13 Import of external libraries

13.1 Introduction

In many applications, which are tackled by the use of a programming language, the standard libraries (API's) are not sufficient to work effectively. For example, if applications are to be implemented which have to deal with image data (e.g. modify, scale, transform images, etc.) the use of a library is recommended, which provides readily implemented classes and methods for those modifications of image data. Typically, such libraries contain classes too, which pattern the respective object (in this case an image) with its properties. Optimally after the import of such a library the data type "image" is provided.

13.2 Packages

Typically, in Java libraries are contained in so-called packages. Here, a Java packet is a collection of class files, which are organized according to specific criteria within directories[6]. In most cases these packages are packed in so-called JAR archives.

First a JAR archive is a special ZIP file. The most important usage of JAR archives is to collect all data, which belong to a Java program (.class-, image-, sound files, etc.) in a single file.

13.3 Load packages

As an example for an external library the project Apache-PDF-Box may serve (http://pdfbox.apache.org/), a Java library to work with PDFs (creation, display, extraction, join, etc.).

This is the link to the newes version of this JAR archive:

https://repo1.maven.org/maven2/org/apache/pdfbox/pdfbox/2.0.21/pdfbox-2.0.21.jar

Further we need a JAR archive for the API documentation:

https://repo1.maven.org/maven2/org/apache/pdfbox/pdfbox/2.0.21/pdfbox-2.0.21-javadoc.jar

13.4 Add packages in Eclipse

Both JAR files have to be downloaded and optimally stored in an arbitrary directory, which belongs to the project. Alternatively you find them in Moodle in the exercises folder of this lecture.

To be able to import a specific packet with the import instruction, the JAR archive has to be made known to the IDE (in our case Eclipse)[7].

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[6] The creation of such packages is not part of this lecture.
[7] Eclipse knows about the location of the standard API, but of course does not know about other, external libraries.