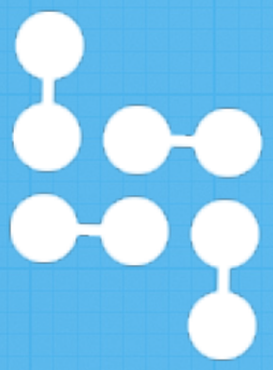

API STRATEGY & PRACTICE

Starting with GTK

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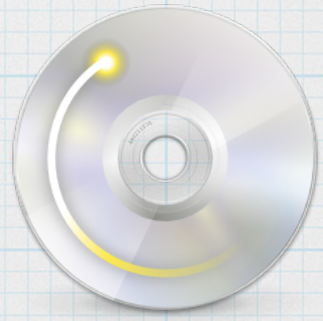
THE LINUX FOUNDATION

What is GTK?

GTK+, or the GIMP Toolkit, is a multi-platform toolkit for creating graphical user interfaces.

Source: https://www.gtk.org

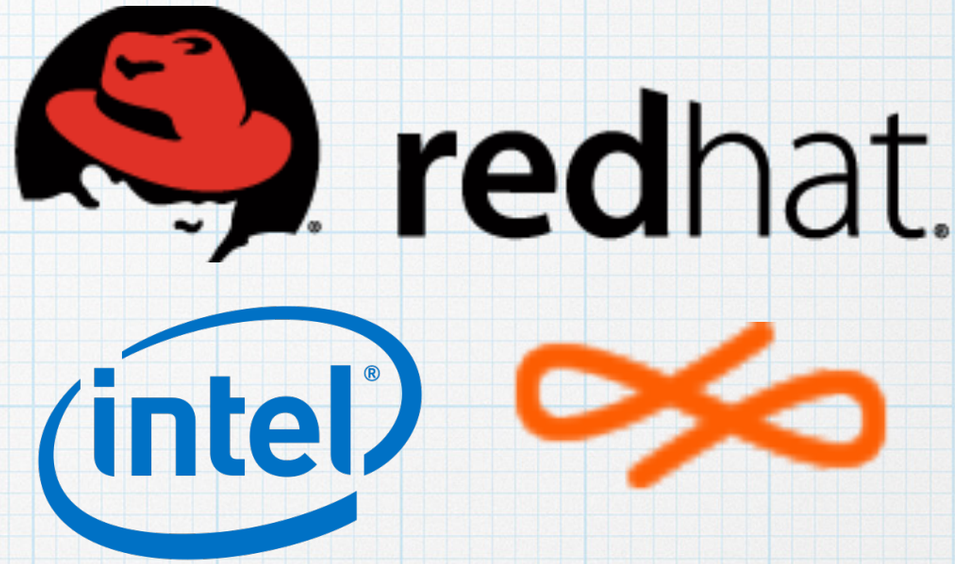
Offering a complete set of widgets, GTK+ is suitable for projects ranging from small one-off tools to complete application suites.



Source: https://en.wikipedia.org/wiki/List_of_GTK%2B_applications#Puzzle_games

Stability

GTK+ is supported by a large community of developers and has core maintainers from companies such as



Source: https://www.gtk.org/features.php

Language Bindings

Language Bindings (or 'wrappers') allow GTK+ to be used from other programming languages, in the style of those languages.

