MASTER EN MODELIZACIÓN MATEMÁTICA, ESTADÍSTICA Y COMPUTACIÓN
2011-2012

Curso: Bases de datos y programación orientada a objetos
Parte POO

Aspectos prácticos para programar en Java (recursos)

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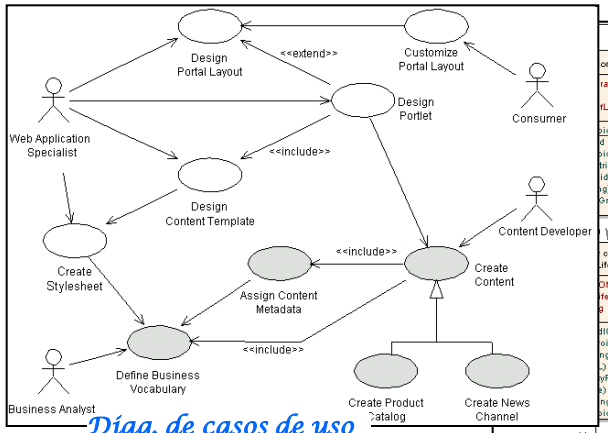
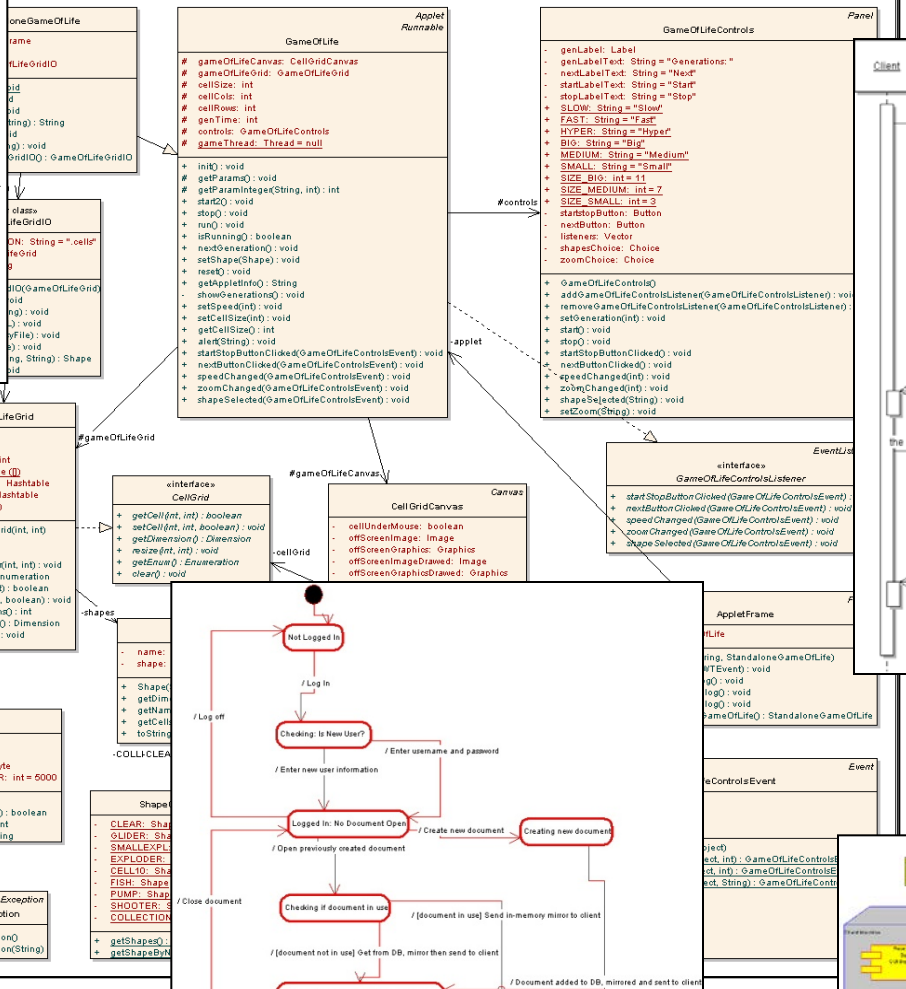
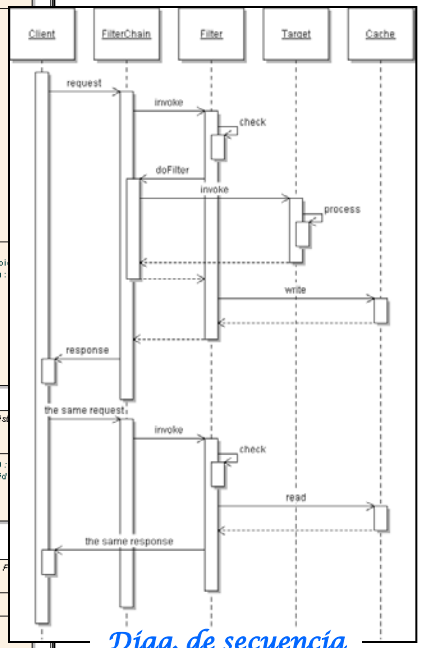
“Bundle” con java (jdk) y netbeans en moodle (versiones windows y linux)
+ documentación de java.



