

Предмет	МДК 03.01 ТРПО
Дата	5.10.2020
Группа	474
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Работа	№ 2

1. Настройка интерфейса.

Создаем основной графический интерфейс из одного GtkWindow, трех GtkBox, один GtkGrid, пять GtkImage из четырех GtkLabel, из двух GtkEntry, и десять GtkButton.

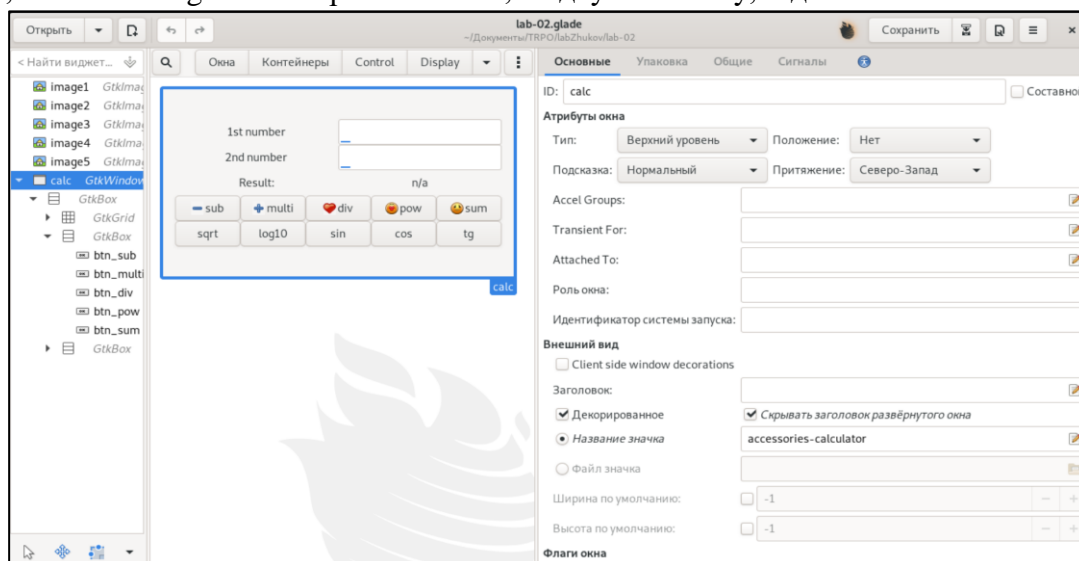


Рисунок 1 — Настроенное окно

К каждой кнопке добавляем всплывающие подсказки и к некоторым кнопкам добавляем картинки в виде смайликов.

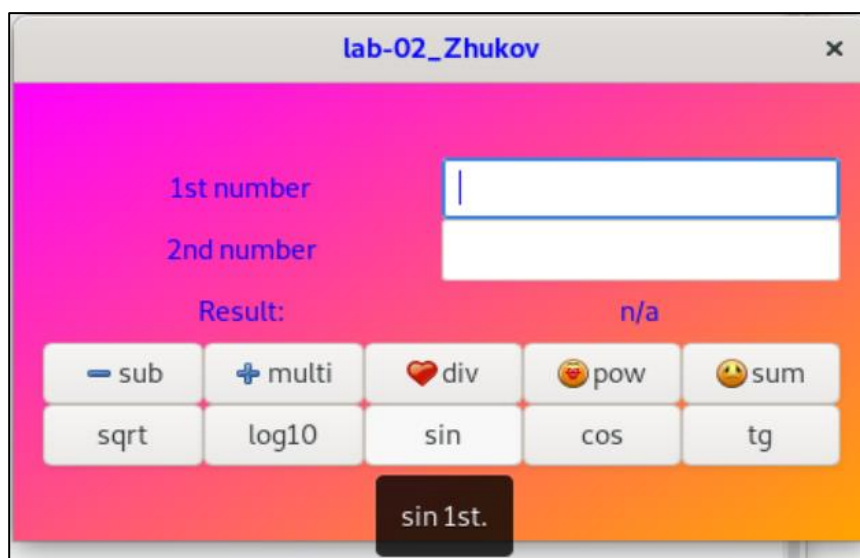
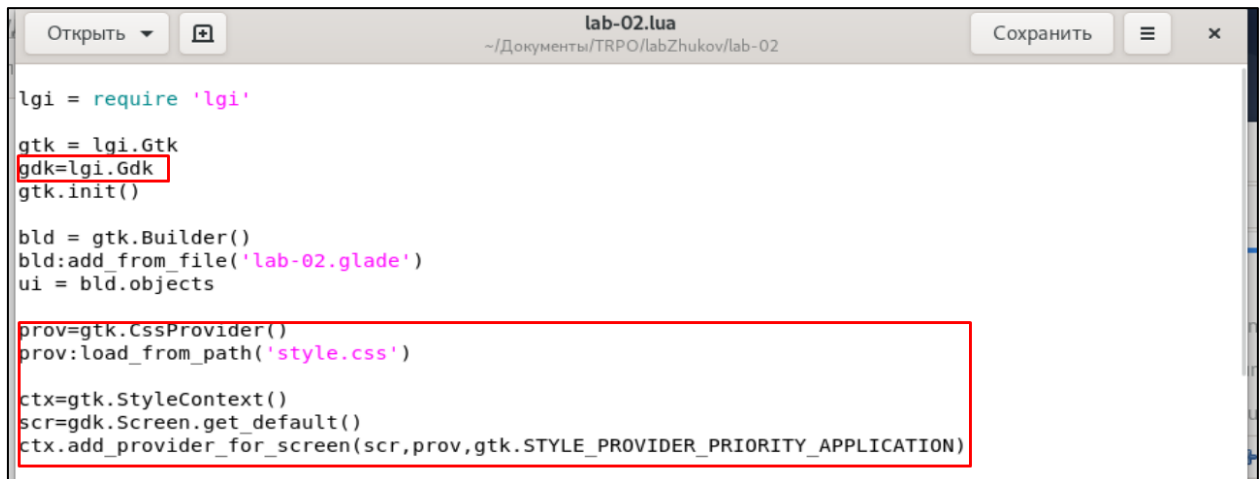