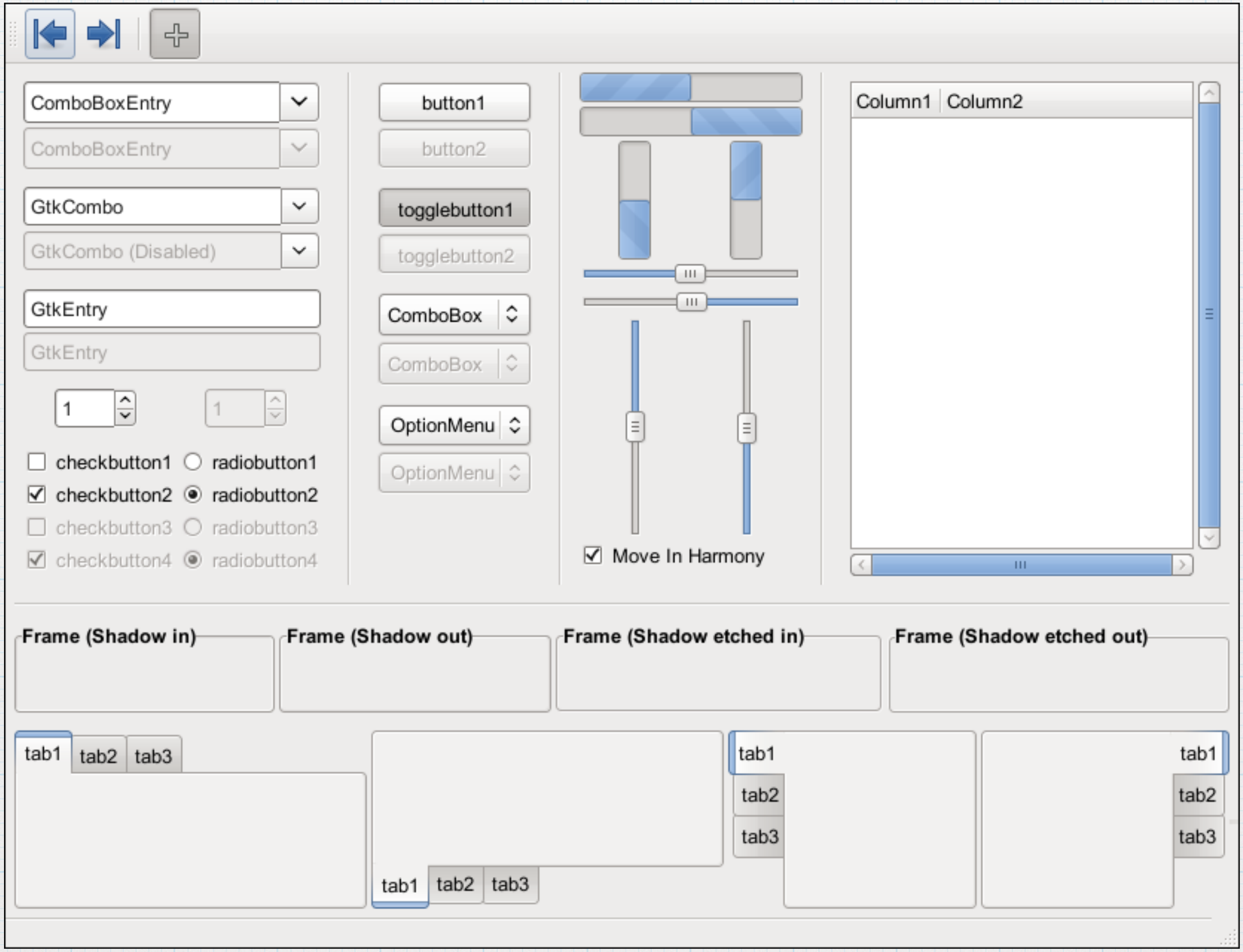
Language		GTK+ 2	GTK+ 3
C++		☑	☑
Vala		☑	☑
Python		☑	☑
Javascript		☑	☑

Source: https://www.gtk.org/language-bindings.php

Interfaces

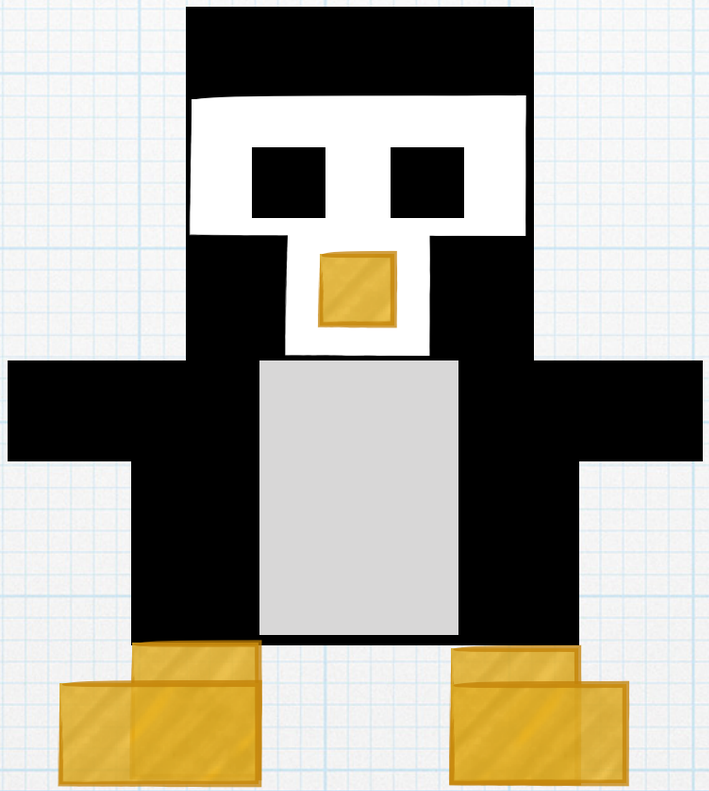
GTK+ has a comprehensive collection of core widgets and interfaces for use in your application. GTK+ has features pertaining to mobile and embedded platform requirements:

