Gjs/GTK+ 3 Tutorial Documentation

Release 0

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Contents:

This tutorial gives an introduction to writing GTK+ 3 applications with Gjs. It is an adaption and extension of another tutorial written about GTK+ 3 development in Python.

This tutorial presumes some experience with the JavaScript programming language, as well as some knowledge of concepts from object oriented programming.

Although this tutorial describes the most important classes and methods within GTK+ 3, it is not supposed to serve as an API reference. Please refer to the GTK+ 3 Reference Manual for a detailed description of the API.

CHAPTER 1

Installation

Gjs is a JavaScript engine based on Spidermonkey, which contains bindings to Gtk and other libraries that are used to create graphical user interfaces under GNOME. The method by which Gjs communicates with these libraries is through APIs exposed by the GObject Introspection framework.

GNOME Shell is implemented in JavaScript and run by Gjs, and Gjs therefore comes with any GNOME 3 installation. Those who have GNOME 3 installed will not need to install any additional packages. Everyone else can get Gjs through their package managers.

On Debian and derived distributions like Ubuntu:

```
apt-get install gjs libgjs-dev
```

On Fedora:

```
dnf install gjs gjs-devel
```

On Arch:

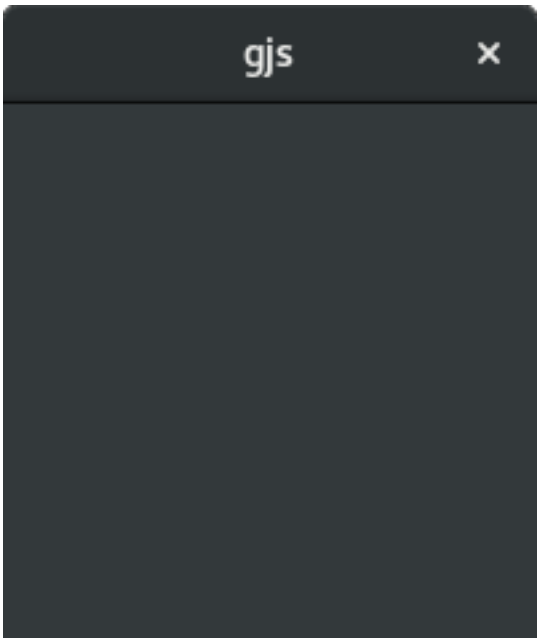
```
pacman -S gjs
```

CHAPTER 2

Getting Started

Simple Example

To start with our tutorial we create the simplest program possible. This program will create an empty 200 x 200 pixel window. Note that the appearance of the window will depend on your current GNOME theme.




```
#!/usr/bin/gjs

const Gtk = imports.gi.Gtk;
Gtk.init(null);

let win = new Gtk.Window();
```

```
7 win.connect("delete-event", Gtk.main_quit);
8 win.show_all();
9 Gtk.main();
```

We will now explain each line of the example.

We start the program with a shebang-directive, which tells the operating system what interpreter to use to execute the file.

```
1 #!/usr/bin/gjs
```

In the beginning, we have to import the Gtk module to be able to access GTK+'s classes and functions. Gtk is one of the libraries that make use of GObject introspection, and is therefore listed under the gi collection.

```
3 const Gtk = imports.gi.Gtk;
```

After we have imported Gtk, we must initialize it. In the Gtk bindings for many other languages, Gtk can be initialized with a list of strings, the list of arguments that was passed to the program (argv). This does not work in Gjs yet. As of now, Gtk.init *must* be initialized with a `null` argument.

```
4 Gtk.init(null);
```

The next line creates an empty window.

```
6 let win = new Gtk.Window();
```

Followed by connecting to the window's delete event to ensure that the application is terminated if we click on the x to close the window.

```
7 win.connect("delete-event", Gtk.main_quit);
```

In the next step we display the window.

```
8 win.show_all();
```

Finally, we start the GTK+ processing loop which we quit when the window is closed.

```
9 Gtk.main();
```

You can now run the program by making it executable and executing it directly

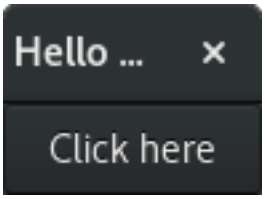
```
chmod +x simple_example.js
./simple_example.js
```

or by running it with gjs

```
gjs simple_example.js
```

Extended Example

For something a little more useful, here's the Gjs version of the classic "Hello World" program.




```
#!/usr/bin/gjs

const Gtk = imports.gi.Gtk;
const Lang = imports.lang;

Gtk.init(null);

const MyWindow = new Lang.Class({
    Name: 'MyWindow',
    Extends: Gtk.Window,

    _init: function() {
        this.parent({title: "Hello World"});
        this.button = new Gtk.Button({label: "Click here"});
        this.button.connect("clicked", this.onButtonClicked);
        this.add(this.button);
    },

    onButtonClicked: function() {
        print("Hello World");
    }
});

let win = new MyWindow();
win.connect("delete-event", Gtk.main_quit);
win.show_all();
Gtk.main();
```

This example differs from the simple example as we sub-class `Gtk.Window` to define our own `MyWindow` class.

