
Subject: Re: more containers of widgets

Posted by [mrjt](#) on Tue, 27 Mar 2007 10:29:03 GMT

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After reading this topic I realised that something along the lines of a simple pane layout manager would be useful in one of my projects, so I've knocked up a quick-and-dirty implementation and thought I'd share the code in case it's useful.

I've tried to get the implementation Upp-like rather than Java-like, but you might have to change the style for a more complicated manager like BorderLayout, especially since you can't overload `Ctrl::Add(Ctrl &)`.

This is the class that does the actual layout:

```
template<class T>
class BoxLayout : public T
{
public:
    BoxLayout() {ishorz = false; border = 4; spacing = 4;}

    virtual void Layout();

    BoxLayout<T> &SetHorz(bool _ishorz = true)  {ishorz = _ishorz; return *this;}
    bool GetHorz() const                        {return ishorz;}

    BoxLayout<T> &SetBorder(int _border = 4)    {ASSERT(_border>=0); border = _border; return
*this;}
    int GetBorder() const                      {return border;}

    BoxLayout<T> &SetSpacing(int _spacing = 4) {ASSERT(_spacing>=0); spacing = _spacing;
return *this;}
    int GetSpacing() const                    {return border;}
protected:
    int spacing;
    int border;
    bool ishorz;
};

template<class T>
void BoxLayout<T>::Layout()
{
    Size sz = T::GetSize();
    Ctrl::LogPos cp;
    int children = 0, total_space;
    Ctrl *c = T::GetFirstChild();

    while (c) {
        children++;
        c = c->GetNext();
    }
}
```

```

    }
    if (!children) return;

    total_space = border*2+(children-1)*spacing;
    if (ishorz) {
        if (total_space > sz.cx) return;
        cp.x = Ctrl::Logc(LEFT, border, (sz.cx-total_space)/children);
        cp.y = Ctrl::Logc(SIZE, border, border);
    }
    else {
        if (total_space > sz.cy) return;
        cp.x = Ctrl::Logc(SIZE, border, border);
        cp.y = Ctrl::Logc(TOP, border, (sz.cy-total_space)/children);
    }

    c = T::GetFirstChild();
    while (c) {
        c->SetPos(cp);
        if (ishorz)
            cp.x.SetA(cp.x.GetA()+cp.x.GetB()+spacing);
        else
            cp.y.SetA(cp.y.GetA()+cp.y.GetB()+spacing);
        c = c->GetNext();
    }
}

typedef BoxLayout<LabelBox> LabelBoxPane;
typedef BoxLayout<StaticRect> StaticBoxPane;

```

And this is a test window:

```

class AWindow : public TopWindow {
public:

```

```

    typedef AWindow CLASSNAME;
    LabelBoxPane top_pane;
    StaticBoxPane sub_pane;
    Button btn[5];

```

```

AWindow()
{
    SetRect(Size(400, 400));
    CenterScreen();
    Title("Layout Test");
    Sizeable();

```

```

    // Config buttons and add to top pane
    for (int i = 0; i < 3; i++) {

```

```

    btn[i].SetLabel("Button " + AsString(i));
    btn[i] <=<= THISBACK(OnButton1);
    top_pane.Add(btn[i]);
}
// Config other buttons and add to sub pane
for (int i = 3; i < 5; i++) {
    btn[i].SetLabel("Button " + AsString(i));
    btn[i] <=<= THISBACK(OnButton2);
    sub_pane.Add(btn[i]);
}
// Config sub pane
sub_pane.SetHorz(true).SetBorder(0);

// Config top pane and add sub pane (LabelBox ignores mouse by default)
top_pane.SetLabel("LabelBox with BoxLayout").IgnoreMouse(false);
top_pane.SetBorder(12).Add(sub_pane);

// Add top pane
Add(top_pane.VSizePosZ(10, 10).HSizePosZ(10, 10));
}

void OnButton1() {
    // Flips orientation of top pane
    top_pane.SetHorz(!top_pane.GetHorz());
    top_pane.Layout();
}

void OnButton2() {
    // Flips orientation of sub pane
    sub_pane.SetHorz(!sub_pane.GetHorz());
    sub_pane.Layout();
}
};

```

And for completeness some ESC code to expose two possible instantiations in the Layout Manager:

```

ctrl LabelBoxPane {
    group "Layout";

    >LabelBox;
    bool SetHorz = true;
    int SetBorder = 4;
    int SetSpacing = 4;
};

ctrl StaticBoxPane {
    group "Layout";

```

```
>Base;  
bool SetHorz = true;  
int SetBorder = 4;  
int SetSpacing = 4;  
};
```

It seems to work quite well, and although you wouldn't want to use containers like this all the time it's always nice to have more tools

There are some problems though:

- 1) The border and spacing around/between controls ignores ZoomRatio, which I thought made sense. However, when used with a LabelBox or similar changing the StdFont will make hard-coded border values wrong (I think?).
 - 2) This style of layout will not work well with the layout manager. I can see no way of adding controls to the panes via the Layout Manager, so this will always have to be done from code.
 - 3) I'm not sure how to make this work with frames, since using GetView inside Ctrl::Layout causes a failed assertion. Is this possible?
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