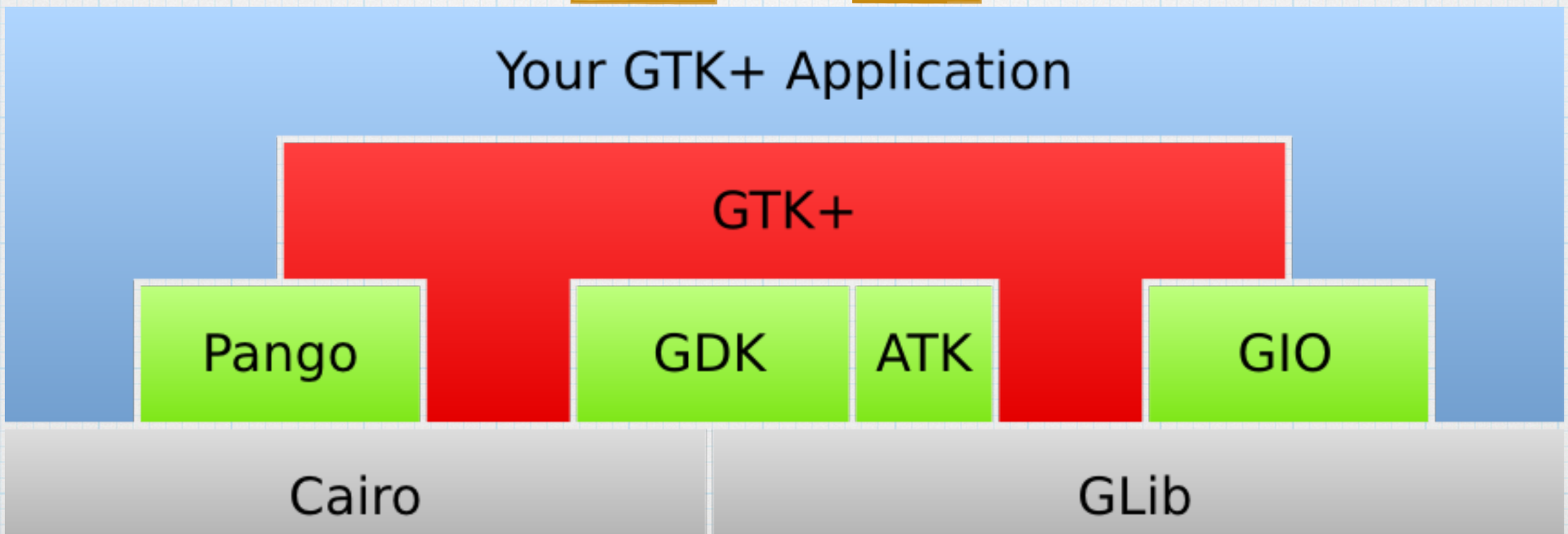
Nokia 770 / N800 / N810 / N900, OLPC.



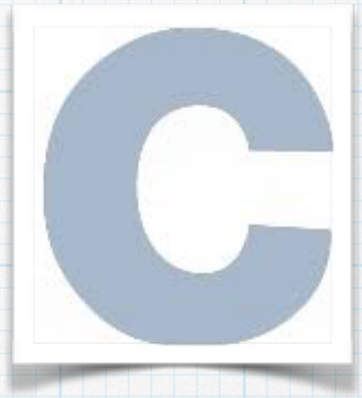
Source: https://www.gtk.org/features.php

Let's Build our firsts widgets!!!