In order to do this, we import the lang library, which contains some convenience functions for writing object oriented javascript.

```
const Lang = imports.lang;
```

We can then define the class using Lang.Class. Lang.Class is a convenience function for defining classes in JavaScript adapted from MooTools' implementation of classes.

```
const MyWindow = new Lang.Class({
});
```

In the class's constructor we have to call the constructor of the parent class. In addition, we tell it to set the value of the property title to Hello World.

```
        this.parent({title: "Hello World"});
```

The next three lines are used to create a button widget, connect to its clicked signal and add it as child to the top-level window.

```
        this.button = new Gtk.Button({label: "Click here"});
        this.button.connect("clicked", this.onButtonClicked);
```

```
16          this.add(this.button);
```

Accordingly, the method `onButtonClicked()` will be called if you click on the button.

```
19      onButtonClicked: function() {
20          print("Hello World");
21      }
```

The last block, outside of the class, is very similar to the simple example above, but instead of creating an instance of the generic `Gtk.Window` class, we create an instance of `MyWindow`.

```
24  let win = new MyWindow();
25  win.connect("delete-event", Gtk.main_quit);
26  win.show_all();
27  Gtk.main();
```

CHAPTER 3

Basics

This section will introduce some of the most important aspects of GTK+.

Main Loop and Signals

Like most GUI toolkits, GTK+ uses an event-driven programming model. When the user is doing nothing, GTK+ sits in the main loop and waits for input. If the user performs some action - say, a mouse click - then the main loop "wakes up" and delivers an event to GTK+.

When widgets receive an event, they frequently emit one or more signals. Signals notify your program that "something interesting happened" by invoking functions you've connected to the signal. Such functions are commonly known as *callbacks*. When your callbacks are invoked, you would typically take some action - for example, when an Open button is clicked you might display a file chooser dialog. After a callback finishes, GTK+ will return to the main loop and await more user input.

A generic example is:

```
handler_id = widget.connect("event", callback, data);
```

Firstly, *widget* is an instance of a widget we created earlier. Next, the event we are interested in. Each widget has its own particular events which can occur. For instance, if you have a button you usually want to connect to the "clicked" event. This means that when the button is clicked, the signal is issued. Thirdly, the *callback* argument is the name of the callback function. It contains the code which runs when signals of the specified type are issued. Finally, the *data* argument includes any data which should be passed when the signal is issued. However, this argument is completely optional and can be left out if not required.

The function returns a number that identifies this particular signal-callback pair. It is required to disconnect from a signal such that the callback function will not be called during any future or currently ongoing emissions of the signal it has been connected to.

```
widget.disconnect(handler_id);
```

Almost all applications will connect to the "delete-event" signal of the top-level window. It is emitted if a user requests that a toplevel window is closed. The default handler for this signal destroys the window, but does not terminate the

application. Connecting the "delete-event" signal to the function `Gtk.main_quit()` will result in the desired behaviour.

```
window.connect("delete-event", Gtk.main_quit);
```

Calling `Gtk.main_quit()` makes the main loop inside of `Gtk.main()` return.

Properties

Properties describe the configuration and state of widgets. As for signals, each widget has its own particular set of properties. For example, a button has the property "label" which contains the text of the label widget inside the button. You can specify the name and value of any number of properties as keyword arguments when creating an instance of a widget. To create a label aligned to the right with the text "Hello World" and an angle of 25 degrees, use:

```
label = Gtk.Label({label="Hello World", angle=25, halign=Gtk.Align.END});
```

which is equivalent to

```
label = new Gtk.Label();
label.set_label("Hello World");
label.set_angle(25);
label.set_halign(Gtk.Align.END);
```

Instead of using getters and setters, you can also get and set the GObject properties directly on the object, using the syntax `widget.prop_name = value`. That is, the above is also equivalent to

```
label = new Gtk.Label();
label.label = "Hello World";
label.angle = 25;
label.halign = Gtk.Align.END;
```

It is also possible to use the more verbose `widget.get_property("prop-name")` and `widget.set_property("prop-name", value)`.