Рисунок 2 — Всплывающие подсказки и картинки.

Подключаем css файл “style.css” с помощью lua.



```
lgi = require 'lgi'
gtk = lgi.Gtk
gdk=lgi.Gdk
gtk.init()

bld = gtk.Builder()
bld:add_from_file('lab-02.glade')
ui = bld.objects

prov=gtk.CssProvider()
prov:load_from_path('style.css')

ctx=gtk.StyleContext()
scr=gdk.Screen.get_default()
ctx.add_provider_for_screen(scr,prov,gtk.STYLE_PROVIDER_PRIORITY_APPLICATION)
```

Рисунок 3 — Подключение css.

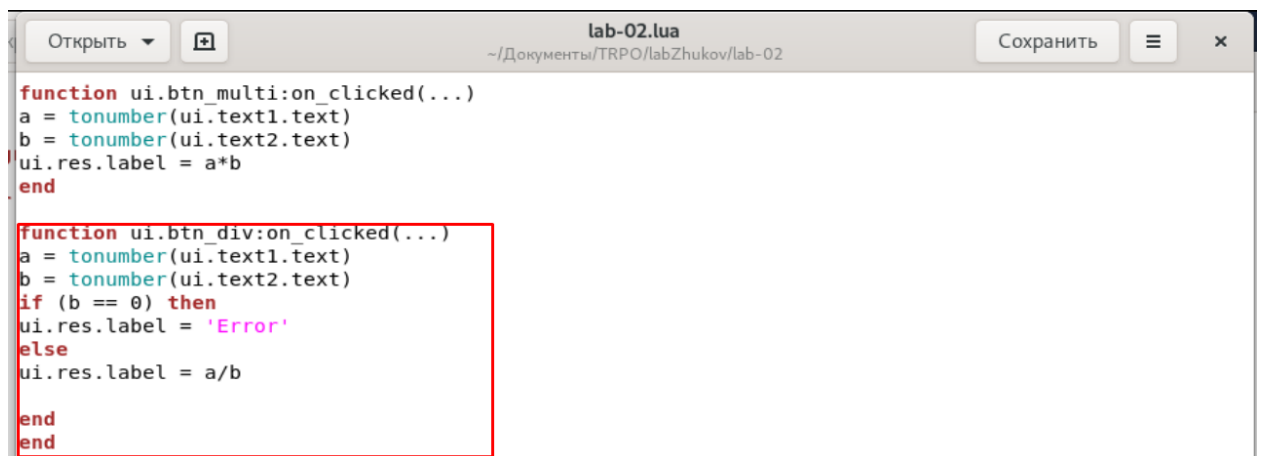
Задаем фон для окна в css файле и цвет для шрифта.



```
.but
{
background: linear-gradient(to top left, Orange,Fuchsia);
color: blue;
}
```

Рисунок 4 — Код css.