Working with Window



sudo dnf install libgtk-3-dev

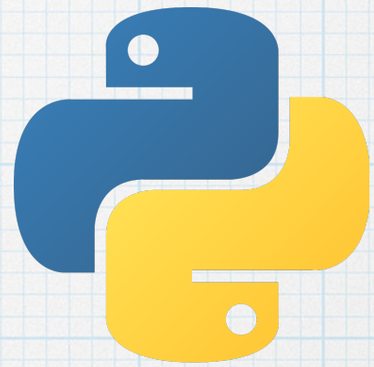
```
#include<gtk/gtk.h>

int main(int argc, char* argv[])

{

      gtk_init(&argc,&argv);

      GtkWidget *window;

      window = gtk_window_new(GTK_WINDOW_TOPLEVEL);

      g_signal_connect(window,”delete_event”,G_CALLBACK(gtk_main_quit), NULL);

      gtk_widget_show(window);

      gtk_main();

      return 0;

 }
```

```
gcc `pkg-config --cflags gtk+-3.0` -o window01 window01.c `pkg-config --libs gtk+-3.0`
```

Working with Window

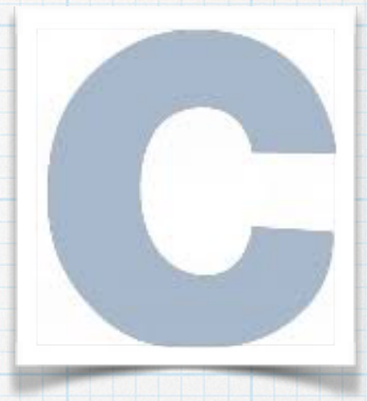
```
sudo dnf install pygobject3-devel webkitgtk3-devel
```

```
from gi.repository import Gtk

window = Gtk.Window()

window.connect(“destroy”, Gtk.main_quit())

window_show()

Gtk.main()
```



```
python window01.py
```

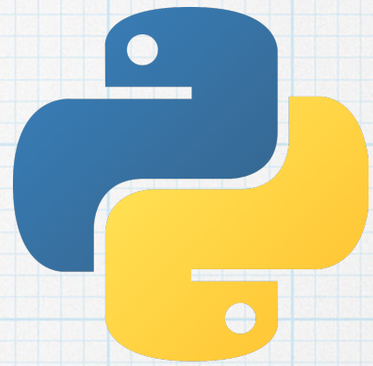
Adding features to a Window



```
#include<gtk/gtk.h>

int main(int argc, char* argv[])

{

    . . .

    gtk_window_set_default_size(window,300,300);

    gtk_window_set_title(GTK_WINDOW(window),”Linux Foundation”);

    gtk_widget_show(window);

    gtk_main();

    return 0;

}
```

```
gcc `pkg-config --cflags gtk+-3.0` -o window02 window02.c `pkg-config --libs gtk+-3.0`
```

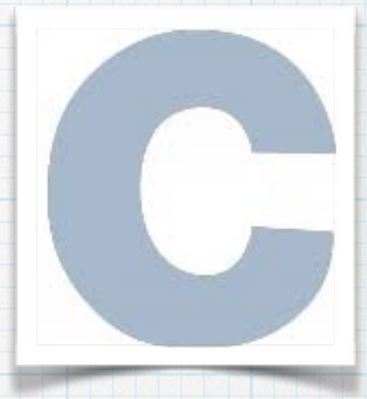
Adding features to a Window



```
. . .
window.connect(“destroy”, Gtk.main_quit())
window.set_default_size(400, 600)
window.modify_bg(Gtk.StateType.NORMAL,
Gdk.Color.from_floats(0.8,0.1,1.0))
window.set_title(“Linux Foundation”)
window_show()
Gtk.main()
```

```
python window02.py
```

Adding a Label into the Window



```
#include<gtk/gtk.h>

int main(int argc, char* argv[])

{     . . .

      GtkWidget *window, *label;

      label = gtk_label_new("Welcome to APISTRAT");

      g_signal_connect(window,"delete_event",G_CALLBACK(gtk_main_quit), NULL);

      gtk_container_add(GTK_CONTAINER(window),label);

      gtk_widget_show_all(window);

      gtk_main();

      return 0;

}
```

```
gcc `pkg-config --cflags gtk+-3.0` -o window03 window03.c `pkg-config --libs gtk+-3.0`
```