CHAPTER 4

Layout Containers

While many GUI toolkits require you to precisely place widgets in a window, using absolute positioning, GTK+ uses a different approach. Rather than specifying the position and size of each widget in the window, you can arrange your widgets in rows, columns, and/or tables. The size of your window can be determined automatically, based on the sizes of the widgets it contains. And the sizes of the widgets are, in turn, determined by the amount of text they contain, or the minimum and maximum sizes that you specify, and/or how you have requested that the available space should be shared between sets of widgets. You can perfect your layout by specifying padding distance and centering values for each of your widgets. GTK+ then uses all this information to resize and reposition everything sensibly and smoothly when the user manipulates the window.

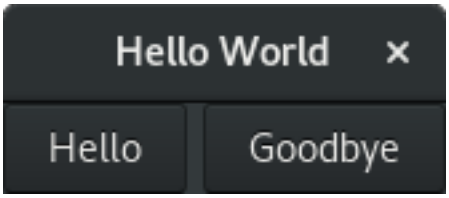
GTK+ arranges widgets hierarchically, using *containers*. They are invisible to the end user and are inserted into a window, or placed within each other to layout components. There are two flavours of containers: single-child containers, which are all descendants of `Gtk.Bin`, and multiple-child containers, which are descendants of `Gtk.Container`. The most commonly used are vertical or horizontal boxes (`Gtk.Box`) and grids (`Gtk.Grid`).

Boxes

Boxes are invisible containers into which we can pack our widgets. When packing widgets into a horizontal box, the objects are inserted horizontally from left to right or right to left depending on whether `Gtk.Box.pack_start()` or `Gtk.Box.pack_end()` is used. In a vertical box, widgets are packed from top to bottom or vice versa. You may use any combination of boxes inside or beside other boxes to create the desired effect.

Example

Let's take a look at a slightly modified version of the extended example with two buttons.



```
#!/usr/bin/gjs

const Gtk = imports.gi.Gtk;
const Lang = imports.lang;

Gtk.init(null);

const MyWindow = new Lang.Class({
    Name: 'MyWindow',
    Extends: Gtk.Window,

    _init: function() {
        this.parent({title:"Hello World"});

        this.box = new Gtk.Box({spacing: 6});
        this.add(this.box);

        this.button1 = new Gtk.Button({label: "Hello"});
        this.button1.connect("clicked", this.onButton1Clicked);
        this.box.pack_start(this.button1, true, true, 0);

        this.button2 = new Gtk.Button({label: "Goodbye"});
        this.button2.connect("clicked", this.onButton2Clicked);
        this.box.pack_start(this.button2, true, true, 0);
    },

    onButton1Clicked: function(widget) {
        print("Hello");
    },

    onButton2Clicked: function(widget) {
        print("Goodbye");
    }
});

let win = new MyWindow();
win.connect("delete-event", Gtk.main_quit);
win.show_all();
Gtk.main();
```

First, we create a horizontally orientated box container where 6 pixels are placed between children. This box becomes the child of the top-level window.

```
this.box = new Gtk.Box({spacing: 6});
this.add(this.box);
```

Subsequently, we add two different buttons to the box container.

```
this.button1 = new Gtk.Button({label: "Hello"});
this.button1.connect("clicked", this.onButton1Clicked);
this.box.pack_start(this.button1, true, true, 0);

this.button2 = new Gtk.Button({label: "Goodbye"});
this.button2.connect("clicked", this.onButton2Clicked);
this.box.pack_start(this.button2, true, true, 0);
```

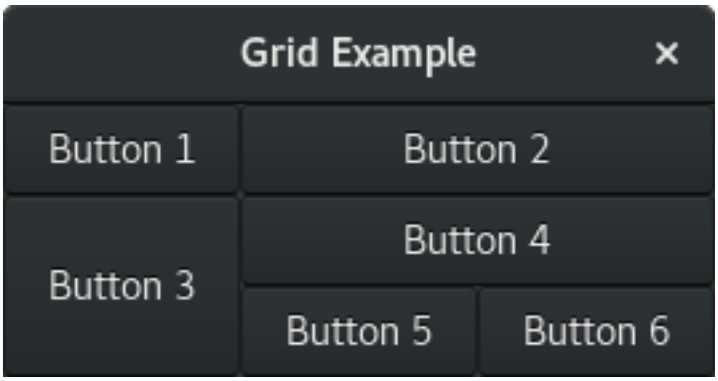
While with `Gtk.Box.pack_start()` widgets are positioned from left to right, `Gtk.Box.pack_end()` positions them from right to left.