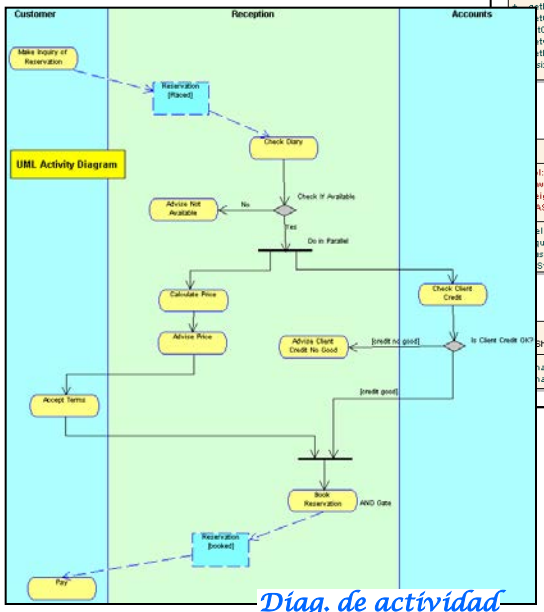
Diag. de casos de uso

Diag. de clases



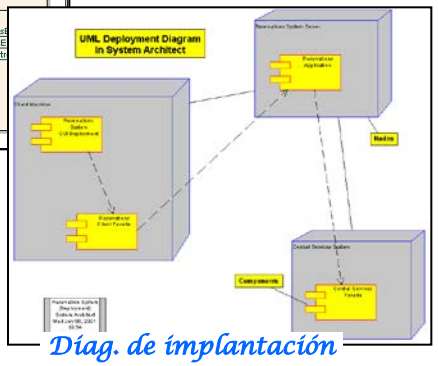


Diag. de secuencia



Diag. de actividad

Diag. de estados



Diag. de implantación

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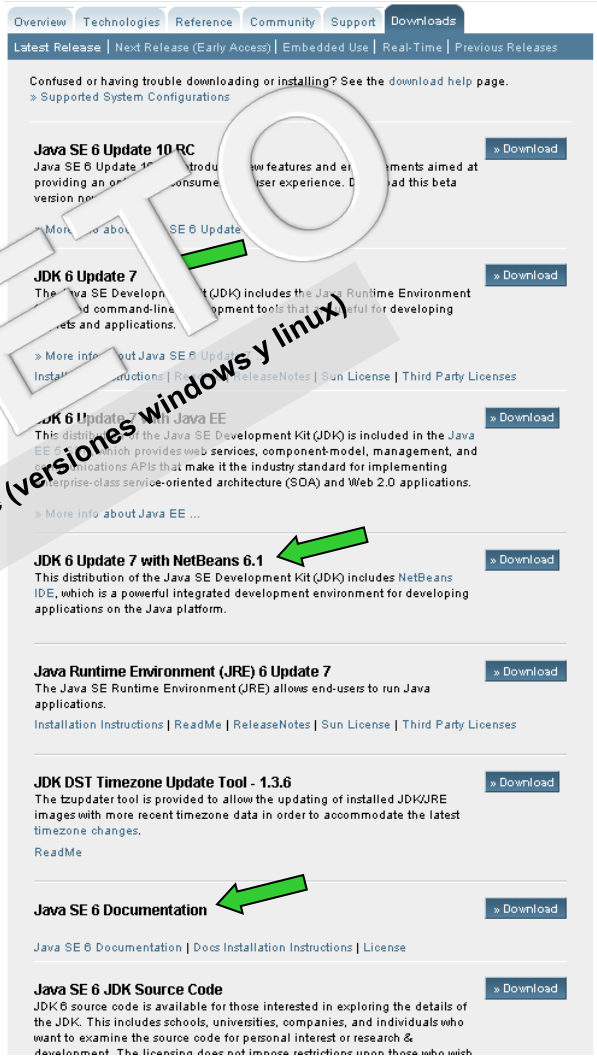
Preparando el entorno

El JDK.