Создаем функции события клика для каждой кнопки. Внутри функции вычисляем и выводим результат на экран. Пример работы деления и обработка ошибок на рисунке 5.



```
function ui.btn_multi:on_clicked(...)
a = tonumber(ui.text1.text)
b = tonumber(ui.text2.text)
ui.res.label = a*b
end

function ui.btn_div:on_clicked(...)
a = tonumber(ui.text1.text)
b = tonumber(ui.text2.text)
if (b == 0) then
ui.res.label = 'Error'
else
ui.res.label = a/b
end
end
```

Рисунок 5 — Функция деления.

В соответствии с названием кнопки создаем остальные функции. Для некоторых функций используются встроенные математические функции lua. Пример на рисунке 6.

```
function ui.btn_log:on_clicked(...)
a = tonumber(ui.text1.text)
b = tonumber(ui.text2.text)
if (a<0) then
ui.res.label = 'Error'
else
ui.res.label = math.log10(a)
```

Рисунок 6 — Функция логарифма.

2. Код программы

a. Lua

```
lgi =
require
'lgi'

gtk = lgi.Gtk
gdk=lgi.Gdk
gtk.init()

bld = gtk.Builder()
bld:add_from_file('lab-02.glade')
ui = bld.objects

prov=gtk.CssProvider()
prov:load_from_path('style.css')

ctx=gtk.StyleContext()
scr=gdk.Screen.get_default()
ctx.add_provider_for_screen(scr,prov,gtk.STYLE_PROVIDER_PRIORITY_APPLICATION)

function ui.btn_sum:on_clicked(...)
a = tonumber(ui.text1.text)
b = tonumber(ui.text2.text)
ui.res.label = a+b
end
```

```
function ui.btn_sub:on_clicked(...)
a = tonumber(ui.text1.text)
b = tonumber(ui.text2.text)
ui.res.label = a-b
end
```

```
function ui.btn_multi:on_clicked(...)
a = tonumber(ui.text1.text)
b = tonumber(ui.text2.text)
ui.res.label = a*b
end
```

```
function ui.btn_div:on_clicked(...)
a = tonumber(ui.text1.text)
b = tonumber(ui.text2.text)
if (b == 0) then
ui.res.label = 'Error'
else
ui.res.label = a/b
```

```
end
end
```

```
function ui.btn_pow:on_clicked(...)
a = tonumber(ui.text1.text)
b = tonumber(ui.text2.text)
```

```
ui.res.label = a^b
```

```
end
```

```
function ui.btn_sqrt:on_clicked(...)
a = tonumber(ui.text1.text)
b = tonumber(ui.text2.text)
if (a<0) then
ui.res.label = 'Error'
else
ui.res.label = math.sqrt(a)
```

```
end
```

```
end
```

```
function ui.btn_log:on_clicked(...)
a = tonumber(ui.text1.text)
b = tonumber(ui.text2.text)
if (a<0) then
ui.res.label = 'Error'
else
ui.res.label = math.log10(a)
```

```
end
```

```
end
```

```
function ui.btn_sin:on_clicked(...)
a = tonumber(ui.text1.text)
b = tonumber(ui.text2.text)
ui.res.label = math.sin(a)
end
```

```
function ui.btn_cos:on_clicked(...)
a = tonumber(ui.text1.text)
b = tonumber(ui.text2.text)
ui.res.label = math.cos(a)
end
```

```
function ui.btn_tg:on_clicked(...)
a = tonumber(ui.text1.text)
b = tonumber(ui.text2.text)
ui.res.label = math.tan(a)
end
ui.calc.title = 'lab-02_Zhukov'
ui.calc.on_destroy = gtk.main_quit
ui.calc:show_all()
```

```
gtk.main()
```

b. Css

```
.but
```

```
{
```

```
background: linear-gradient(to top left, Orange,Fuchsia);
```

```
color: blue;
```

```
}
```

