5th September 2009

Glade3 tutorial (1) - Introduction

Hello again.

In next series of posts I'll try to show you some of the techniques I personally use when developing applications using Glade3.

What are we going to code

Our sample application will be simple, but fully functional graph viewer and editor. Things that I'll be demonstrating through this sample application are:

- How to approach to new project that will use Glade3 as GUI designer.
- How to use Glade3 to create visual elements of application.
- How to use Glade3 to create data storage objects for application.
- How to connect callback functions to widgets' signals.
- How to draw onto widgets using Cairo graphics library.
- How to use Pango from Cairo using pangocairo.
- How to create action-based menus and toolbar.

I may add other stuff to this list if interest/need arises.

Who may be interested in this series of posts?

I'll do my best to write this tutorial "newcomer to GTK+" friendly and try to explain almost everything I'll do. Experienced users may die from boredom when reading a section explaining some fundamental thing, so please, if youre GTK+ guru, read this series with caution;).

Contents

First steps

OK, since it looks like you gave me a chance to show how I usually work, let's start.

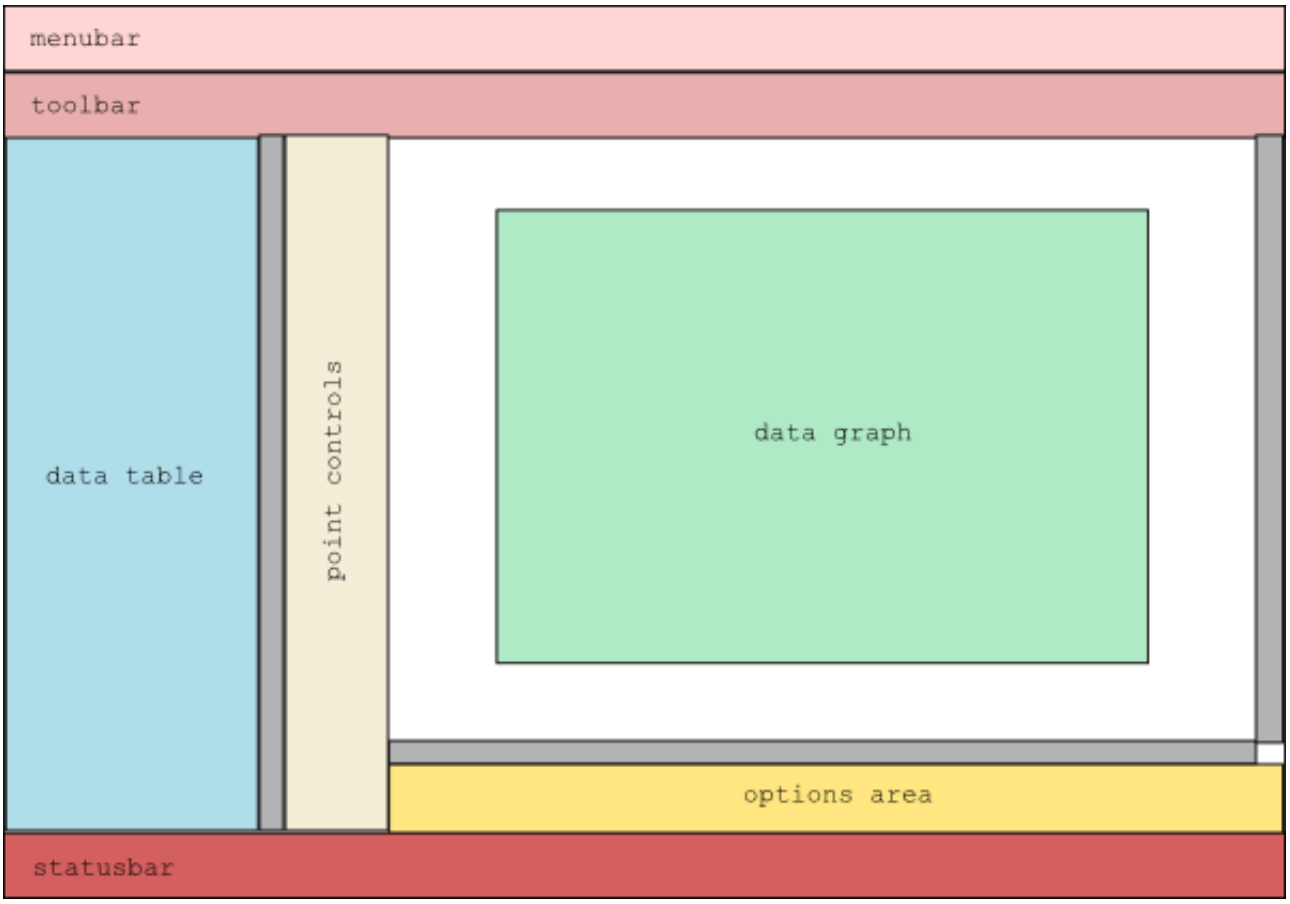
Today's work will be separated into two sections:

1. Creating "blueprint" of our application's GUI based on requirements.
2. Writing down widget tree, based on blueprint from previous section.