Adding a Label into the Window

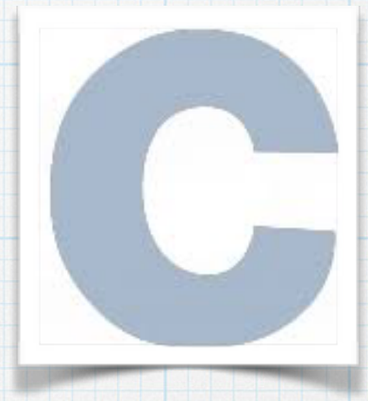
```
from gi.repository import Gtk

window = Gtk.Window()

label = Gtk.Label(“Welcome to APISTRAT”)
```

```
window.connect(“destroy”, Gtk.main_quit())

window.add(label)

window_show_all()

Gtk.main()
```

```
python window03.py
```

Adding a button to display a message

```
static void button_clicked(GtkWidget* widget, gpointer data)

{

        g_print(“Welcome to APISTRAT”);

}
```

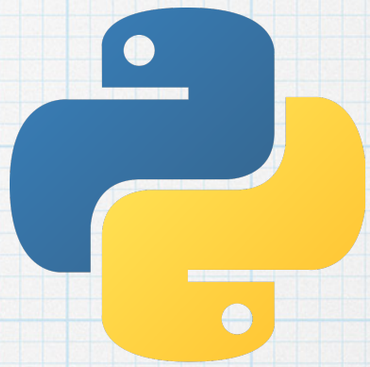


```
. . .

        GtkWidget *window, *button;

        button = gtk_button_new_with_label("Click me");
;

        gtk_container_add(GTK_CONTAINER(window),button);

      . . .

}
```

```
gcc `pkg-config --cflags gtk+-3.0` -o window04 window04.c `pkg-config --libs gtk+-3.0`
```

Adding a button to display a message

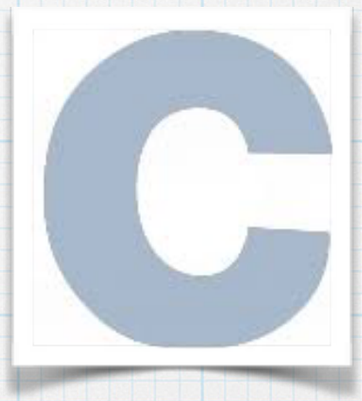
```
def button_clicked(button):
    print(“Welcome to APISTRAT”)

window = Gtk.Window()

button = Gtk.Button(“Click me”)

button.connect(”clicked”,button_clicked)

window.add(button)

window.show_all()

Gtk.main()
```



```
python window04.py
```

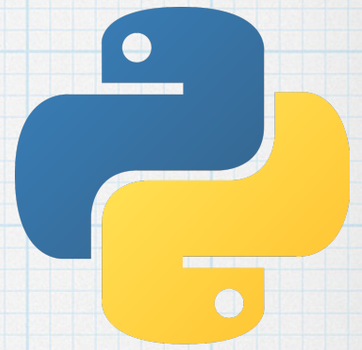
Using a button to display a label (Box)

```
static void button_clicked(GtkWidget* widget, gpointer data){

        gtk_label_set_text(GTK_LABEL(data),”Welcome to APISTRAT”);

}     . . .

GtkWidget *window,*button,*label,*box;

label = gtk_label_new(“                          “);

box = gtk_box_new(0,0);

gtk_box_pack_start(GTK_BOX(box),label,0,0,0);

gtk_box_pack_start(GTK_BOX(box),button,1,1,0);

gtk_container_add(GTK_CONTAINER(window),box);

g_signal_connect(button,”clicked",G_CALLBACK(button_clicked,(gpointer)label);

. . . }
```



```
gcc `pkg-config --cflags gtk+-3.0` -o window05 window05.c `pkg-config --libs gtk+-3.0`
```

Playing with a button to display a label

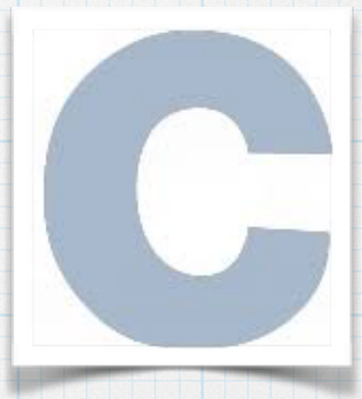


```
def button_clicked(button):
                    hbox.add(label)

. . .
label = Gtk.Label("Welcome to APISTRAT")
button.connect(”clicked”,button_clicked)
hbox = Gtk.Box(spacing=10)
hbox.pack_start(vbox_left, True, True, 0)
hbox.pack_start(vbox_right, True, True, 0)
window.add(box)

. . .
```

```
python window05.py
```