OBSOLETO

"Bundle" con java (jdk) y netbeans en moodle (versiones windows y linux) + documentación de java.

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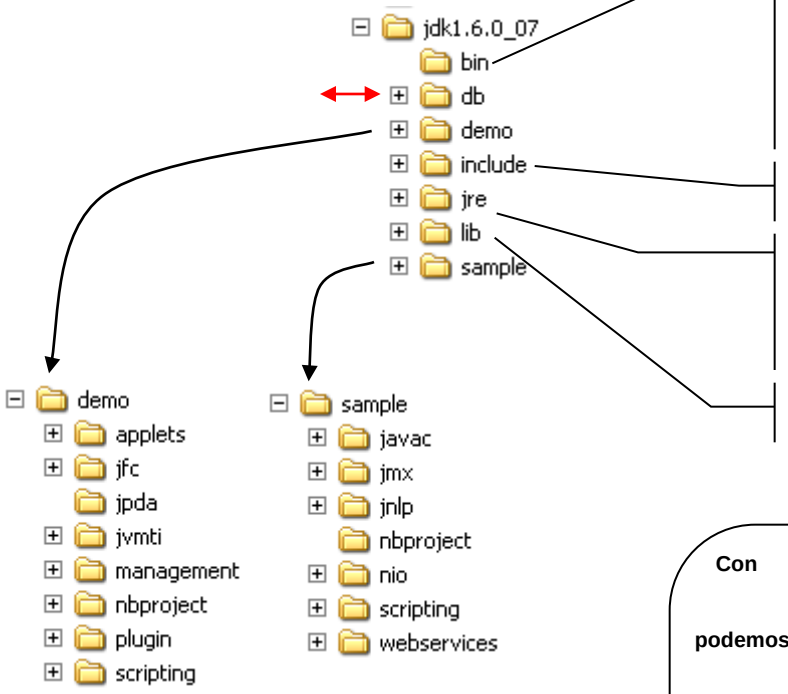


Herramientas de desarrollo:
javac (compilador), java (máquina virtual), jdb (debugger), javadoc (documentador), jar (compactador), javap (desensamblador), extcheck (verificador de .jar), etc.

V+A

Cabeceras para métodos nativos.

Java Runtime Environment.
Máquina virtual, Biblioteca de clases y todo lo necesario para dar soporte a aplicaciones [compiladas] java.

V+A

Librerias adicionales para desarrollo.

Dentro de jdk1.6.0_07 también encontraremos src.zip que contiene todos los ficheros fuente de las librerías

Así mismo, no es estrictamente necesario, pero este directorio es un buen lugar para dejar la documentación jdk-6-doc.zip

Con

- **el directorio "bin" en el PATH, y**
- **la variable JAVA-HOME=<path de jdk1.6.0_07>**

podemos desarrollar nuestro primer programa.

```
//
// Aplicación ejemplo "HolaMundo"
//
public class HolaMundo {
        public static void main(String[] args) {
                System.out.println("Hola, mundo");
        }
}
```

