

# Uživatelská rozhraní

## Cvičení 3

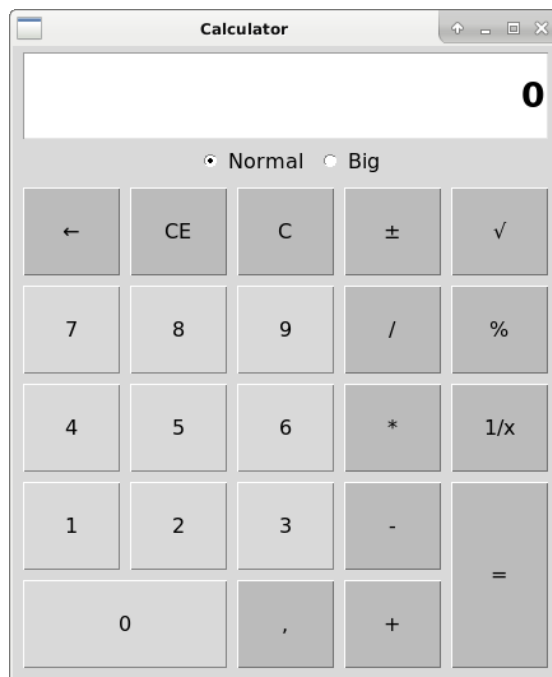
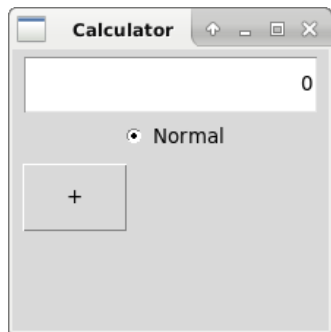
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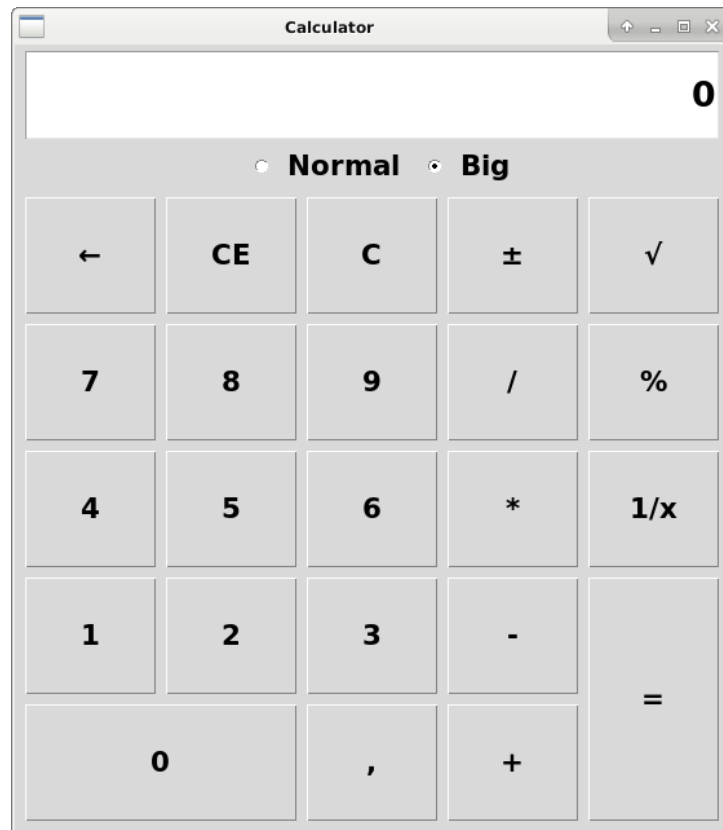
[http://mrl.cs.vsb.cz/people/holusa/uro\\_course](http://mrl.cs.vsb.cz/people/holusa/uro_course)