Grid

`Gtk.Grid` is a container which arranges its child widgets in rows and columns, but you do not need to specify the dimensions in the constructor. Children are added using `Gtk.Grid.attach()`. They can span multiple rows or columns. It is also possible to add a child next to an existing child, using `Gtk.Grid.attach_next_to()`.

`Gtk.Grid` can be used like a `Gtk.Box` by just using `Gtk.Grid.add()`, which will place children next to each other in the direction determined by the "orientation" property (defaults to `Gtk.Orientation.HORIZONTAL`).

Example




```
#!/usr/bin/gjs

const Gtk = imports.gi.Gtk;
const Lang = imports.lang;

Gtk.init(null);

const GridWindow = Lang.Class({
    Name: 'GridWindow',
    Extends: Gtk.Window,

    _init: function() {
        this.parent({title: "Grid Example"});

        let grid = new Gtk.Grid();
        this.add(grid);

        let button1 = new Gtk.Button({label: "Button 1"});
        let button2 = new Gtk.Button({label: "Button 2"});
        let button3 = new Gtk.Button({label: "Button 3"});
        let button4 = new Gtk.Button({label: "Button 4"});
        let button5 = new Gtk.Button({label: "Button 5"});
        let button6 = new Gtk.Button({label: "Button 6"});

        grid.add(button1);
        grid.attach(button2, 1, 0, 2, 1);
        grid.attach_next_to(button3, button1, Gtk.PositionType.BOTTOM, 1, 2);
        grid.attach_next_to(button4, button3, Gtk.PositionType.RIGHT, 2, 1);
        grid.attach(button5, 1, 2, 1, 1);
        grid.attach_next_to(button6, button5, Gtk.PositionType.RIGHT, 1, 1);
    }
});
```

```
33
34 let win = new GridWindow();
35 win.connect("delete-event", Gtk.main_quit);
36 win.show_all();
37 Gtk.main();
```

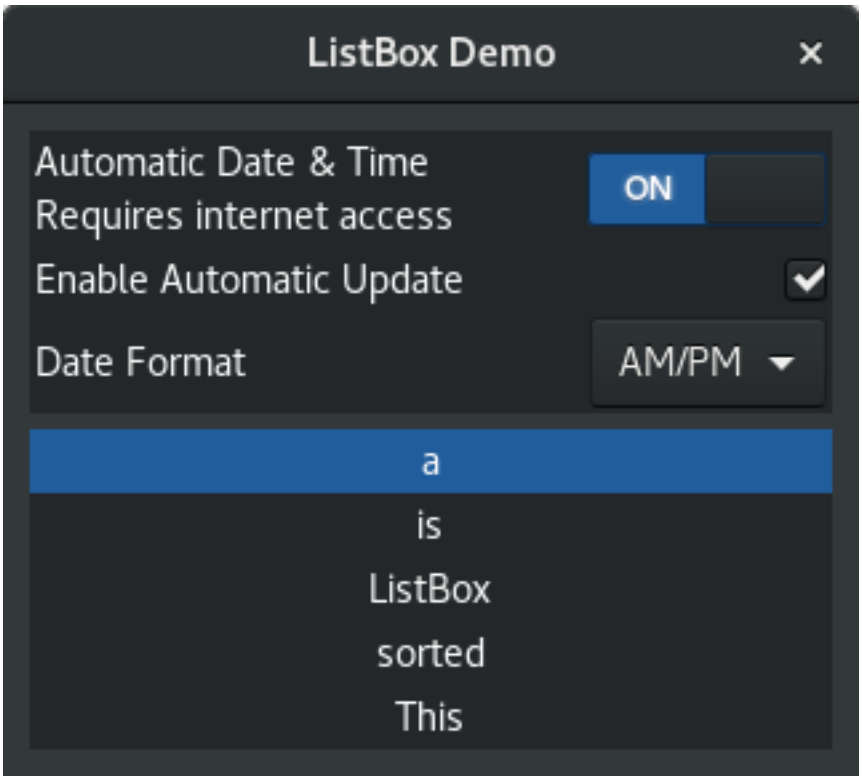
ListBox

A `Gtk.ListBox` is a vertical container that contains `Gtk.ListBoxRow` children. These rows can by dynamically sorted and filtered, and headers can be added dynamically depending on the row content. It also allows keyboard and mouse navigation and selection like a typical list.

