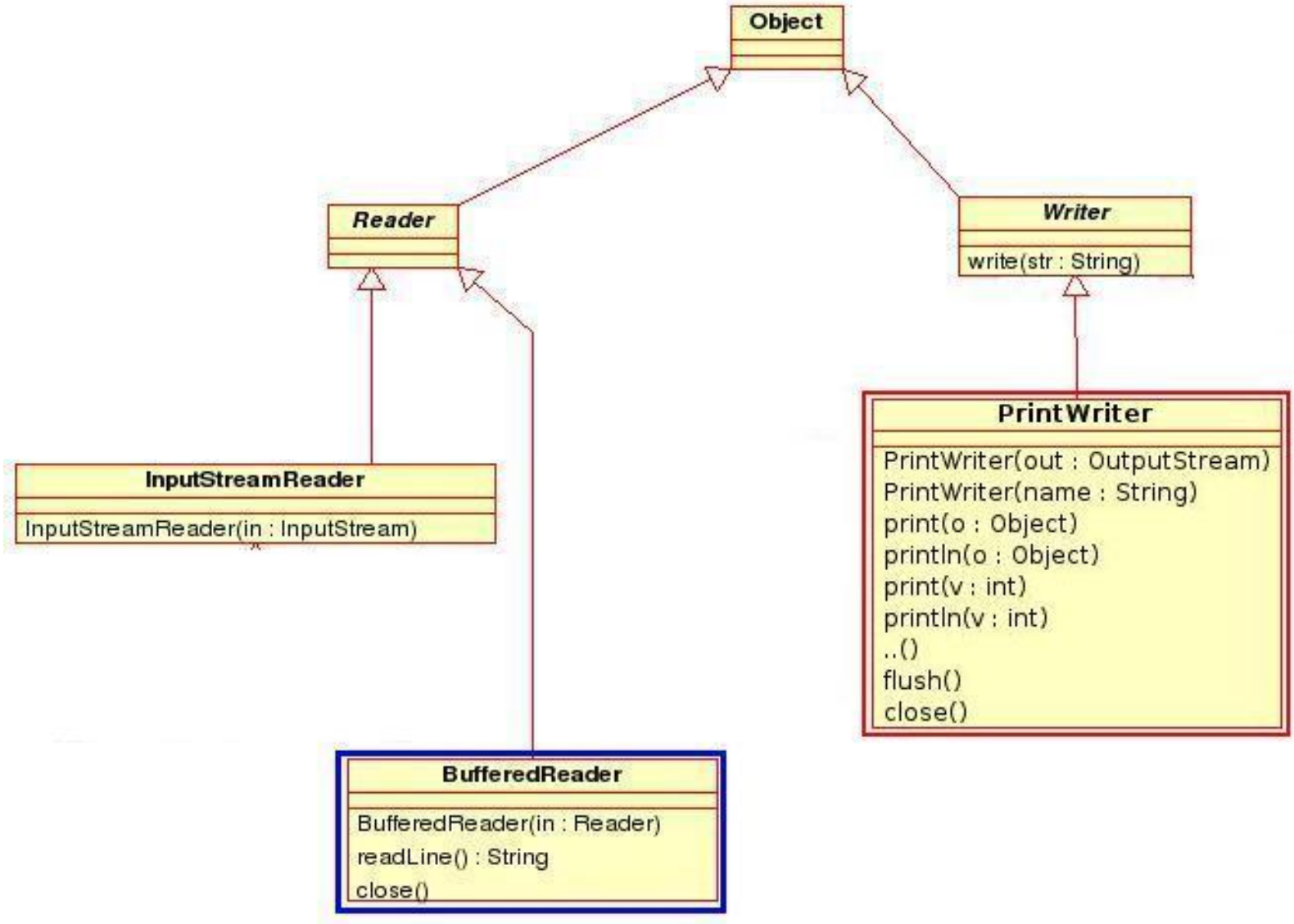
- Generar, a archivo, un informe de las flotas: número de flotas y nombre y número de máquinas de cada una
- Adicionar nuevas flotas, sus nombres están en un archivo

Agenda

Entrada-Salida



Caracteres


Object
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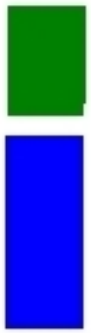
Writer
write(str : String)
InputStreamReader
InputStreamReader(in : InputStream)
PrintWriter
PrintWriter(out : OutputStream)
PrintWriter(name : String)
print(o : Object)
println(o : Object)
print(v : int)
println(v : int)
..()
flush()
close()
BufferedReader
BufferedReader(in : Reader)
readLine() : String
close()

Texto-Estandar

Para leer

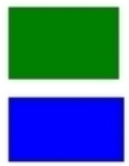
```
import java.io.*;
public class Echo {
  public static void main(String[] args)
  throws IOException {
    BufferedReader in = new BufferedReader(
      new InputStreamReader(System.in));
    String s;
    while((s = in.readLine()) != null && s.length() != 0)
      System.out.println(s);
    // An empty line or Ctrl-Z terminates the program
  }
} ///:~
```