# Kalkulačka

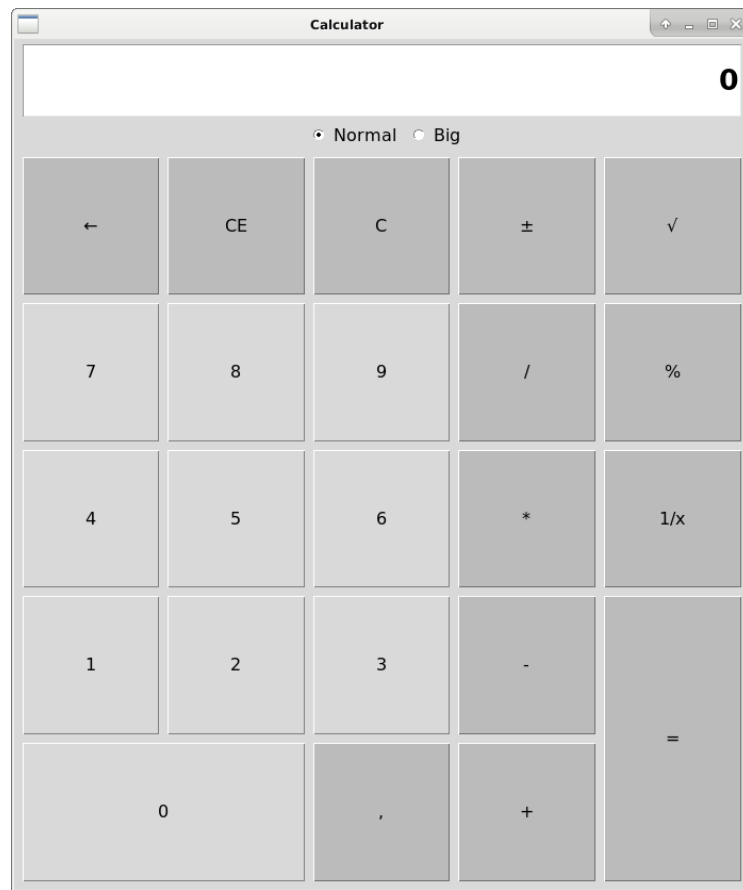
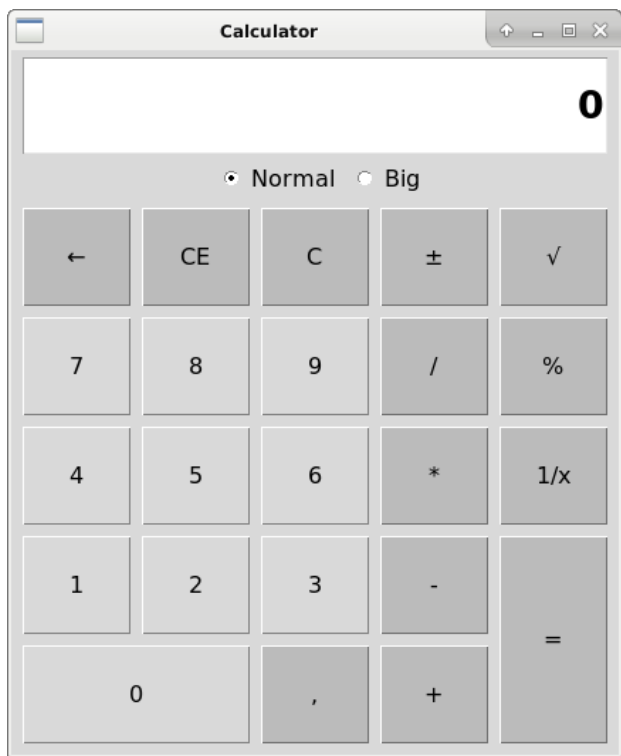
- Design si můžete rozšířit libovolně podle sebe. Dodělejte alespoň základní funkčnost.