Using `Gtk.ListBox` is often an alternative to `Gtk.TreeView`, especially when the list contents has a more complicated layout than what is allowed by a `Gtk.CellRenderer`, or when the contents is interactive (i.e. has a button in it).

Although a `Gtk.ListBox` must have only `Gtk.ListBoxRow` children you can add any kind of widget to it via `Gtk.Container.add()`, and a `Gtk.ListBoxRow` widget will automatically be inserted between the list and the widget.

Example




```
1 #!/usr/bin/gjs
2
3 const Gtk = imports.gi.Gtk;
4 const Lang = imports.lang;
5
```

```
Gtk.init(null);

const ListBoxRowWithData = Lang.Class({
    Name: "ListBoxRowWithData",
    Extends: Gtk.ListBoxRow,

    _init: function(data) {
        this.parent();
        this.data = data;
        this.add(new Gtk.Label({label: data}));
    }
});

const ListBoxWindow = Lang.Class({
    Name: "ListBoxWindow",
    Extends: Gtk.Window,

    _init: function() {
        this.parent({title: "ListBox Demo"});
        this.border_width = 10;

        let box_outer = new Gtk.Box({orientation: Gtk.Orientation.VERTICAL, spacing: 6});
        this.add(box_outer);

        let listbox = new Gtk.ListBox();
        listbox.selection_mode = Gtk.SelectionMode.NONE;
        box_outer.pack_start(listbox, true, true, 0);

        let row = new Gtk.ListBoxRow();
        let hbox = new Gtk.Box({orientation: Gtk.Orientation.HORIZONTAL, spacing: 50});
        row.add(hbox);
        let vbox = new Gtk.Box({orientation: Gtk.Orientation.VERTICAL});
        hbox.pack_start(vbox, true, true, 0);

        let label1 = new Gtk.Label({label: "Automatic Date & Time", xalign: 0});
        let label2 = new Gtk.Label({label: "Requires internet access", xalign: 0});
        vbox.pack_start(label1, true, true, 0);
        vbox.pack_start(label2, true, true, 0);

        let swtch = new Gtk.Switch();
        swtch.valign = Gtk.Align.CENTER;
        hbox.pack_start(swtch, false, true, 0);

        listbox.add(row);

        row = new Gtk.ListBoxRow();
        hbox = new Gtk.Box({orientation: Gtk.Orientation.HORIZONTAL, spacing: 50});
        row.add(hbox);
        let label = new Gtk.Label({label: "Enable Automatic Update", xalign: 0});
        let check = new Gtk.CheckButton();
        hbox.pack_start(label, true, true, 0);
        hbox.pack_start(check, false, true, 0);

        listbox.add(row);

        row = new Gtk.ListBoxRow();
```

```
        hbox = new Gtk.Box({orientation: Gtk.Orientation.HORIZONTAL, spacing: 50});
        row.add(hbox);
        label = new Gtk.Label({label: "Date Format", xalign: 0});
        let combo = new Gtk.ComboBoxText();
        combo.insert(0, "0", "24-hour");
        combo.insert(1, "1", "AM/PM");
        hbox.pack_start(label, true, true, 0);
        hbox.pack_start(combo, false, true, 0);

        listbox.add(row);

        let listbox2 = new Gtk.ListBox();
        let items = "This is a sorted ListBox Fail".split(' ');

        items.forEach(
            item => listbox2.add(new ListBoxRowWithData(item))
        );

        let sortFunc = function(row1, row2, data, notifyDestroy) {
            return row1.data.toLowerCase() > row2.data.toLowerCase();
        };

        let filterFunc = function(row, data, notifyDestroy) {
            return (row.data != 'Fail');
        };

        listbox2.set_sort_func(sortFunc, null, false);
        listbox2.set_filter_func(filterFunc, null, false);

        listbox2.connect("row-activated", (widget, row) => print(row.data));

        box_outer.pack_start(listbox2, true, true, 0);
        listbox2.show_all();
    }
});

let win = new ListBoxWindow();
win.connect("delete-event", Gtk.main_quit);
win.show_all();
Gtk.main();
```

Stack and StackSwitcher

A `Gtk.Stack` is a container which only shows one of its children at a time. In contrast to `Gtk.Notebook`, `Gtk.Stack` does not provide a means for users to change the visible child. Instead, the `Gtk.StackSwitcher` widget can be used with `Gtk.Stack` to provide this functionality.

