

Wyklad13

January 24, 2020

1 GUI (graphical user interface)

1.1 Tkinter

```
[1]: import tkinter

[2]: window = tkinter.Tk()

window.title("Welcome to Tkinter")

window.mainloop()
```

1.1.1 Tkinter Widgets

Przyciski

```
[3]: from tkinter import messagebox #lub import tkinter.messagebox

top = tkinter.Tk()
top.geometry("200x200") #rozmiary okna
def helloCallBack():
    msg = messagebox.showinfo( "Hello Python", "Hello World")

B = tkinter.Button(top, text = "Hello", command = helloCallBack)
#"command" wskazuje co ma robic przycisk
B.place(x = 100,y = 100) #umiejscowienie przycisku
top.mainloop()
```

Message

```
[4]: from tkinter import messagebox

top = tkinter.Tk()
res = messagebox.askquestion('Message title','Treść wiadomości: askquestion')

res = messagebox.askyesno('Message title','Treść wiadomości: askyesno')
```

```

res = messagebox.askyesnocancel('Message title','Treść wiadomości:␣
→askyesnocancel')

res = messagebox.askokcancel('Message title','Treść wiadomości: askokcancel')

res = messagebox.askretrycancel('Message title','Treść wiadomości:␣
→askretrycancel')

top.mainloop()

```

Label + Entry

```

[5]: top = tkinter.Tk()
top.geometry("200x200") #rozmiary okna

L1 = tkinter.Label(top, text = "User Name")
L1.pack( side = tkinter.LEFT)
E1 = tkinter.Entry(top, bd = 5)
E1.pack(side = tkinter.RIGHT)

def helloCallBack():
    L1.configure(text="Hello "+E1.get())
    E1.delete(0,10)
    #msg = messagebox.showinfo( "Hello Python", "Hello "+E1.get())

B = tkinter.Button(top, text = "Hello", command = helloCallBack)
B.place(x = 100,y = 150)

top.mainloop()

```

Text

```

[6]: top = tkinter.Tk()
text = tkinter.Text(top)
text.insert(tkinter.INSERT, "Hello.....")
text.insert(tkinter.END, "Bye Bye.....")
text.pack()

text.tag_add("here", "1.0", "1.4")
text.tag_add("start", "1.8", "1.13")
text.tag_config("here", background = "yellow", foreground = "blue")
text.tag_config("start", background = "gray", foreground = "white")
top.mainloop()

```

Listbox

```

[7]: top = tkinter.Tk()
top.geometry("200x200")

Lb1 = tkinter.Listbox(top)
Lb1.insert(1, "Python")
Lb1.insert(2, "Perl")
Lb1.insert(3, "C")
Lb1.insert(4, "PHP")

Lb1.pack()

def Callback1():
    Lb1.delete(tkinter.ANCHOR) #lub tkinter.ACTIVE

B1 = tkinter.Button(top, text = "Delete", command = Callback1)
B1.place(x = 45,y = 140)

def Callback2():
    msg = messagebox.showinfo( "Hello Python", "Wybrales " + Lb1.get(tkinter.
    ↳ANCHOR))

B2 = tkinter.Button(top, text = "Choose", command = Callback2) #"commend"↳
    ↳wskazuje co ma robic przycisk
B2.place(x = 105,y = 140) #umiejscowienie przycisku

def Callback3():
    Lb1.insert(tkinter.END, "JAVA")

B3 = tkinter.Button(top, text = "Insert", command = Callback3) #"commend"↳
    ↳wskazuje co ma robic przycisk
B3.place(x = 75,y = 170) #umiejscowienie przycisku

top.mainloop()

```

Spinbox

```

[8]: top = tkinter.Tk()
top.geometry("200x100")

var =tkinter.IntVar()
var.set(36)

w = tkinter.Spinbox(top, from_ = 0, to = 100, width=5, textvariable=var)
w.pack()

top.mainloop()

```

Combobox

```
[9]: from tkinter.ttk import *

top = tkinter.Tk()
top.geometry('550x200')

combo = Combobox(top)
combo['values'] = (1, 2, 3, 4, 5, "Text")
combo.current(1)
combo.grid(column=0, row=0)

top.mainloop()
```

Checkbutton

```
[10]: top = tkinter.Tk()
CheckVar1 = tkinter.IntVar()
CheckVar2 = tkinter.IntVar()
C1 = tkinter.Checkbutton(top, text = "Music", variable = CheckVar1, \
                           onvalue = 1, offvalue = 0, height=15, \
                           width = 30, )

CheckVar2.set(1)
C2 = tkinter.Checkbutton(top, text = "Video", variable = CheckVar2, \
                           onvalue = 1, offvalue = 0, height=5, \
                           width = 20)

C1.pack()
C2.pack()
top.mainloop()
```

Radiobutton

```
[11]: def sel():
        selection = "Wybrales opcje " + str(var.get())
        label.config(text = selection)

top = tkinter.Tk()
top.geometry("200x100")

var = tkinter.IntVar()
R1 = tkinter.Radiobutton(top, text = "Option 1", variable = var, value = 1,
                           command = sel)
R1.pack( anchor = tkinter.W )

R2 = tkinter.Radiobutton(top, text = "Option 2", variable = var, value = 2,
                           command = sel)
R2.pack( anchor = tkinter.W )
```

```

R3 = tkinter.Radiobutton(top, text = "Option 3", variable = var, value = 3,
    ↪command = sel)
R3.pack( anchor = tkinter.W)

label = tkinter.Label(top)
label.pack()
top.mainloop()

