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Educational software doesn't necessarily have to be developed by programmers. JClic gives educators an easy option for developing exercises for their students.

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Legacy educational programs typically give you a selection of pre-built exercises. JClic gives teachers the option of compiling exercises to match any lesson.

Learning programs and educational exercises are available for all age groups and many different topics. In fact, there are so many options that it is hard to keep track of them all. This said, most software tends to be generic, rather than based on any specific syllabus. For this reason, educators looking to use computers for special exercises and projects with their students might not be able to find software that they can use in a meaningful way.

Authoring systems are a recent invention designed to remove this deficit by helping teachers compile individual content. The idea is simply that non-programmers should be able to implement any content they deem relevant to their syllabus in a software program. Among Linux users, one program is gathering a community thanks to its simple controls, sophisticated options for designing a va-

riety of teaching aids, and free availability under the GPL: JClic.

JClic

Originally, this Java application was developed by the Catalan (Spain) Ministry of Education. English speakers can download JClic from the English version of the Ministry's website [1]. Their web server not only lets you download the program suite, but it also has a collection of several hundred sample exercise modules, one of which might just suit your students' educational needs. The treasure trove of learning modules just keeps on growing and mainly comprises

exercises developed by teachers for their own lessons that they are happy to share with the community. Also, JClic includes a network-capable statistics module to help you follow student performance.

Installation

To use JClic, you need the Sun Java Runtime Environment (see "The Right Flavor of Java" box). After you download the program archive, unpack it to create automatically the folder *jclic-0.2.0.5* with the program suite inside.

To launch the software, pop up a quick start window (Alt + F2) and give the *java -jar /path/to/JClic/jclic.jar* command, or

The Right Flavor of Java

Because various Java implementations are available for Linux, it is a good idea to type *java -version* at the command line to discover whether Java is installed on your system and, if so, what flavor you have. If the command tells you something like *OpenJDK...* instead of *Java (TM)...*, you have the Free Software Foundation GPL version installed on your PC. First you need to uninstall this version because

JClic only works with the original Sun Microsystems Java, to the exclusion of all others. If your distribution has an RPM-based package management system, you can download an RPM package from the Java website [2]. For Debian-based distributions, you will need to enter *apt-get install sun-java6-jre java-common* to install the Java Runtime Environment.

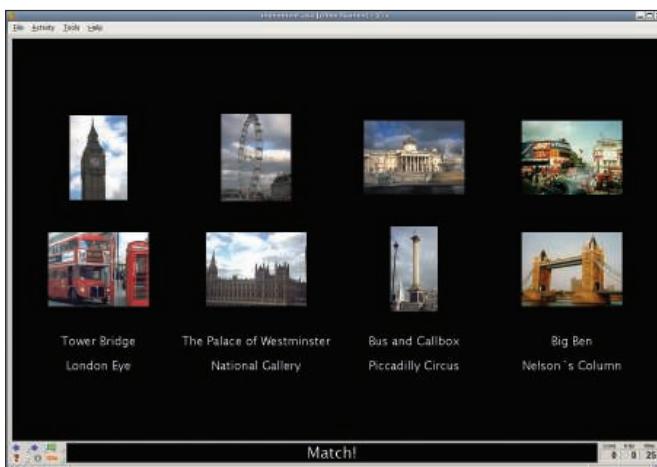


Figure 1: JClic navigation relies entirely on the six buttons in the bottom left-hand corner of the program window.

create a launcher in your KDE, Gnome, or Xfce menu. On Gnome, for example, use *System | Settings | Main Menu | New Entry*. If you intend to create your own exercises, you also want a launcher for the JClic authoring program. This component is standalone, and you cannot launch it from within the JClic player.

After a rather rapid launch for a Java program, JClic asks what language you want to use and prompts you for the path to the exercise files. If you have not defined a separate folder for this, the software will create a subdirectory below your home directory then set up another subdirectory titled *projects*, in which you will find the exercises. For your lessons, you can copy the prebuilt exercise modules available on JClic to this folder.

Then, you can select lessons in the JClic player's main menu from *File | Open file*. For online work, you can access exercises by selecting *File | Open URL*.