Transitions between pages can be animated as slides or fades. This can be controlled with `Gtk.Stack.set_transition_type()`. These animations respect the "gtk-enable-animations" setting.

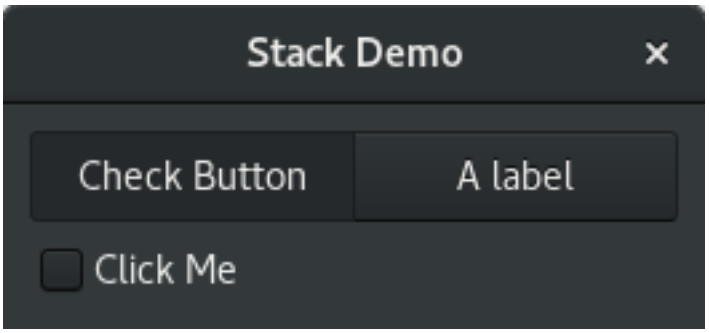
Transition speed can be adjusted with `Gtk.Stack.set_transition_duration()`

The `Gtk.StackSwitcher` widget acts as a controller for a `Gtk.Stack`; it shows a row of buttons to switch between the various pages of the associated stack widget.

All the content for the buttons comes from the child properties of the `Gtk.Stack`.

It is possible to associate multiple `Gtk.StackSwitcher` widgets with the same `Gtk.Stack` widget.

Example




```
#!/usr/bin/gjs

const Gtk = imports.gi.Gtk;
const Lang = imports.lang;

Gtk.init(null);

const StackWindow = Lang.Class({
    Name: "StackWindow",
    Extends: Gtk.Window,

    _init: function() {
        this.parent({title: "Stack Demo"});
        this.border_width = 10;

        let vbox = new Gtk.Box({orientation: Gtk.Orientation.VERTICAL, spacing: 6});
        this.add(vbox);

        let stack = new Gtk.Stack();
        stack.transition_type = Gtk.StackTransitionType.SLIDE_LEFT_RIGHT;
        stack.transition_duration = 1000;

        let checkbutton = new Gtk.CheckButton({label: "Click Me"});
        stack.add_titled(checkbutton, "check", "Check Button");

        let label = new Gtk.Label();
        label.markup = "<big>A fancy label</big>";
        stack.add_titled(label, "label", "A label");

        let stackSwitcher = new Gtk.StackSwitcher();
        stackSwitcher.stack = stack;
        vbox.pack_start(stackSwitcher, true, true, 0);
        vbox.pack_start(stack, true, true, 0);
    }
});

let win = new StackWindow();
win.connect("delete-event", Gtk.main_quit);
win.show_all();
Gtk.main();
```