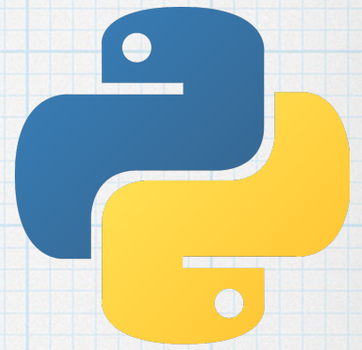
Using a button to display a label (Grid)

```
static void button_clicked(GtkWidget* widget, gpointer data){

        gtk_label_set_text(GTK_LABEL(data),”Welcome to APISTRAT”);

}     . . .

GtkWidget *window,*button,*label,*grid;

grid = gtk_grid_new();

label = gtk_label_new(“                              “);

gtk_grid_attach(GTK_GRID(grid), label,0,0,1,1);

gtk_grid_attach(GTK_GRID(grid), button,3,0,1,1);

gtk_container_add(GTK_CONTAINER(window),grid);

g_signal_connect(button,”clicked",G_CALLBACK(button_clicked,(gpointer)label);

. . . }
```



```
gcc `pkg-config --cflags gtk+-3.0` -o window06 window06.c `pkg-config --libs gtk+-3.0`
```

Playing with a button to display a label

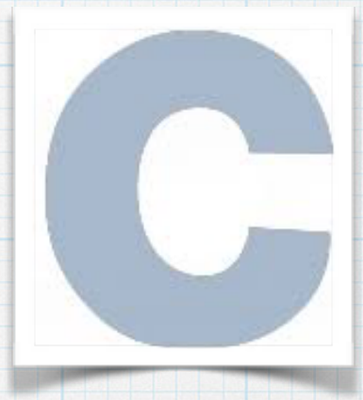


```
def button_clicked(button):
                    hbox.add(label)

. . .
label = Gtk.Label("Welcome to APISTRAT")
button.connect(”clicked”,button_clicked)
hbox = Gtk.Box(spacing=10)
hbox.pack_start(vbox_left, True, True, 0)
hbox.pack_start(vbox_right, True, True, 0)
window.add(box)

. . .
```

```
python window05.py
```

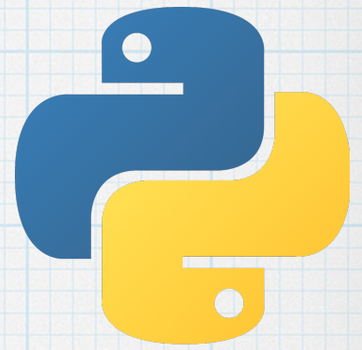
Using an entry and a button into a Box

```
static void button_clicked(GtkWidget* widget, gpointer data){

    g_print("%s\n",gtk_entry_get_text(GTK_ENTRY(data)));

}     . . .

GtkWidget *window,*button,*label,*box;

entry = gtk_entry_new();

button = gtk_button_new_with_label("Click me”);

g_signal_connect(button,"clicked",G_CALLBACK(button_clicked), entry);

box = gtk_box_new(0,0);

gtk_box_pack_start(GTK_BOX(box),entry,0,0,0);

gtk_box_pack_start(GTK_BOX(box),button,1,1,0);

gtk_container_add(GTK_CONTAINER(window),box);

. . . }
```



```
gcc `pkg-config --cflags gtk+-3.0` -o window07 window07.c `pkg-config --libs gtk+-3.0`
```

Playing with a button to display a label

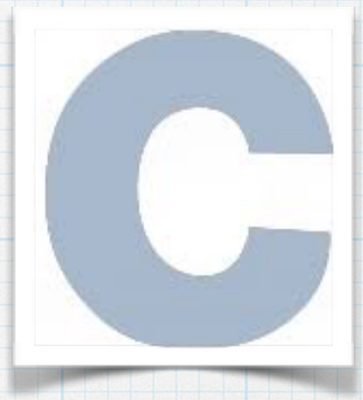


```
def button_clicked(button):
                    hbox.add(label)

. . .
label = Gtk.Label("Welcome to APISTRAT")
button.connect(”clicked”,button_clicked)
hbox = Gtk.Box(spacing=10)
hbox.pack_start(vbox_left, True, True, 0)
hbox.pack_start(vbox_right, True, True, 0)
window.add(box)

. . .
```

```
python window05.py
```