```

Menu

```

[12]: from tkinter import filedialog

def donothing():
    filewin = tkinter.Toplevel(root)
    button = tkinter.Button(filewin, text="Do nothing button")
    button.pack()

def openfile():
    return filedialog.askopenfilename()

def savefile():
    return filedialog.asksaveasfile()

top = tkinter.Tk()
menubar = tkinter.Menu(top)
filemenu = tkinter.Menu(menubar, tearoff = 0)
filemenu.add_command(label="New", command = donothing)
filemenu.add_command(label = "Open", command = openfile)
filemenu.add_command(label = "Save", command = savefile)
filemenu.add_command(label = "Close", command = donothing)
filemenu.add_separator()
filemenu.add_command(label = "Exit", command = top.destroy)

menubar.add_cascade(label = "File", menu = filemenu)

editmenu = tkinter.Menu(menubar, tearoff=0)
editmenu.add_command(label = "Undo", command = donothing)
editmenu.add_separator()
editmenu.add_command(label = "Cut", command = donothing)
editmenu.add_command(label = "Copy", command = donothing)
editmenu.add_command(label = "Delete", command = donothing)

menubar.add_cascade(label = "Edit", menu = editmenu)

top.config(menu = menubar)
top.mainloop()

```

Frames

```
[13]: top = tkinter.Tk()

frame = tkinter.Frame(top)
frame.pack()#
#pack()=pack(side = tkinter.TOP)
bottomframe = tkinter.Frame(top)
bottomframe.pack(side = tkinter.BOTTOM)

redbutton = tkinter.Button(frame, text = "Red", fg = "red")
redbutton.pack( side = tkinter.LEFT)

greenbutton = tkinter.Button(frame, text = "Brown", fg="brown")
greenbutton.pack( side = tkinter.LEFT )

bluebutton = tkinter.Button(frame, text = "Blue", fg = "blue")
bluebutton.pack( side = tkinter.LEFT )

blackbutton = tkinter.Button(bottomframe, text = "Black", fg = "black")
blackbutton.pack( side = tkinter.BOTTOM)

top.mainloop()
```

```
[14]: top = tkinter.Tk()

frame = tkinter.Frame(top)
frame.pack(side = tkinter.LEFT)

bottomframe = tkinter.Frame(top)
bottomframe.pack(side = tkinter.RIGHT)

redbutton = tkinter.Button(frame, text = "Red", fg = "red")
redbutton.pack( side = tkinter.LEFT)

greenbutton = tkinter.Button(frame, text = "Brown", fg="brown")
greenbutton.pack( side = tkinter.LEFT )

bluebutton = tkinter.Button(frame, text = "Blue", fg = "blue")
bluebutton.pack( side = tkinter.LEFT )

blackbutton = tkinter.Button(bottomframe, text = "Black", fg = "black")
blackbutton.pack( side = tkinter.BOTTOM)

top.mainloop()
```

```
[15]: top = tkinter.Tk()
```

```

labelframe = tkinter.LabelFrame(top, text = "This is a LabelFrame")
labelframe.pack(fill = "both", expand = "yes")

left = tkinter.Label(labelframe, text = "Inside the LabelFrame")
left.pack()

top.mainloop()

```

Canvas

```

[17]: top = tkinter.Tk()

C = tkinter.Canvas(top, bg = "blue", height = 250, width = 300)

coord = 10, 50, 240, 210
arc = C.create_arc(coord, start = 0, extent = 90, fill = "red")
line = C.create_line(10,10,200,200,fill = 'white')
C.pack()
top.mainloop()

```

Notebook

```

[18]: from tkinter import ttk

top = tkinter.Tk()
top.geometry("200x200")

tab_control = ttk.Notebook(top)

tab1 = ttk.Frame(tab_control)
tab_control.add(tab1, text='First')

tab2 = ttk.Frame(tab_control)
tab_control.add(tab2, text='Second')

tab_control.pack(expand=1, fill='both')

top.mainloop()

```

Pasek postępu

```

[19]: from tkinter.ttk import Progressbar
      from tkinter import ttk

top = tkinter.Tk()
top.geometry('350x200')

```

```

style = ttk.Style()
style.theme_use('default')
style.configure("black.Horizontal.TProgressbar", background='red')

bar = Progressbar(top, length=200, style='black.Horizontal.TProgressbar')
bar['value'] = 30
bar.pack(anchor = tkinter.CENTER)

top.mainloop()

```

1.1.2 Nawigacja {pack(), place(), grid()}

place

```

[20]: top = tkinter.Tk()
L1 = tkinter.Label(top, text = "Physics")
L1.place(x = 10,y = 10)
E1 = tkinter.Entry(top, bd = 5)
E1.place(x = 60,y = 10)
L2 = tkinter.Label(top,text = "Maths")
L2.place(x = 10,y = 50)
E2 = tkinter.Entry(top,bd = 5)
E2.place(x = 60,y = 50)

L3 = tkinter.Label(top,text = "Total")
L3.place(x = 10,y = 150)
E3 = tkinter.Entry(top,bd = 5)
E3.place(x = 60,y = 150)

B = tkinter.Button(top, text = "Add")
B.place(x = 100, y = 100)
top.geometry("250x250+10+10")
top.mainloop()

```

grid

```

[21]: top = tkinter.Tk( )
b = 0
for r in range(6):
    for c in range(6):
        b = b + 1
        tkinter.Button(top, text = str(b), borderwidth = 1 ).grid(row = r,column=
↪ c)

top.mainloop()

```


1.2 PyQT

Można pracować w qtdesigner. Następnie zapisany plik .ui konwertujemy na .py: `pyuic5 gui_qt1.ui -o gui_qt1.py -x`

1.3 wxPython

<https://sourceforge.net/projects/wxformbuilder/>