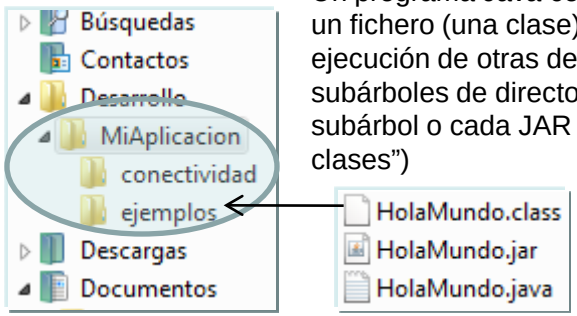
```
Prompt> javac HolaMundo.java
Prompt> java HolaMundo
Hola, Mundo
Prompt>
```

```
C:\Documents and Settings\german>javac
Usage: javac <options> <source files>
where possible options include:
  -g                         Generate all debugging info
  -g:none                    Generate no debugging info
  -g:{lines,vars,source}     Generate only some debugging info
  -nowarn                    Generate no warnings
  -verbose                   Output messages about what the compiler is doing
  -deprecation               Output source locations where deprecated APIs are used
  -classpath <path>          Specify where to find user class files and annotation processors
  -cp <path>                 Specify where to find user class files and annotation processors
  -sourcepath <path>         Specify where to find input source files
  -bootclasspath <path>      Override location of bootstrap class files
  -extdirs <dirs>            Override location of installed extensions
  -endorseddirs <dirs>       Override location of endorsed standards path
  -proc:{none,only}          Control whether annotation processing and/or compilat
  -processor <class1>[,<class2>,<class3>...]Names of the annotation processors to
  -processorpath <path>      Specify where to find annotation processors
  -d <directory>             Specify where to place generated class files
  -s <directory>             Specify where to place generated source files
  -implicit:{none,class}     Specify whether or not to generate class files for im
  -encoding <encoding>       Specify character encoding used by source files
  -source <release>          Provide source compatibility with specified release
  -target <release>          Generate class files for specific VM version
  -version                   Version information
  -help                      Print a synopsis of standard options
  -Akey[=value]              Options to pass to annotation processors
  -X                         Print a synopsis of nonstandard options
  -J<flag>                   Pass <flag> directly to the runtime system
```

```
C:\Documents and Settings\german>java
Usage: java [-options] class [args...]
           (to execute a class)
   or  java [-options] -jar jarfile [args...]
           (to execute a jar file)

where options include:
    -client       to select the "client" VM
    -server       to select the "server" VM
    -hotspot      is a synonym for the "client" VM  [deprecated]
                  The default VM is client.

    -cp <class search path of directories and zip/jar files>
    -classpath <class search path of directories and zip/jar files>
                  A ; separated list of directories, JAR archives,
                  and ZIP archives to search for class files.
    -D<name>=<value>
                  set a system property
    -verbose[:class|gc|jni]
                  enable verbose output
    -version      print product version and exit
    -version:<value>
                  require the specified version to run
    -showversion  print product version and continue
    -jre-restrict-search | -jre-no-restrict-search
                  include/exclude user private JREs in the version search
    -? -help      print this help message
    -X            print help on non-standard options
    -ea[:<packagename>...|:<classname>]
    -enableassertions[:<packagename>...|:<classname>]
                  enable assertions
    -da[:<packagename>...|:<classname>]
    -disableassertions[:<packagename>...|:<classname>]
                  disable assertions
    -esa | -enablesystemassertions
                  enable system assertions
    -dsa | -disablesystemassertions
                  disable system assertions
    -agentlib:<libname>[=<options>]
                  load native agent library <libname>, e.g. -agentlib:hprof
                    see also, -agentlib:jdwp=help and -agentlib:hprof=help
    -agentpath:<pathname>[=<options>]
                  load native agent library by full pathname
    -javaagent:<jarpath>[=<options>]
                  load Java programming language agent, see java.lang.instrument
    -splash:<imagepath>
                  show splash screen with specified image
```



Un programa Java comienza por la ejecución de un fichero (una clase) que puede ir invocando la ejecución de otras dentro de uno o varios subárboles de directorios o ficheros JAR (cada subárbol o cada JAR es una “biblioteca de clases”)

Compilar y ejecutar estando en “MiAplicacion”

```
>javac ejemplos/HolaMundo.java
>java ejemplos.HolaMundo
```

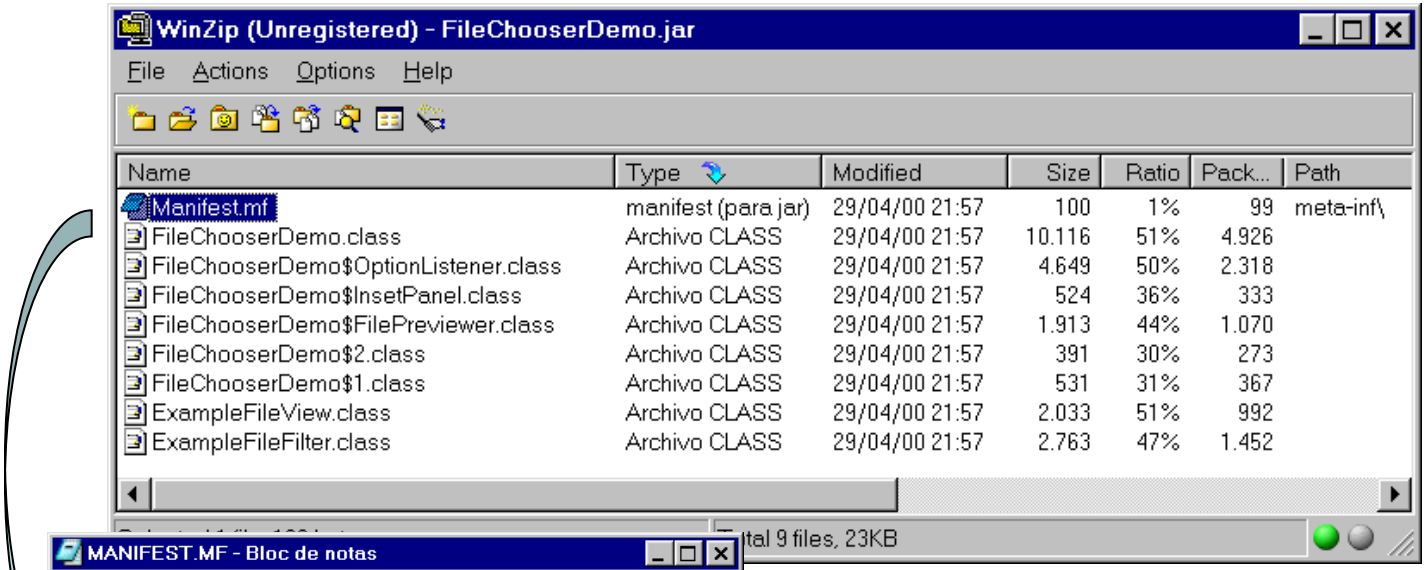
Compilar y ejecutar estando en otro directorio

```
>javac -cp c:/Desarrollo/MiAplicacion ejemplos/HolaMundo.java
>java -cp c:/Desarrollo/MiAplicacion ejemplos.HolaMundo
```