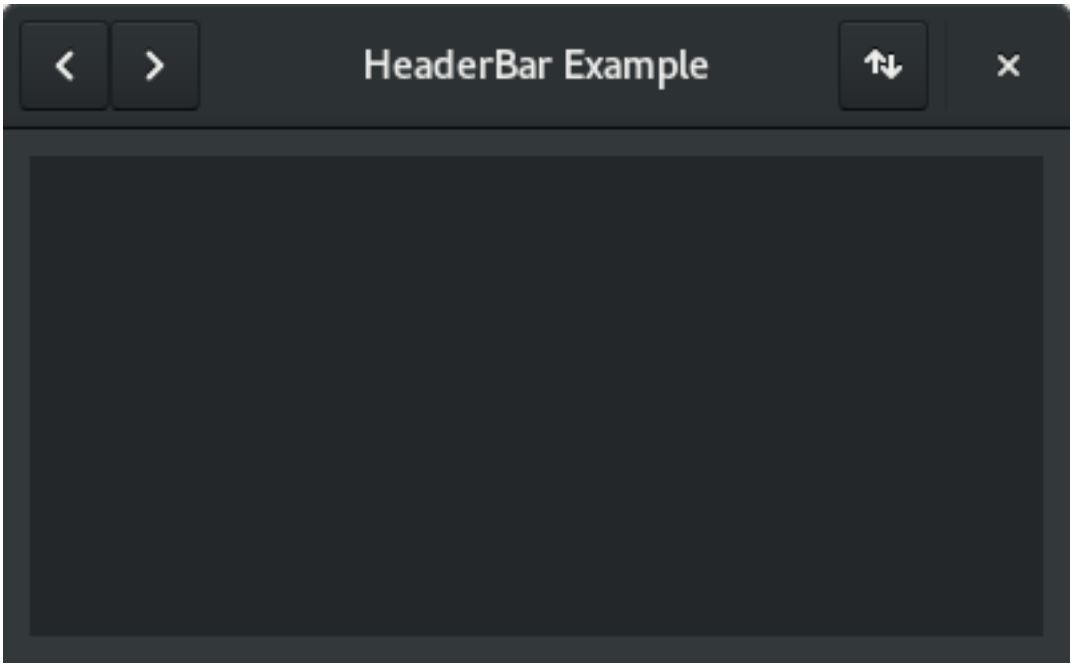
HeaderBar

A `Gtk.HeaderBar` is similar to a horizontal `Gtk.Box`, it allows to place children at the start or the end. In addition, it allows a title to be displayed. The title will be centered with respect to the width of the box, even if the children at either side take up different amounts of space.

Since GTK+ now supports Client Side Decoration, a `Gtk.HeaderBar` can be used in place of the title bar (which is rendered by the Window Manager).

A `Gtk.HeaderBar` is usually located across the top of a window and should contain commonly used controls which affect the content below. They also provide access to window controls, including the close window button and window menu.

Example




```
#!/usr/bin/gjs

const Gtk = imports.gi.Gtk;
const Gio = imports.gi.Gio;
const Lang = imports.lang;

Gtk.init(null);

const HeaderBarWindow = Lang.Class({
    Name: "HeaderBarWindow",
    Extends: Gtk.Window,

    _init: function() {
        this.parent({title: "HeaderBar Demo"});
        this.set_border_width(10);
        this.set_default_size(400, 200);

        let hb = new Gtk.HeaderBar();
```

```
        hb.set_show_close_button(true);
        hb.set_title("HeaderBar Example");
        this.set_titlebar(hb);

        let button = new Gtk.Button();
        let icon = new Gio.ThemedIcon({name: "mail-send-receive-symbolic"});
        let image = Gtk.Image.new_from_gicon(icon, Gtk.IconSize.BUTTON);
        button.add(image);
        hb.pack_end(button);

        let box = new Gtk.Box({orientation: Gtk.Orientation.HORIZONTAL});

        button = new Gtk.Button();
        button.add(new Gtk.Arrow({arrow_type: Gtk.ArrowType.LEFT, shadow_type: Gtk.
↪ShadowType.NONE}));
        box.add(button);

        button = new Gtk.Button();
        button.add(new Gtk.Arrow({arrow_type: Gtk.ArrowType.RIGHT, shadow_type: Gtk.
↪ShadowType.NONE}));
        box.add(button);

        hb.pack_start(box);

        this.add(new Gtk.TextView());
    }
});

let win = new HeaderBarWindow();
win.connect("delete-event", Gtk.main_quit);
win.show_all();
Gtk.main();
```

FlowBox

A `Gtk.FlowBox` is a container that positions child widgets in sequence according to its orientation.

For instance, with the horizontal orientation, the widgets will be arranged from left to right, starting a new row under the previous row when necessary. Reducing the width in this case will require more rows, so a larger height will be requested.

Likewise, with the vertical orientation, the widgets will be arranged from top to bottom, starting a new column to the right when necessary. Reducing the height will require more columns, so a larger width will be requested.

The children of a `Gtk.FlowBox` can be dynamically sorted and filtered.

Although a `Gtk.FlowBox` must have only `Gtk.FlowBoxChild` children, you can add any kind of widget to it via `Gtk.Container.add()`, and a `Gtk.FlowBoxChild` widget will automatically be inserted between the box and the widget.

