Homework Assignment 1

Java Swing

Swing is a full-featured toolset for Java, containing all manners of buttons, dialog boxes, and so on. It can take input from either the keyboard or mouse, and works in a very nice object-oriented language (Java). I am familiar with this language, and it is available for free on all of the platforms I am concerned with (Unix/Linux, OS X, and Windows) and is already installed on university computers. As an added bonus, applets can be embedded in a web page for easy viewing. Java will be the "baseline" that I will be comparing the other three toolsets against.

FLTK

FLTK (fast light tool-kit) is a C++ library released under the LGPL. It provides an adequate set of buttons, windows, menus, and other assorted widgets. It supports event-driven loops and event callbacks, as well as OpenGL. It is available for Unix/Linux, Windows, and OS X. It is not already installed on University computers. I am not familiar with this toolkit.

Tcl/Tk

Tcl (Task Control Language) is an interpreted scripting language. Tk is an extension for Tcl that allows a Tcl program to create GUI features and interact graphically with the user. Tcl/Tk is free, and available for Unix/Linux, OS X, and Windows. It is installed on the lab machines. I am not familiar with this toolkit.
GTK+

GTK+ (GIMP Toolkit) is a GUI toolkit with a rich featureset. It is freely available, released under the LGPL. It is already installed on the CS lab's Linux machines, as Gnome uses GTK+. The API was originally written for C++, but a wide range of language bindings are now available, including Perl and Python. I am not familiar with this toolkit.

Conclusion

<table>
<thead>
<tr>
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<th>Java</th>
<th>FLTK</th>
<th>Tcl/Tk</th>
<th>GTK+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freely available for Linux, Windows, and OS X?</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Already installed in labs?</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
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<td>Already familiar with?</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
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<td>Event-driven model?</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<td>Integration with C++ or Java?</td>
<td>Java</td>
<td>C++</td>
<td>Both</td>
<td>C++</td>
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All four toolkits I've looked into seem to have roughly equivalent capabilities, although I get the feeling that GTK+ and Java might be more full-featured. All four can be accessed from either C++ or Java, which are the two languages I'm most familiar with. I would prefer to work either in C++ with GTK+, or in Java with Swing.

FLTK loses out because it doesn’t seem to have any unique advantages, and is the only one not already installed in the labs. Tcl/Tk loses out because I feel it would be the most difficult to use, as I would have to learn at least rudimentary Tcl, in addition to the Tk API. I’m more familiar with C++ than with Java, so either Swing or GTK+ will be a learning experience. I also already own several books on Java, including one just on Swing that I’d like to get more use out of before they become outdated.
References


Most ESL teachers agree that homework assignments are an absolute must in an ESL course. But ESL students, on the other hand, may disagree. Adult learners will argue that they have busy schedules and a life outside the classroom, which translates into "no time for homework." Young learners and teens may come to terms with the fact that they have to do homework.