Ejecutar mediante un JAR

```
>java -cp c:/Desarrollo/MiAplicacion/ejemplos/HolaMundo.jar HolaMundo
>java -jar c:/Desarrollo/MiAplicacion/ejemplos/HolaMundo.jar
```

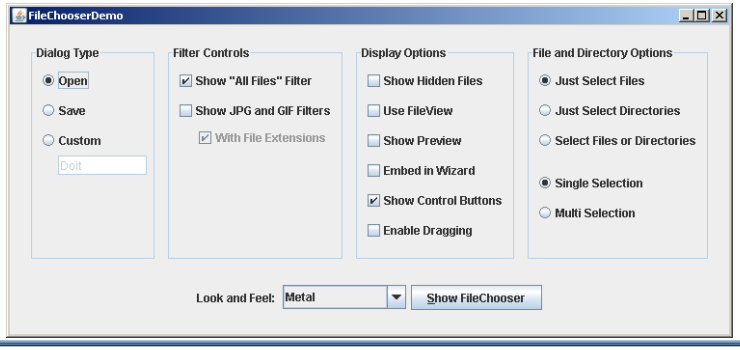
OJO: para hacer esta prueba hay que incluir la línea **package ejemplos;** en el código fuente de HolaMundo.java



El “Manifest.mf” debe situarse en una sub-carpeta denominada “meta-inf”

```
C:\Archivos de programa\Java\jdk1.6.0_07\demo\jfc\FileChooserDemo>java -cp FileChooserDemo.jar FileChooserDemo

C:\Archivos de programa\Java\jdk1.6.0_07\demo\jfc\FileChooserDemo>java -jar FileChooserDemo.jar
```



El “bin”


