Graphical User Interface Builder for C language

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Introduction

C language was originally developed in 1972 by Dennis Ritchie at Bell Laboratories. It is a programming language that was derived from earlier language B and B's earlier ancestors BCPL and CPL. In a very short period of time C language became more powerful and flexible. Later the UNIX operating system which was originally written in assembly language was almost immediately re-written in C. Though C has been around for decades, it's still consistently ranked at the top of any list of programming languages used and studied today (Sawyer, 2012). C language is closer to the hardware, and used to create other languages such as C++, Java and popular operating systems like Windows, UNIX, and Linux. The most important thing is that no programming language beats 'C' language in its speed of execution.

Though the C language (Sawyer, 2012) found lasting use in applications, at present there is no specifically made Rapid Application Development (RAD) tool that enables quick and easy development of user interfaces. Therefore most C programmers use GTK+ widgets to design graphical user interfaces. The only available tool is "Glade" but it is not specifically made for C language and supports for C, C++, Java, Perl and Python languages. One of the disadvantages with the Glade tool is that, output will be an Extensible Markup Language (XML) file.

Therefore this project focuses on developing a RAD tool for C language that provides programmers quick & easy development of user interfaces. The main objectives of this RAD tool is to provide a user friendly interface to design graphical user interfaces, a facility to preview the designed user interfaces and generate a C file as the output for further enhancement to the source code using any other supported tool such as Code Blocks and Eclipse.

Methodology

The proposed system was implemented using two languages; C and Java. The main application was developed in java with Eclipse environment. The main purpose of using Java is to create a platform independent system. In the main application, editing area is available to design Graphical User Interfaces (GUI) with forms, Insert buttons, labels, menus…etc. with drag and drop facility.
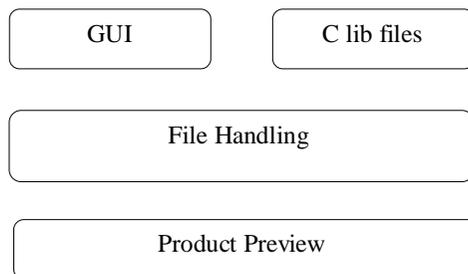

Figure 1. Main modules of the product.

Figure 1 depicts all the modules available in the proposed system. The product preview module can be used to visualize the current state of the GUI application. The GUI module consists with the facility of designing GUI according to users' requirements by drag and drops the component. The C lib files are providing the GTK+ widgets code segments to create the C source file. The file handling segment is most important part of the project and it handles the

creation of the C source file coded with GTK+ widgets. Finally the C source code, generated by the system is used to generate a preview of the GUI for the user.
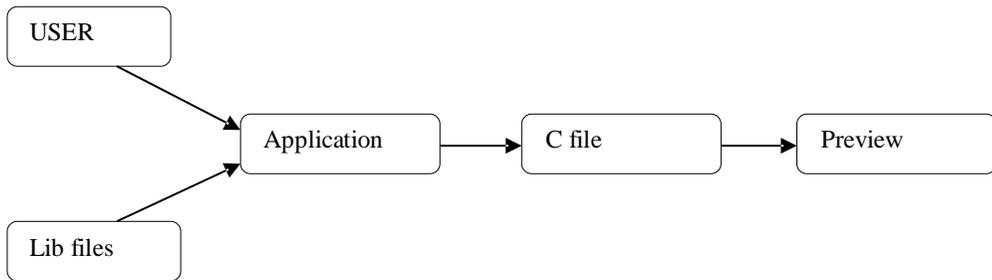

Figure 2. Main flow of the product.

Figure 2 shows the main flow of the product. The user can open the software and give the location to save the final C file, and then design the user interface by drag and dropping the components in the form and arrange them as preferred. Also the user is facilitated to see the preview of the design by running the saved C file and the final C file which is coded with GTK+ can be retrieved from the predefined saved location for further coding.

Result and Discussion

This application provides the capability of designing graphical user interfaces by dragging and dropping the components to the window form and then the user can arrange the components by using the mouse. Therefore it enables the user quick and easy development of graphical user interfaces in C language.

Conclusions

This tool enables quick and easy development of graphical user interfaces in C language and it provides a user friendly designing environment to the user.

References

Brian Sawyer (June 28, 2012), Why learn C?, Retrieved 18 September 2013, from the World Wide Web: http://programming.oreilly.com/2012/06/why-learn-c.html