Texto-Estandar

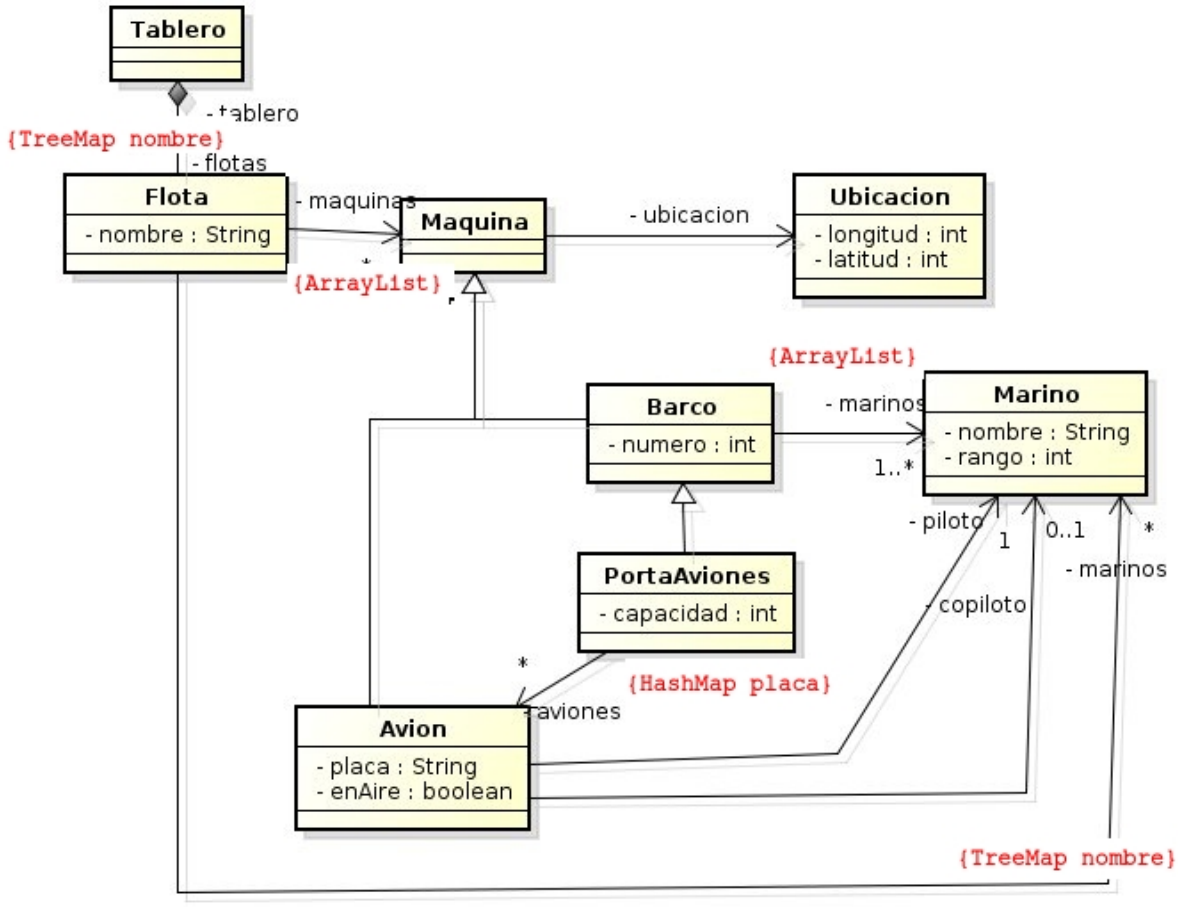
Para escribir

```
import java.io.*;

public class ChangeSystemOut {

  public static void main(String[] args) {
    PrintWriter out = new PrintWriter(System.out, true);
    out.println("Hello, world");

  }

} ///:~
```



Batalla Naval

BatallaNaval Consultor



- Un usuario REAL quiere consultar la información básica de una flota dado su nombre

  Número de máquinas

Texto-Estandar

Redireccionando

```
//: c12:Redirecting.java
// Demonstrates standard I/O redirection.
import java.io.*;
public class Redirecting {
  // Throw exceptions to console:
  public static void main(String[] args)
  throws IOException {
    PrintStream console = System.out;
    BufferedInputStream in = new BufferedInputStream(
      new FileInputStream("Redirecting.java"));
    PrintStream out = new PrintStream(
      new BufferedOutputStream(
        new FileOutputStream("test.out")));
    System.setIn(in);
    System.setOut(out);
    System.setErr(out);
    BufferedReader br = new BufferedReader(
      new InputStreamReader(System.in));
    String s;
    while((s = br.readLine()) != null)
      System.out.println(s);
    out.close(); // Remember this!
    System.setOut(console);
  }
} ///:~
```

Texto-Estandar

Redireccionando- De System.

static void	**setErr**(PrintStream err) Reassigns the "standard" error output stream.
static void	**setIn**(InputStream in) Reassigns the "standard" input stream.
static void	**setOut**(PrintStream out) Reassigns the "standard" output stream.