Universidad Autónoma de Baja California
Facultad de Ingeniería, Arquitectura y Diseño

Ingeniero en Computación

Python/36276

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Actividad N. 14

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Introducción:

Se aprendera el uso de la librería Tkinter.

Competencia:

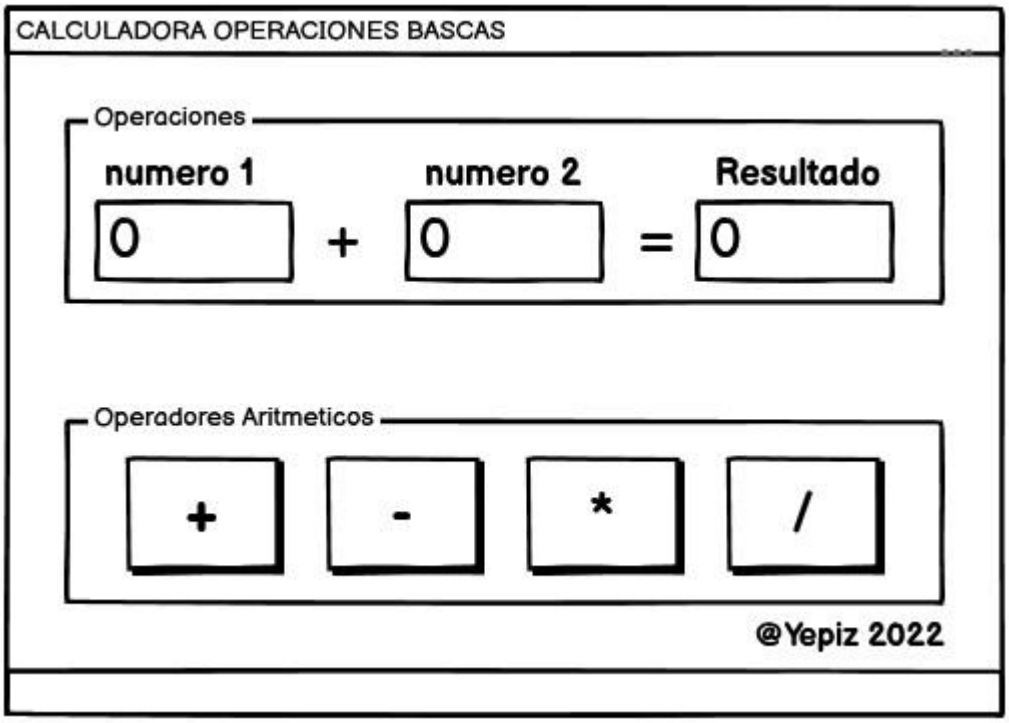
El alumno llevará a cabo el hacer una calculadora básica en Python con la librería Tkinter usando los recursos y clases.

Fundamentos:

El alumno aprenderá sobre la librería Tkinter mediante funciones utilizando como referencia las clases previas por el profesor, si aun requieren de asistencia.

