

Assignment 4

Basic practice questions

1. Try to add GtkEntry Widget by adding a GtkEntry Widget to GtkWindow. When program ends try to print on console value present in GtkEntry just before exit.

Link for GTK entry reference

<http://library.gnome.org/devel/gtk/stable/GtkEntry.html>

2. Learn about GtkHBox. Try to add a GtkEntry and a GtkButton horizontally. Whenever GtkButton is pressed show value stored in GtkEntry in GtkMessageDialog to user.

Link for GtkHBox reference

<http://library.gnome.org/devel/gtk/stable/GtkHBox.html>

3. Learn about GtkVBox. Try to add a GtkEntry, GtkLabel and GtkButton vertically. Whenever GtkButton is pressed copy contents of GtkEntry so that they get displayed in GtkLabel.

Link for GtkVBox reference

<http://library.gnome.org/devel/gtk/stable/GtkVBox.html>

Assignment Questions

1. Create a standard calculator using GTK. You have to provide '+', '-', '*', and '/' functionality. Also provide clear function to reset calculator and clear any value shown. The calculator should support normal floating point calculations that can be done in C using float or double data types. Your calculator should have separate GtkButtons for digits 0 to 9, operators '+', '-', '*', '/', '=', and clear. There should also be GtkEntry so that user can enter value directly through keyboard rather than clicking on GtkButtons.

Advanced practice questions

1. Good desktop calculators either can't be resized or have a minimum size so that we can't make them so small that buttons are not visible. Modify your calculator such that it is always displayed nicely even if user tries to resize it.

2. In normal calculator if we press keys '2', '+', '2', '+' in same order then value '4' is displayed on screen and we can type new value to be added to '4'.

Also if we press keys '2', '+', '=' then value '4' is displayed on screen. If we now directly press '=' again value '6' is displayed on screen. Then by pressing '=' again we can keep incrementing the value displayed by '2'.

Also if we press keys '4', '+', '-', '2', '=' then '2' gets subtracted from '4' and value '2' is displayed. That is the last operation selected is performed without throwing any user to user.

Try to incorporate the above behavior in calculator you designed as part of assignment.

3. High-end casio calculator come with feature called S-V.P.A.M. S-V.P.A.M. stands for "Super Visually Perfect Algebraic Method." With this method, you get the same V.P.A.M. ability to input mathematical expressions as they are written, along with the ability to view expressions and results at the same time. The display of S-V.P.A.M. shows two lines at a time. You can recall an expression with the Replay feature, make any changes that you want, and then recalculate.

Try to incorporate this functionality in your calculator by providing facility to enter expression. When user clicks '=' you have to parse mathematical expression as per precedence rules and show result in some GtkLabel below GtkEntry where user entered the expression. (Hint: You can use classic stack to parse mathematical expression keeping precedence rules in mind).