Now, what are requirements for our application. Obviously, it needs to be able to display data in numeric and graphic form. We also want to be able to add new, delete, rearrange and modify points. We also want to be able to display point markers, connecting lines or both on the chart. And this is about it for

initial requirements. We'll leave some space for future expansion in our plans, just in case if we decide to add anything to it later.

Now comes the fun part - drawing interface. I prefer to do this on paper using pencil, but feel free to experiment. For sample project, I came up with this design:



Dark gray rectangles represent scroll bars. What do you think? Do I suck as interface designer or do I really suck as interface designer?;)

Now for the last thing we need to do today: writing down widget tree. In GTK+, everything starts with top-level GtkWindow [http://library.gnome.org/devel/gtk/stable/GtkWindow.html] , which will serve as a root of our widget tree.

Our main window will be split into four vertical sections: one for menu bar, one for tool bar, one for central part where all the action will happen and last one for status bar. Since our main window (GtkWindow [http://library.gnome.org/devel/gtk/stable/GtkWindow.html]) can hold only one child widget, we need GtkVBox [http://library.gnome.org/devel/gtk/stable/GtkVBox.html] in which we will pack, from bottom to top: GtkStatusbar [http://library.gnome.org/devel/gtk/stable/GtkStatusbar.html] , widget for central part, GtkToolbar [http://library.gnome.org/devel/gtk/stable/GtkToolbar.html] and GtkMenuBar [http://library.gnome.org/devel/gtk/stable/GtkMenuBar.html] . Why did I say that we'll be packing from bottom? I'll explain this in next post, when we'll be playing with Glade3.

Central part will need to be further divided into horizontal sections: one for data table, one for point controls and one for display area. So this will require GtkHBox [http://library.gnome.org/devel/gtk/stable/GtkHBox.html] . What widgets will we need inside it? For data table we'll use GtkTreeView [http://library.gnome.org/devel/gtk/stable/GtkTreeView.html] , which is packed inside

GtkScrolledWindow [http://library.gnome.org/devel/gtk/stable/GtkScrolledWindow.html] to enable scrolling. For point controls we'll need GtkVButtonBox [http://library.gnome.org/devel/gtk/stable/GtkVButtonBox.html] that will house our buttons.

Now for the display area. We again have two parts: upper part that will actually display chart; and bottom part that will hold check buttons. So we'll need another GtkVBox [http://library.gnome.org/devel/gtk/stable/GtkVBox.html] to hold the whole section. Bottom part will be represented by GtkHButtonBox [http://library.gnome.org/devel/gtk/stable/GtkHButtonBox.html] with GtkToggleButtons, while upper part deserves another paragraph;).

Why another paragraph? Because we'll need to add quite a few widgets in order to get desired layout. As you can see on my drawing, I want to have graph area centered in display part. In order to be able to add zoom to chart area, we also need some kind of scrolling widget. And how to assemble all this together? First we'll add GtkScrolledWindow [http://library.gnome.org/devel/gtk/stable/GtkScrolledWindow.html] to GtkVBox [http://library.gnome.org/devel/gtk/stable/GtkVBox.html] from previous paragraph. To make contents scrollable, we need to pack GtkViewport [http://library.gnome.org/devel/gtk/stable/GtkViewport.html] inside GtkScrolledWindow [http://library.gnome.org/devel/gtk/stable/GtkScrolledWindow.html] . Inside GtkViewport [http://library.gnome.org/devel/gtk/stable/GtkViewport.html] we'll add GtkAlignment [http://library.gnome.org/devel/gtk/stable/GtkAlignment.html] , which will take care of centering the chart area. Inside GtkAlignment [http://library.gnome.org/devel/gtk/stable/GtkAlignment.html] we'll add GtkFrame [http://library.gnome.org/devel/gtk/stable/GtkFrame.html] , which will add a shadow to chart area. Finally, we add GtkDrawing area inside GtkFrame [http://library.gnome.org/devel/gtk/stable/GtkFrame.html] . And we're done.