c. Glade

```
<?xml
```

```
version="1.0"
```

```
encoding="UTF-  
8"?>
```

```
<!-- Generated with glade 3.22.1 -->
```

```
<interface>
```

```
  <requires lib="gtk+" version="3.20"/>
```

```
  <object class="GtkImage" id="image1">
```

```
    <property name="visible">True</property>
```

```
    <property name="can_focus">False</property>
```

```
    <property name="icon_name">list-remove</property>
```

```
  </object>
```

```
  <object class="GtkImage" id="image2">
```

```
    <property name="visible">True</property>
```

```
    <property name="can_focus">False</property>
```

```
    <property name="icon_name">list-add</property>
```

```
  </object>
```

```
  <object class="GtkImage" id="image3">
```

```
    <property name="visible">True</property>
```

```
    <property name="can_focus">False</property>
```

```
    <property name="icon_name">emblem-favorite</property>
```

```
  </object>
```

```
  <object class="GtkImage" id="image4">
```

```
    <property name="visible">True</property>
```

```
    <property name="can_focus">False</property>
```

```
    <property name="icon_name">face-kiss</property>
```

```
  </object>
```

```
  <object class="GtkImage" id="image5">
```

```
    <property name="visible">True</property>
```

```
    <property name="can_focus">False</property>
```

```
    <property name="icon_name">face-sad</property>
```

```
    <property name="use_fallback">True</property>
```

```
  </object>
```

```
  <object class="GtkWindow" id="calc">
```

```
    <property name="can_focus">False</property>
```

```
    <property name="border_width">15</property>
```

```
    <property name="hide_titlebar_when_maximized">True</property>
```

```
    <property name="icon_name">accessories-calculator</property>
```

```
    <child>
```

```
      <placeholder/>
```

```
    </child>
```

```

<child>
  <object class="GtkBox">
    <property name="visible">True</property>
    <property name="can_focus">False</property>
    <property name="valign">center</property>
    <property name="orientation">vertical</property>
    <child>
      <object class="GtkGrid">
        <property name="visible">True</property>
        <property name="can_focus">False</property>
        <property name="row_homogeneous">True</property>
        <property name="column_homogeneous">True</property>
        <child>
          <object class="GtkLabel">
            <property name="visible">True</property>
            <property name="can_focus">False</property>
            <property name="label" translatable="yes">2nd
number</property>
          </object>
          <packing>
            <property name="left_attach">0</property>
            <property name="top_attach">1</property>
          </packing>
        </child>
        <child>
          <object class="GtkEntry" id="text1">
            <property name="visible">True</property>
            <property name="can_focus">True</property>
          </object>
          <packing>
            <property name="left_attach">1</property>
            <property name="top_attach">0</property>
          </packing>
        </child>
        <child>
          <object class="GtkEntry" id="text2">
            <property name="visible">True</property>
            <property name="can_focus">True</property>
          </object>
          <packing>
            <property name="left_attach">1</property>
            <property name="top_attach">1</property>
          </packing>
        </child>
        <child>
          <object class="GtkLabel">
            <property name="visible">True</property>
            <property name="can_focus">False</property>

```

```

        <property name="label"
translatable="yes">Result:</property>
    </object>
    <packing>
        <property name="left_attach">0</property>
        <property name="top_attach">2</property>
    </packing>
</child>
<child>
    <object class="GtkLabel" id="res">
        <property name="visible">True</property>
        <property name="can_focus">False</property>
        <property name="label" translatable="yes">n/a</property>
    </object>
    <packing>
        <property name="left_attach">1</property>
        <property name="top_attach">2</property>
    </packing>
</child>
<child>
    <object class="GtkLabel">
        <property name="visible">True</property>
        <property name="can_focus">False</property>
        <property name="label" translatable="yes">1st
number</property>
    </object>
    <packing>
        <property name="left_attach">0</property>
        <property name="top_attach">0</property>
    </packing>
</child>
</object>
<packing>
    <property name="expand">False</property>
    <property name="fill">True</property>
    <property name="position">0</property>
</packing>
</child>
<child>
    <object class="GtkBox">
        <property name="visible">True</property>
        <property name="can_focus">False</property>
        <property name="resize_mode">queue</property>
        <property name="homogeneous">True</property>
    <child>
        <object class="GtkButton" id="btn_sub">
            <property name="label" translatable="yes">sub</property>
            <property name="visible">True</property>

```



```

        <property name="can_focus">True</property>
        <property name="receives_default">True</property>
        <property name="tooltip_text" translatable="yes">1st -2nd.
</property>

        <property name="image">image1</property>
        <property name="always_show_image">True</property>
    </object>
    <packing>
        <property name="expand">False</property>
        <property name="fill">True</property>
        <property name="position">1</property>
    </packing>
</child>
<child>
    <object class="GtkButton" id="btn_multi">
        <property name="label" translatable="yes">multi</property>
        <property name="visible">True</property>
        <property name="can_focus">True</property>
        <property name="receives_default">True</property>
        <property name="tooltip_text" translatable="yes">1st*2nd.
</property>

        <property name="image">image2</property>
        <property name="always_show_image">True</property>
    </object>
    <packing>
        <property name="expand">False</property>
        <property name="fill">True</property>
        <property name="position">2</property>
    </packing>
</child>
<child>
    <object class="GtkButton" id="btn_div">
        <property name="label" translatable="yes">div</property>
        <property name="visible">True</property>
        <property name="can_focus">True</property>
        <property name="receives_default">True</property>
        <property name="tooltip_text" translatable="yes">1st/2nd.
CALC HATE NULL OR 0.</property>

        <property name="image">image3</property>
        <property name="always_show_image">True</property>
    </object>
    <packing>
        <property name="expand">False</property>
        <property name="fill">True</property>
        <property name="position">3</property>
    </packing>
</child>
<child>