Example


```
#!/usr/bin/gjs

const Gtk = imports.gi.Gtk;
const Gdk = imports.gi.Gdk;
const Lang = imports.lang;

Gtk.init(null);

const FlowBoxWindow = Lang.Class({
    Name: "FlowBoxWindow",
    Extends: Gtk.Window,

    _init: function() {
        this.parent({title: "FlowBox Demo"});
        this.set_border_width(10);
        this.set_default_size(300, 250);

        let header = new Gtk.HeaderBar({title: "Flow Box"});
        header.set_subtitle("Sample FlowBox App");
        header.set_show_close_button(true);

        this.set_titlebar(header);

        let scrolled = new Gtk.ScrolledWindow();
        scrolled.set_policy(Gtk.PolicyType.NEVER, Gtk.PolicyType.AUTOMATIC);

        let flowbox = new Gtk.FlowBox();
        flowbox.set_valign(Gtk.Align.START);
        flowbox.set_max_children_per_line(30);
        flowbox.set_selection_mode(Gtk.SelectionMode.NONE);

        this.createFlowbox(flowbox);
```

```
33
34          scrolled.add(flowbox);
35
36          this.add(scrolled);
37      },
38
39      colorSwatchNew: function(strColor) {
40          let rgba = new Gdk.RGBA();
41          rgba.parse(strColor);
42
43          let button = Gtk.ColorButton.new_with_rgba(rgba);
44
45          return button;
46      },
47
48      createFlowbox: function(flowbox) {
49          let colors = [
50          'AliceBlue',
51          'AntiqueWhite',
52          'AntiqueWhite1',
53          'AntiqueWhite2',
54          'AntiqueWhite3',
55          'AntiqueWhite4',
56          'aqua',
57          'aquamarine',
58          'aquamarine1',
59          'aquamarine2',
60          'aquamarine3',
61          'aquamarine4',
62          'azure',
63          'azure1',
64          'azure2',
65          'azure3',
66          'azure4',
67          'beige',
68          'bisque',
69          'bisque1',
70          'bisque2',
71          'bisque3',
72          'bisque4',
73          'black',
74          'BlanchedAlmond',
75          'blue',
76          'blue1',
77          'blue2',
78          'blue3',
79          'blue4',
80          'BlueViolet',
81          'brown',
82          'brown1',
83          'brown2',
84          'brown3',
85          'brown4',
86          'burlywood',
87          'burlywood1',
88          'burlywood2',
89          'burlywood3',
90          'burlywood4',
```

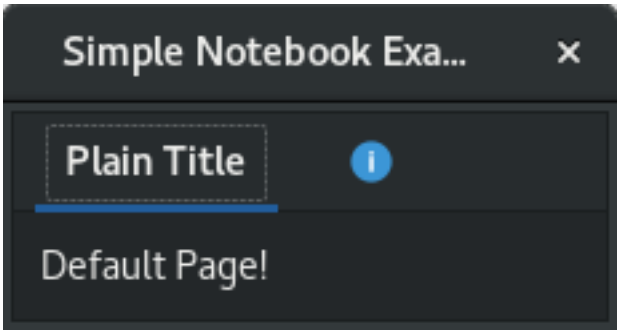
```
        'CadetBlue',
        'CadetBlue1',
        'CadetBlue2',
        'CadetBlue3',
        'CadetBlue4',
        'chartreuse',
        'chartreuse1',
        'chartreuse2',
        'chartreuse3',
        'chartreuse4',
        'chocolate',
        'chocolate1',
        'chocolate2',
        'chocolate3',
        'chocolate4',
        'coral',
        'coral1',
        'coral2',
        'coral3',
        'coral4'
        ];

        colors.forEach(
            color => flowbox.add(this.colorSwatchNew(color))
        );
    }
});

let win = new FlowBoxWindow();
win.connect("delete-event", Gtk.main_quit);
win.show_all();
Gtk.main();
```

Notebook

The `Gtk.Notebook` widget is a `Gtk.Container` whose children are pages that can be switched between using tab labels along one edge.

There are many configuration options for GtkNotebook. Among other things, you can choose on which edge the tabs appear (see `Gtk.Notebook.set_tab_pos()`), whether, if there are too many tabs to fit the notebook should be made bigger or scrolling arrows added (see `Gtk.Notebook.set_scrollable()`, and whether there will be a popup menu allowing the users to switch pages (see `Gtk.Notebook.popup_enable()`, `Gtk.Notebook.popup_disable()`).

Example




```
#!/usr/bin/gjs

const Gtk = imports.gi.Gtk;
const Lang = imports.lang;

Gtk.init(null);

const MyWindow = Lang.Class({
    Name: "MyWindow",
    Extends: Gtk.Window,

    _init: function() {
        this.parent({title: "Simple Notebook Example"});
        this.border_width = 3;

        this.notebook = new Gtk.Notebook();
        this.add(this.notebook);

        this.page1 = new Gtk.Box();
        this.page1.border_width = 10;
        this.page1.add(new Gtk.Label({label: "Default Page!"}));
        this.notebook.append_page(this.page1, new Gtk.Label({label: "Plain Title"}));

        this.page2 = new Gtk.Box();
        this.page2.border_width = 10;
        this.page2.add(new Gtk.Label({label: "A page with an image for a title."}));
        this.notebook.append_page(
            this.page2,
            Gtk.Image.new_from_icon_name("help-about", Gtk.IconSize.MENU)
        );
    }
});

let win = new MyWindow();
win.connect("delete-event", Gtk.main_quit);
win.show_all();
Gtk.main();
```

CHAPTER 5

Indices and tables

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