CALCULADORA BÁSICA

REALIZA UNA APLICACIÓN DE ESCRITORIO, QUE SEA UNA CALCULADORA BÁSICA



Procedimiento:

```
from tkinter import *

ventana = Tk()
ventana.geometry('360x350')
ventana.config(bg = "white")
ventana.iconbitmap(bitmap = 'icono.ico')
ventana.title("Calculadora")
ventana.resizable(0,0)

#Hover
i = 0
class HoverButton(Button):
    def __init__(self, master, **kw):
        Button.__init__(self,master=master,**kw)
        self.defaultBackground = self["background"]
        self.bind("<Enter>", self.on_enter)
        self.bind("<Leave>", self.on_leave)

    def on_enter(self, e):
        self["background"] = self["activebackground"]

    def on_leave(self, e):
        self["background"] = self.defaultBackground

#Operaciones
i=0
def obtener(dato):
    global i
    i+=1
    Resultado.insert(i, dato)

def operacion():
    global i
    ecuacion = Resultado.get()
    if i !=0:
        try:
            result = str(eval(ecuacion))
            Resultado.delete(0,END)
            Resultado.insert(0,result)
            longitud = len(result)
            i = longitud
        except:
            result = 'ERROR'
            Resultado.delete(0,END)
            Resultado.insert(0,result)
```

```
    else:
        pass

def borrar_uno():
    global i

    if i==-1:
        pass
    else:
        Resultado.delete(i,last =None)
        i-=1

def borrar():
    Resultado.delete(0, END)
    i=0




#color
frame = Frame(ventana, bg= 'black', relief = 'raised')
frame.grid(column = 0,row = 0,padx = 6, pady = 3)

Resultado = Entry(frame,bg = '#9EF8E8',width = 27,relief = 'groove',font =
'montserrat 16', justif = 'right')
Resultado.grid(columnspan = 6, row = 0, pady = 3, padx = 1, ipadx = 1, ipady = 1)

#Botones

boton1 = HoverButton(frame,text="1",borderwidth = 2 , height = 2,width = 5 ,font
= ('Comic sens MC',12,'bold'),relief = "raised",activebackground = "aqua", bg =
'#999AB8', anchor= "center",command = lambda:  obtener(1))
boton2 = HoverButton(frame,text="2",borderwidth = 2 , height = 2,width = 5 ,font
= ('Comic sens MC',12,'bold'),relief = "raised",activebackground = "aqua", bg =
'#999AB8', anchor= "center",command = lambda:  obtener(2))
boton3 = HoverButton(frame,text="3",borderwidth = 2 , height = 2,width = 5 ,font
= ('Comic sens MC',12,'bold'),relief = "raised",activebackground = "aqua", bg =
'#999AB8', anchor= "center",command = lambda:  obtener(3))
boton4 = HoverButton(frame,text="4",borderwidth = 2 , height = 2,width = 5 ,font
= ('Comic sens MC',12,'bold'),relief = "raised",activebackground = "aqua", bg =
'#999AB8', anchor= "center",command = lambda:  obtener(4))
boton5 = HoverButton(frame,text="5",borderwidth = 2 , height = 2,width = 5 ,font
= ('Comic sens MC',12,'bold'),relief = "raised",activebackground = "aqua", bg =
'#999AB8', anchor= "center",command = lambda:  obtener(5))
```

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boton6 = HoverButton(frame,text="6",borderwidth = 2 , height = 2,width = 5 ,font
= ('Comic sens MC',12,'bold'),relief = "raised",activebackground = "aqua", bg =
'#999AB8', anchor= "center",command = lambda:  obtener(6))
boton7 = HoverButton(frame,text="7",borderwidth = 2 , height = 2,width = 5 ,font
= ('Comic sens MC',12,'bold'),relief = "raised",activebackground = "aqua", bg =
'#999AB8', anchor= "center",command = lambda:  obtener(7))
boton8 = HoverButton(frame,text="8",borderwidth = 2 , height = 2,width = 5 ,font
= ('Comic sens MC',12,'bold'),relief = "raised",activebackground = "aqua", bg =
'#999AB8', anchor= "center",command = lambda:  obtener(8))
boton9 = HoverButton(frame,text="9",borderwidth = 2 , height = 2,width = 5 ,font
= ('Comic sens MC',12,'bold'),relief = "raised",activebackground = "aqua", bg =
'#999AB8', anchor= "center",command = lambda:  obtener(9))
boton0 = HoverButton(frame,text="0",borderwidth = 2 , height = 2,width = 5 ,font
= ('Comic sens MC',12,'bold'),relief = "raised",activebackground = "aqua", bg =
'#999AB8', anchor= "center",command = lambda:  obtener(0))

boton_borrar = HoverButton(frame,text="AC",borderwidth = 2 , height = 2,width = 5
,font = ('Comic sens MC',12,'bold'),relief = "raised",activebackground = "aqua",
bg = '#2FEC71', anchor= "center",command = lambda: borrar())
boton_parentesis1 = HoverButton(frame,text="(",borderwidth = 2 , height = 2,width
= 5 ,font = ('Comic sens MC',12,'bold'),relief = "raised",activebackground =
"aqua", bg = 'blue', anchor= "center",command = lambda:  obtener("("))
boton_parentesis2 = HoverButton(frame,text=")",borderwidth = 2 , height = 2,width
= 5 ,font = ('Comic sens MC',12,'bold'),relief = "raised",activebackground =
"aqua", bg = 'blue', anchor= "center",command = lambda:  obtener(")"))
boton_punto = HoverButton(frame,text=".",borderwidth = 2 , height = 2,width = 5
,font = ('Comic sens MC',12,'bold'),relief = "raised",activebackground = "aqua",
bg = 'blue', anchor= "center",command = lambda: obtener("."))