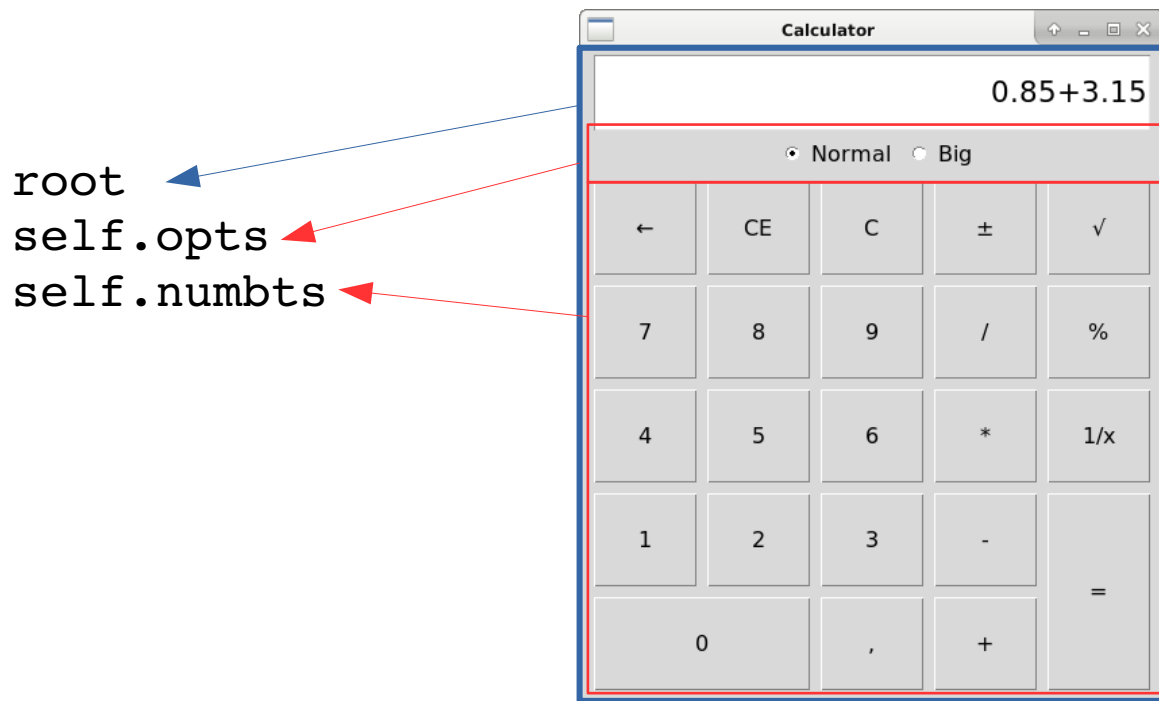
# Chování GUI



# Chování GUI



# Rozložení komponent



Pro `numbts` použijeme správce rozložení – **grid**

`obj.grid (row= ?; column= ?; rowspan= ?; colspan=?;`  
`sticky=?; padx=?)`

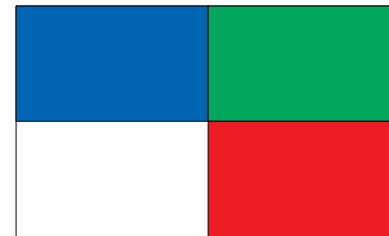
# Rozložení grid

- `row, column` – index v mřížce

```
self.blue.grid(row=0, column=0)
```

```
self.red.pack(row=0, column=1)
```

```
self.green.pack(row=1, column=1)
```

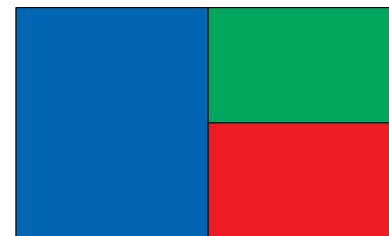


- `rowspan, colspan` – kolik buněk komponenta zaujme

```
self.blue.grid(row=0, column=0, rowspan=2)
```

```
self.red.pack(row=0, column=1)
```

```
self.green.pack(row=1, column=1)
```



# Rozložení grid

- `sticky` – rozšiřování v rámci buňky

`N, W, E, S`

```
b1.grid(row=1, column=0, sticky=W)
```

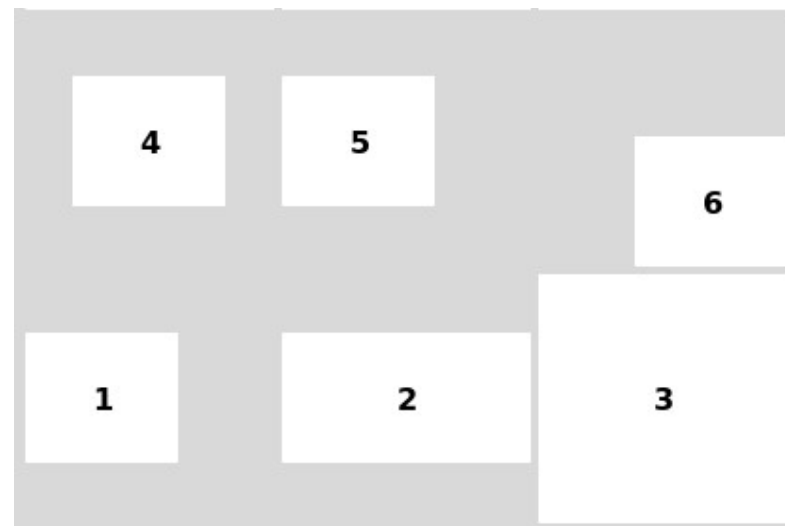
```
b2.grid(row=1, column=1, sticky=W+E)
```

```
b3.grid(row=1, column=2, sticky=W+E+N+S)
```

```
b4.grid(row=0, column=0)
```

```
b5.grid(row=0, column=1, sticky=W)
```

```
b6.grid(row=0, column=2, sticky=E+S)
```



# Rozložení grid

- Jak nastavit zvětšování buněk při zvětšování okna?

```
for x in range(5):  
    self.numbts.rowconfigure( x, weight = 1 )  
  
for y in range(4):  
    self.numbts.columnconfigure( y, weight = 1 )
```



# Nastavení fontu + volání funkcí

```
from tkinter.font import *
nfont = Font(family="Arial", size=12, weight="normal")

label = Label(root, text="URO", bg="#AAAAAA", font=nfont)

nfont.config(weight="bold", size=16)
```

---

```
def fun(param):
    print(param)
```

```
b = Button(root, text="URO", command=fun("hello"))
b = Button(root, text="URO", command=lambda: fun("hello"))
```

# Matematika

```
a = "50"  
b = "10"  
op = "+"  
c = eval(a+op+b)  
print(c)
```

```
>> 60
```