```

```

        <object class="GtkButton" id="btn_pow">
            <property name="label" translatable="yes">pow</property>
            <property name="visible">True</property>
            <property name="can_focus">True</property>
            <property name="receives_default">True</property>
            <property name="tooltip_text" translatable="yes">1st ^
2nd</property>
            <property name="image">image4</property>
            <property name="always_show_image">True</property>
        </object>
        <packing>
            <property name="expand">False</property>
            <property name="fill">True</property>
            <property name="position">4</property>
        </packing>
    </child>
    <child>
        <object class="GtkButton" id="btn_sum">
            <property name="label" translatable="yes">sum</property>
            <property name="visible">True</property>
            <property name="can_focus">True</property>
            <property name="receives_default">True</property>
            <property name="tooltip_text" translatable="yes">Summary:
1st +2nd.
</property>
            <property name="image">image5</property>
            <property name="always_show_image">True</property>
        </object>
        <packing>
            <property name="expand">False</property>
            <property name="fill">True</property>
            <property name="position">5</property>
        </packing>
    </child>
</object>
<packing>
    <property name="expand">False</property>
    <property name="fill">True</property>
    <property name="position">1</property>
</packing>
</child>
<child>
    <object class="GtkBox">
        <property name="visible">True</property>
        <property name="can_focus">False</property>
        <property name="homogeneous">True</property>
        <child>
            <object class="GtkButton" id="btn_sqrt">

```

```

        <property name="label" translatable="yes">sqrt</property>
        <property name="visible">True</property>
        <property name="can_focus">True</property>
        <property name="receives_default">True</property>
        <property name="tooltip_text" translatable="yes">sqrt 1st.
NOT NULL or -1.</property>
    </object>
    <packing>
        <property name="expand">False</property>
        <property name="fill">True</property>
        <property name="position">0</property>
    </packing>
</child>
<child>
    <object class="GtkButton" id="btn_log">
        <property name="label" translatable="yes">log10</property>
        <property name="visible">True</property>
        <property name="can_focus">True</property>
        <property name="receives_default">True</property>
        <property name="tooltip_text" translatable="yes">sample
but.</property>
    </object>
    <packing>
        <property name="expand">False</property>
        <property name="fill">True</property>
        <property name="position">1</property>
    </packing>
</child>
<child>
    <object class="GtkButton" id="btn_sin">
        <property name="label" translatable="yes">sin</property>
        <property name="visible">True</property>
        <property name="can_focus">True</property>
        <property name="receives_default">True</property>
        <property name="tooltip_text" translatable="yes">sin
1st.</property>
    </object>
    <packing>
        <property name="expand">False</property>
        <property name="fill">True</property>
        <property name="position">2</property>
    </packing>
</child>
<child>
    <object class="GtkButton" id="btn_cos">
        <property name="label" translatable="yes">cos</property>
        <property name="visible">True</property>
        <property name="can_focus">True</property>

```

```

        <property name="receives_default">True</property>
        <property name="tooltip_text" translatable="yes">cos
1st.</property>
    </object>
    <packing>
        <property name="expand">False</property>
        <property name="fill">True</property>
        <property name="position">3</property>
    </packing>
</child>
<child>
    <object class="GtkButton" id="btn_tg">
        <property name="label" translatable="yes">tg</property>
        <property name="visible">True</property>
        <property name="can_focus">True</property>
        <property name="receives_default">True</property>
        <property name="tooltip_text" translatable="yes">tg
1st.</property>
    </object>
    <packing>
        <property name="expand">False</property>
        <property name="fill">True</property>
        <property name="position">4</property>
    </packing>
</child>
</object>
<packing>
    <property name="expand">False</property>
    <property name="fill">True</property>
    <property name="position">2</property>
</packing>
</child>
</object>
</child>
<style>
    <class name="but"/>
</style>
</object>
</interface>

```