Navigation through the exercises is well designed and uses just six icons,

grouped in the bottom left corner of the program window (Figure 1). The left and right arrows go to the last and next exercises, respectively. A question mark represents the help function. Depending on the artwork schema you use, a flag or an open spiral restarts the exercise. Clicking the *JClic* letter icon shows

statistics and lets you check student progress, and the *i* icon gives additional information on the exercise unit. If these icons are dimmed, you can assume that no additional information is available.

JClic integrates a report function for each exercise, both in standalone mode and on networks. Standalone, *Activity | Activity Report* gives progress reports for each unit (Figure 2). On a network, you need to create a database with *java -jar /path/to/JClic/jclicreports.jar*. Creating the database is a simple process with the graphical front end, and you can protect it against manipulation with a password. The database then stores and displays student grades in a neat list.

Creating Exercises

Whereas commercial software vendors typically bill for modules by year and subject, JClic lets you design exercises of your choice with the authoring system. The process is simple, and you can make your results available to the community.

To begin, you need the standalone *jclicauthor.jar* Java program. The intuitive interface is launched by typing *java -jar /path/to/JClic/jclicauthor.jar*. Four horizontal tabs let you define the basic framework for an exercise (Figure 3). The first tab (*Project*) is for the project metadata and provides a number of options to control the look of the exercise.

The second menu, *Media library*, is for the multimedia files you want your students to use in the exercise (Figure 3), such as images, sound files, and video files. Don't overdo this or you risk diverting attention away from the purpose of the project. JClic includes a number

of audio files that you can use to signal specific events, such as a correct answer.

The *Activities* tab is for exercise content. In four submenu tabs you can define the scope, type, and appearance of the exercise and include instructions, and help text for your users. A preview function lets you view your results while you are working. This useful function lets you correct errors at an early stage. Here, you can edit multiple tasks that are part of the same project. The fourth tab, *Sequences*, enables and assigns individual controls to the exercises.

When you save the project, JClic dumps all exercises and multimedia elements into a ZIP archive, which saves space and avoids muddling data in the JClic directory.

Conclusions

The JClic authoring system provides an innovative approach to livening up lessons on computers. Although at a fairly early stage of development, JClic has useful intuitive tools, it avoids distracting bells and whistles, and it has an impressive scope of features. This innovative software is an impressive example of participative learning unrestricted by commercial interests. ■

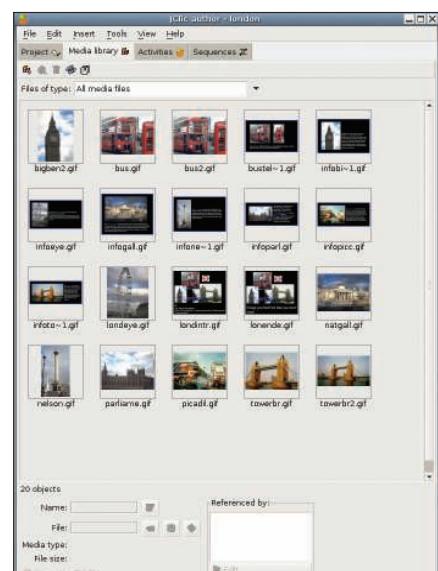


Figure 3: Media library is for your multimedia files.

INFO

- [1] JClic and exercise download: <http://clic.xtec.net/en/jclic/index.htm>
- [2] Sun Java Runtime: <http://java.com/en/download/manual.jsp>

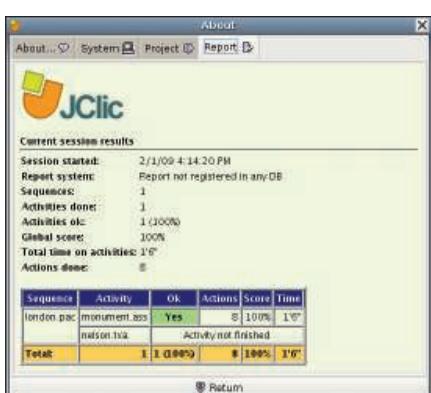


Figure 2: JClic's useful reporting function lets you know how well your students are doing.