If we convert this verbose description into tree-like representation, we get this:

```
GtkWindow
 `- GtkVBox
     +- GtkMenuBar
     |   `- /* Menus here */
     +- GtkToolbar
     |   `- /* Tool buttons here */
     +- GtkHBox
     |   +- GtkScrolledWindow
     |   |   `- GtkTreeView
     |   +- GtkVButtonBox
     |   |   `- /* Buttons here */
     |   +- GtkVBox
     |       +- GtkScrolledWindow
     |       |   `- GtkViewport
     |       |       `- GtkAlignment
     |       |           `- GtkFrame
     |       |               `- GtkDrawingArea
     |       `- GtkHButtonBox
     |           `- /* Check buttons here */
     `- GtkStatusBar
```

There is just one thing I would like to explain today. When adding GtkTreeView [http://library.gnome.org/devel/gtk/stable/GtkTreeView.html] to GtkScrolledWindow [http://library.gnome.org/devel/gtk/stable/GtkScrolledWindow.html] I haven't used GtkViewport [http://library.gnome.org/devel/gtk/stable/GtkViewport.html] as an adapter widget, while adding GtkAlignment

[http://library.gnome.org/devel/gtk/stable/GtkAlignment.html] did require one. Why? When it comes to GtkScrolledWindow [http://library.gnome.org/devel/gtk/stable/GtkScrolledWindow.html] , there are two kinds of widgets: the ones that support scrolling natively and the ones that don't. GtkTreeView [http://library.gnome.org/devel/gtk/stable/GtkTreeView.html] , GtkTextView [http://library.gnome.org/devel/gtk/stable/GtkTextView.html] , GtkIconView [http://library.gnome.org/devel/gtk/stable/GtkIconView.html] and GtkViewport [http://library.gnome.org/devel/gtk/stable/GtkViewport.html] do support scrolling and can be added into GtkScrolledWindow [http://library.gnome.org/devel/gtk/stable/GtkScrolledWindow.html] directly. All other widgets need GtkViewport [http://library.gnome.org/devel/gtk/stable/GtkViewport.html] as an adapter.

I hope this starting lesson wasn't too tough and you'll join me next time when we'll fire up Glade3 and do some property mangling.

Stay healthy.

Bye.

Posted 5th September 2009 by Tadej Borovšak

Labels: Glade, GTK+, tutorial

16 View comments

Dennis Daniels 06 September, 2009 19:44

Have you considered doing these tutorials as screencasts?

Reply

tadeboro 06 September, 2009 20:21

Hi Dennis.

Currently I'm doing screenshots of creation process. I intended to create screencast too using ScreenToaster, but currently I'm having some troubles getting it to work under 64-bit Linux (it worked just fine some time ago, but it refuses to move).

If nothing else will work, I'll record my screencasts from Windows.

Tadej

Reply

tadeboro 06 September, 2009 20:26

BTW, if you have any other idea on how to make screencast, I would gladly take it into consideration.

Tadej

Reply

jjardon 07 September, 2009 23:37

First of all, thank you for your posts about GTK+, they are really useful ;)

About the screencasts, you can use recordmydesktop [1] or byzanz [2]

Hope it helps,

Regards and keep the good work!

[1] http://recordmydesktop.sourceforge.net/about.php
[2] http://people.freedesktop.org/~company/byzanz/

Reply

moganesh 24 November, 2009 15:25

Hi... Great tutorial.. Thankz... I want to ask you few question... First how to insert an image in a window by choosing from a button(button insert image)...and how to display the result in text view.. Hope you can help me...

Reply

Anonymous 09 October, 2010 02:34

Great tutorial, I have been doing some Perl programming and now I want to try Glade to create the GUI for my apps and scripts.

Thanks so much for your effort on helping us to learn Glade.

Best regards from Costa Rica ;)

Oibaf

Reply

arun kumar 12 October, 2010 21:38

Hi, many thanks for this nice tutorial.

Reply

Anonymous 05 January, 2011 19:22

"Our main window will be split into four vertical sections" -- May be horizontal ?

10x for tutorial

Reply

Anonymous 05 January, 2011 20:50

Oh, no. I'm sorry

Reply

Kishan 09 June, 2011 21:32

Actually which ide u prefer?? I tried to use "anjuta" but it crashes too many times saying "Segmentaion fault"..

Reply

Nick M 25 June, 2011 23:02

I have a question, what did you use to draw that blueprint of the application?

BTW, thanks a lot for the tutorial!

Reply

Anonymous 22 July, 2011 08:47

This tutorial is exactly what I need at this moment. Thank you so much! I greatly appreciate it.

Reply

Ramkumar 25 September, 2011 16:00

Thanks a lot for this great tutorial. This is the finest tutorial series I ever found for Glade & GTK.

Reply

rabinarayan Panigrahi 08 June, 2013 07:44

Hi Tadej Borovšak,

I have both gtk 2.24.6 , gtk 3.2.0 and glade 3.10 version in my system(ubuntu 11.10). Some problem which i am facing during configuration in glade. could you help me to figure it out.

The error is as bellow.

Project test.glade has no deprecated widgets or version mismatches

i am getting this error while setting the file ->property-> toolkit version required to any one of it (2.20, 2.22, 2.24, 3.0).

Please i need your help.

Thanks in advance
Rabi

Reply

Anonymous 23 July, 2013 14:13

the blueprint is down...

Reply

Anonymous 14 March, 2014 18:10

Outstanding. Best tutorial ever (period)

Reply

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