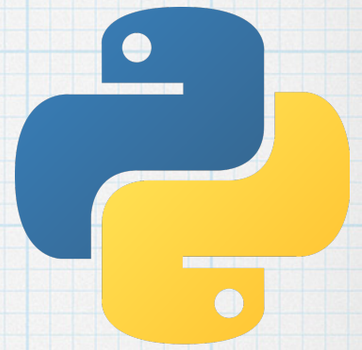
Using an entry and a button into a Grid

```
static void button_clicked(GtkWidget* widget, gpointer data){

    g_print("%s\n",gtk_entry_get_text(GTK_ENTRY(data)));

}     . . .

GtkWidget *window,*button,*label,*box;

entry = gtk_entry_new();

button = gtk_button_new_with_label("Click me”);

g_signal_connect(button,"clicked",G_CALLBACK(button_clicked), entry);

box = gtk_box_new(0,0);

gtk_box_pack_start(GTK_BOX(box),entry,0,0,0);

gtk_box_pack_start(GTK_BOX(box),button,1,1,0);

gtk_container_add(GTK_CONTAINER(window),box);

. . . }
```



```
gcc `pkg-config --cflags gtk+-3.0` -o window08 window08.c `pkg-config --libs gtk+-3.0`
```

Playing with a button to display a label

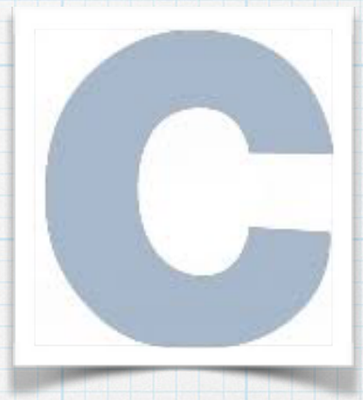


```
def button_clicked(button):
                    hbox.add(label)

. . .
label = Gtk.Label("Welcome to APISTRAT")
button.connect(”clicked”,button_clicked)
hbox = Gtk.Box(spacing=10)
hbox.pack_start(vbox_left, True, True, 0)
hbox.pack_start(vbox_right, True, True, 0)
window.add(box)

. . .
```

```
python window05.py
```

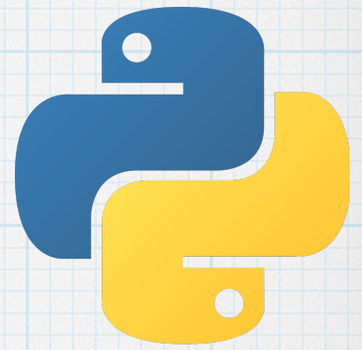
Using an entry, a button and a label (Grid)

```
static void button_clicked(GtkWidget* widget, gpointer data){

    g_print("%s\n",gtk_entry_get_text(GTK_ENTRY(data)));

}     . . .

GtkWidget *window,*button,*label,*box;

entry = gtk_entry_new();

button = gtk_button_new_with_label("Click me”);

g_signal_connect(button,"clicked",G_CALLBACK(button_clicked), entry);

box = gtk_box_new(0,0);

gtk_box_pack_start(GTK_BOX(box),entry,0,0,0);

gtk_box_pack_start(GTK_BOX(box),button,1,1,0);

gtk_container_add(GTK_CONTAINER(window),box);

. . . }
```



```
gcc `pkg-config --cflags gtk+-3.0` -o window09 window09.c `pkg-config --libs gtk+-3.0`
```

Playing with a button to display a label



```
def button_clicked(button):
                    hbox.add(label)

. . .
label = Gtk.Label("Welcome to APISTRAT")
button.connect(”clicked”,button_clicked)
hbox = Gtk.Box(spacing=10)
hbox.pack_start(vbox_left, True, True, 0)
hbox.pack_start(vbox_right, True, True, 0)
window.add(box)

. . .
```

```
python window05.py
```

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