appletviewer.exe
Java(TM) Platform SE binary
Sun Microsystems, Inc.
apt.exe
Java(TM) Platform SE binary
Sun Microsystems, Inc.
beanreg.dll
6.0.70.6
Java(TM) Platform SE binary
extcheck.exe
Java(TM) Platform SE binary
Sun Microsystems, Inc.
HtmlConverter.exe
Java(TM) Platform SE binary
Sun Microsystems, Inc.
idlj.exe
Java(TM) Platform SE binary
Sun Microsystems, Inc.
jar.exe
Java(TM) Platform SE binary
Sun Microsystems, Inc.
jarsigner.exe
Java(TM) Platform SE binary
Sun Microsystems, Inc.
java.exe
Java(TM) Platform SE binary
Sun Microsystems, Inc.
javac.exe
Java(TM) Platform SE binary
Sun Microsystems, Inc.
javadoc.exe
Java(TM) Platform SE binary
Sun Microsystems, Inc.
javah.exe
Java(TM) Platform SE binary
Sun Microsystems, Inc.
javap.exe
Java(TM) Platform SE binary
Sun Microsystems, Inc.
java-rmi.exe
Java(TM) Platform SE binary
Sun Microsystems, Inc.
javaw.exe
Java(TM) Platform SE binary
Sun Microsystems, Inc.
javaws.exe
Java(TM) Web Start Launcher
Sun Microsystems, Inc.
jconsole.exe
Java(TM) Platform SE binary
Sun Microsystems, Inc.
jdb.exe
Java(TM) Platform SE binary
Sun Microsystems, Inc.
jhat.exe
Java(TM) Platform SE binary
Sun Microsystems, Inc.
jinfo.exe
Java(TM) Platform SE binary
Sun Microsystems, Inc.
jli.dll
6.0.70.6
Java(TM) Platform SE binary
jmap.exe
Java(TM) Platform SE binary
Sun Microsystems, Inc.
jps.exe
Java(TM) Platform SE binary
Sun Microsystems, Inc.
jrunscript.exe
Java(TM) Platform SE binary
Sun Microsystems, Inc.
jstack.exe
Java(TM) Platform SE binary
Sun Microsystems, Inc.
jstat.exe
Java(TM) Platform SE binary
Sun Microsystems, Inc.
jstatd.exe
Java(TM) Platform SE binary
Sun Microsystems, Inc.
jvisualvm.exe
keytool.exe
Java(TM) Platform SE binary
Sun Microsystems, Inc.
kinit.exe
Java(TM) Platform SE binary
Sun Microsystems, Inc.
klist.exe
Java(TM) Platform SE binary
Sun Microsystems, Inc.
ktab.exe
Java(TM) Platform SE binary
Sun Microsystems, Inc.
msvcr71.dll
7.10.3052.4
Microsoft® C Runtime Library
native2ascii.exe
Java(TM) Platform SE binary
Sun Microsystems, Inc.
orbd.exe
Java(TM) Platform SE binary
Sun Microsystems, Inc.
pack200.exe
Java(TM) Platform SE binary
Sun Microsystems, Inc.
packager.exe
JavaBeans(TM) Packager
Sun Microsystems, Inc.
policytool.exe
Java(TM) Platform SE binary
Sun Microsystems, Inc.
rmic.exe
Java(TM) Platform SE binary
Sun Microsystems, Inc.
rmid.exe
Java(TM) Platform SE binary
Sun Microsystems, Inc.
rmiregistry.exe
Java(TM) Platform SE binary
Sun Microsystems, Inc.
schemagen.exe
Java(TM) Platform SE binary
Sun Microsystems, Inc.
serialver.exe
Java(TM) Platform SE binary
Sun Microsystems, Inc.
servertool.exe
Java(TM) Platform SE binary
Sun Microsystems, Inc.
tnameserv.exe
Java(TM) Platform SE binary
Sun Microsystems, Inc.
unpack200.exe
Java(TM) Platform SE binary
Sun Microsystems, Inc.
wsgen.exe
Java(TM) Platform SE binary
Sun Microsystems, Inc.
wsimport.exe
Java(TM) Platform SE binary
Sun Microsystems, Inc.
xjc.exe
Java(TM) Platform SE binary
Sun Microsystems, Inc.

La documentación del código desarrollado esta ligada al mismo y se genera automáticamente mediante javadoc

```
C:\Documents and Settings\german>javadoc
javadoc: error - No packages or classes specified.
usage: javadoc [options] [packagenames] [sourcefiles] [@files]
-overview <file>            Read overview documentation from HTML file
-public                     Show only public classes and members
-protected                  Show protected/public classes and members (default)
-package                    Show package/protected/public classes and members
-private                    Show all classes and members
-help                       Display command line options and exit
-doclet <class>             Generate output via alternate doclet
-docletpath <path>          Specify where to find doclet class files
-sourcepath <pathlist>      Specify where to find source files
-classpath <pathlist>       Specify where to find user class files
-exclude <pkglist>          Specify a list of packages to exclude
-subpackages <subpkglist>   Specify subpackages to recursively load
-breakiterator              Compute 1st sentence with BreakIterator
-bootclasspath <pathlist>   Override location of class files loaded
                            by the bootstrap class loader
-source <release>           Provide source compatibility with specified release
-extdirs <dirlist>          Override location of installed extensions
-verbose                    Output messages about what Javadoc is doing
-locale <name>              Locale to be used, e.g. en_US or en_US_WIN
-encoding <name>            Source file encoding name
-quiet                      Do not display status messages
-J<flag>                    Pass <flag> directly to the runtime system

Provided by Standard doclet:
-d <directory>                    Destination directory for output files
-use                              Create class and package usage pages
-version                          Include @version paragraphs
-author                           Include @author paragraphs
-docfilessubdirs                  Recursively copy doc-file subdirectories
-splitindex                       Split index into one file per letter
-windowtitle <text>               Browser window title for the documenation
-doctitle <html-code>             Include title for the overview page
-header <html-code>               Include header text for each page
-footer <html-code>               Include footer text for each page
-top    <html-code>               Include top text for each page
-bottom <html-code>               Include bottom text for each page
-link <url>                       Create links to javadoc output at <url>
-linkoffline <url> <url2>         Link to docs at <url> using package list at <url2>
-excludedocfilessubdir <name1>:.. Exclude any doc-files subdirectories with given name.
-group <name> <p1>:<p2>..         Group specified packages together in overview page
-nocomment                        Supress description and tags, generate only declarati
-nodeprecated                     Do not include @deprecated information
-noqualifier <name1>:<name2>:...  Exclude the list of qualifiers from the output.
-nosince                          Do not include @since information
-notimestamp                      Do not include hidden time stamp
-nodeprecatedlist                 Do not generate deprecated list
-notree                           Do not generate class hierarchy
-noindex                          Do not generate index
-nohelp                           Do not generate help link
-nonavbar                         Do not generate navigation bar
-serialwarn                       Generate warning about @serial tag
-tag <name>:<locations>:<header>  Specify single argument custom tags
-taglet                           The fully qualified name of Taglet to register
-tagletpath                       The path to Taglets
-charset <charset>                Charset for cross-platform viewing of generated docum
-helpfile <file>                  Include file that help link links to
-linksource                       Generate source in HTML
-sourcetab <tab length>           Specify the number of spaces each tab takes up in the
-keywords                         Include HTML meta tags with package, class and member
-stylesheetfile <path>            File to change style of the generated documentation
-docencoding <name>               Output encoding name
```

```
import java.util.*;
/**
 * Esta clase es de utilidad puntual para análisis de una evaluación manual de sis
 * de traducción. Cada objeto será una frase origen y una serie de traducciones.
 * Las traducciones tendrán el formato "n:frase" donde n es un número 1,2 ó 3.
 * Una de las traducciones no lo será en realidad, sino que se tratará de una copi
 * original y actúa como marca para la ordenación posterior
 */
public class AN1 extends Object {
private String origen;
private int ntrad;
private Vector traducciones= new Vector();
private static final String validCodes="123";

    /** Crea un nuevo objeto aceptando la cadena origen.
    @param s Cadena origen
    @param n número de traducciones correcto (sin contar la repetición que actua c
    public AN1(String s, int n) {origen=s; ntrad=n;}

    /** Acepta una traducción */
    public void add(String s) {traducciones.addElement(s);}

    /** d
    El fo
    es la
```

Package **Class** Tree Deprecated Index Help

PREV CLASS NEXT CLASS — FRAMES NO FRAMES All Classes

SUMMARY: NESTED | FIELD | CONSTR | METHOD — DETAIL: FIELD | CONSTR | METHOD

Class AN1

```
java.lang.Object
  |
  +--AN1
```

public class **AN1**
extends java.lang.Object

Esta clase es de utilidad puntual para análisis de una evaluación manual de sistemas de traducción. Cada objeto será una frase origen y una serie de traducciones. Las traducciones tendrán el formato "n:frase" donde n es un número 1,2 ó 3. Una de las traducciones no lo será en realidad, sino que se tratará de una copia del original y actúa como marca para la ordenación posterior

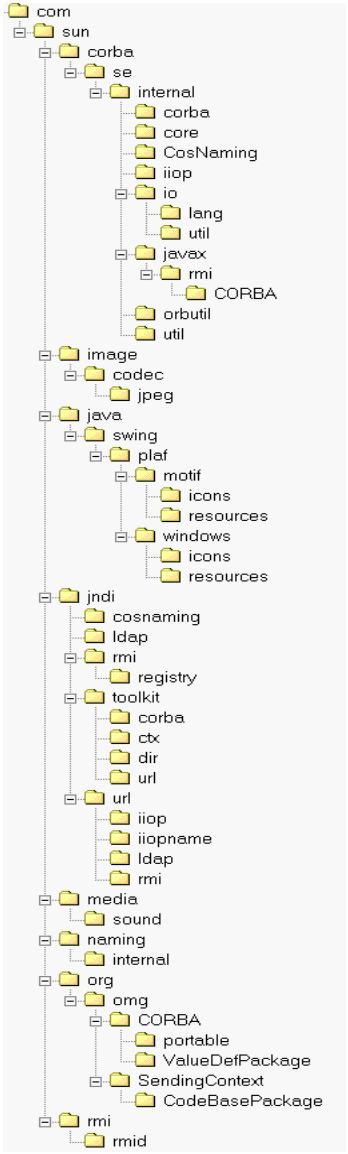
Constructor Summary

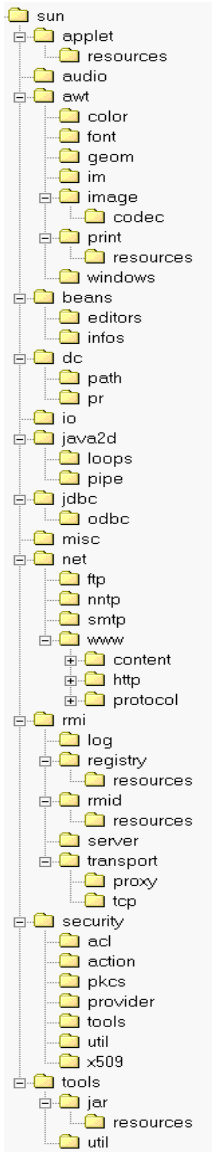
AN1(java.lang.String s, int n)	Crea un nuevo objeto aceptando la cadena origen.

Method Summary

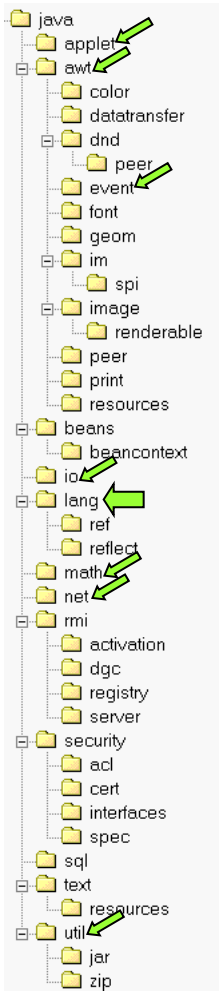
void	**add**(java.lang.String s) Acepta una traducción

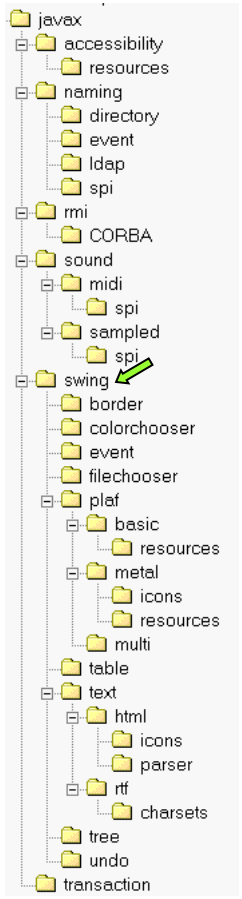
Contenido de C:\...\jdk1.3\jre\lib\rt.jar

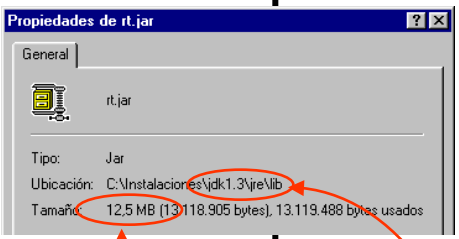


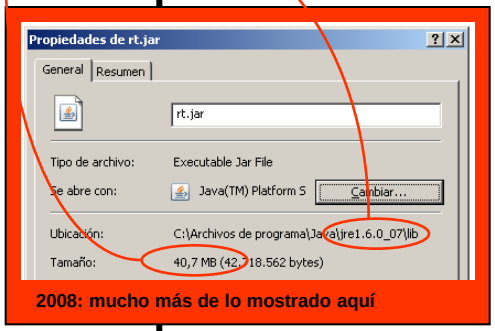


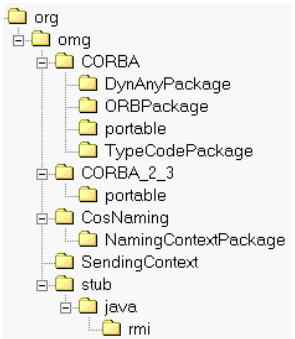
Core Java 2 (Java1.3)

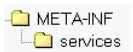












```
C:>javap -c HolaMundo
Compiled from "HolaMundo.java"
public class HolaMundo extends java.lang.Object{
public HolaMundo();
  Code:
   0:   aload_0
   1:   invokespecial   #1; //Method java/lang/Object."<init>":()V
   4:   return

public static void main(java.lang.String[]);
  Code:
   0:   getstatic       #2; //Field java/lang/System.out:Ljava/io/PrintStream;
   3:   ldc     #3; //String Hola, mundo
   5:   invokevirtual   #4; //Method java/io/PrintStream.println:(Ljava/lang/String;)V
   8:   return

}
```

(Decompilación: probar con Jode y SAUTRELA)

“Ofuscacion”