boton_borrar_uno = HoverButton(frame,text="←",borderwidth = 2 , height = 2,width
= 5 ,font = ('Comic sens MC',12,'bold'),relief = "raised",activebackground =
"aqua", bg = '#2FEC71', anchor= "center",command = lambda: borrar_uno())
boton_exp = HoverButton(frame,text="exp",borderwidth = 2 , height = 2,width = 5
,font = ('Comic sens MC',12,'bold'),relief = "raised",activebackground = "aqua",
bg = 'blue', anchor= "center",command = lambda:   obtener("**"))
boton_potencia = HoverButton(frame,text="^2",borderwidth = 2 , height = 2,width =
5 ,font = ('Comic sens MC',12,'bold'),relief = "raised",activebackground =
"aqua", bg = 'blue', anchor= "center",command = lambda:  obtener("**2"))
boton_raiz = HoverButton(frame,text="√",borderwidth = 2 , height = 2,width = 5
,font = ('Comic sens MC',12,'bold'),relief = "raised",activebackground = "aqua",
bg = 'blue', anchor= "center",command = lambda:  obtener("**(1/2)"))

boton_div = HoverButton(frame,text="/",borderwidth = 2 , height = 2,width = 5
,font = ('Comic sens MC',12,'bold'),relief = "raised",activebackground = "aqua",
bg = 'red', anchor= "center",command = lambda: obtener('/'))
```

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boton_mult = HoverButton(frame,text="x",borderwidth = 2 , height = 2,width = 5
,font = ('Comic sens MC',12,'bold'),relief = "raised",activebackground = "aqua",
bg = 'red', anchor= "center",command = lambda: obtener('*'))
boton_suma = HoverButton(frame,text="+",borderwidth = 2 , height = 2,width = 5
,font = ('Comic sens MC',12,'bold'),relief = "raised",activebackground = "aqua",
bg = 'red', anchor= "center",command = lambda: obtener('+'))
boton_resta = HoverButton(frame,text="-",borderwidth = 2 , height = 2,width = 5
,font = ('Comic sens MC',12,'bold'),relief = "raised",activebackground = "aqua",
bg = 'red', anchor= "center",command = lambda:  obtener("-"))
boton_mod = HoverButton(frame,text="%",borderwidth = 2 , height = 2,width = 5
,font = ('Comic sens MC',12,'bold'),relief = "raised",activebackground = "aqua",
bg = 'red', anchor= "center",command = lambda:  obtener("%"))
boton_igual = HoverButton(frame, text= "=", height=2, width=5,font= ('Comic sens
MC',12,'bold'), borderwidth=2,  relief = "raised", activebackground="#16FD03",
bg='#2FEC71', anchor="center",command=lambda: operacion())

#Agregar botones en pantalla
boton_borrar_uno.grid(row=1,column = 0,padx = 5, pady = 5, sticky = W+E)
boton_borrar.grid(row=1 , column = 1 ,padx = 5, pady = 5,sticky=W+E)
boton_parentesis1.grid(row=1 , column = 2,padx = 5, pady = 5,sticky=W+E)
boton_parentesis2.grid(row=1 , column = 3,padx = 5, pady = 5,sticky=W+E)
boton_div.grid(row=1 , column = 4,padx = 5, pady = 5,sticky=W+E)

boton7.grid(row=2 , column = 0,padx = 5, pady = 5,sticky=W+E)
boton8.grid(row=2 , column = 1,padx = 5, pady = 5,sticky=W+E)
boton9.grid(row=2 , column = 2,padx = 5, pady = 5,sticky=W+E)
boton_mult.grid(row=2 , column = 3,padx = 5, pady = 5,sticky=W+E)
boton_exp.grid(row=2 , column = 4,padx = 5, pady = 5,sticky=W+E)

boton4.grid(row= 3, column = 0,padx = 5, pady = 5,sticky=W+E)
boton5.grid(row= 3, column = 1,padx = 5, pady = 5,sticky=W+E)
boton6.grid(row= 3, column = 2,padx = 5, pady = 5,sticky=W+E)
boton_suma.grid(row= 3, column = 3,padx = 5, pady = 5,sticky=W+E)
boton_potencia.grid(row= 3, column = 4,padx = 5, pady = 5,sticky=W+E)

boton1.grid(row= 4, column = 0,padx = 5, pady = 5,sticky=W+E)
boton2.grid(row= 4, column = 1,padx = 5, pady = 5,sticky=W+E)
boton3.grid(row= 4, column = 2,padx = 5, pady = 5,sticky=W+E)
boton_resta.grid(row= 4, column = 3,padx = 5, pady = 5,sticky=W+E)
boton_raiz.grid(row= 4, column = 4,padx = 5, pady = 5,sticky=W+E)

boton0.grid(row= 5, column = 0,columnspan = 2, padx = 5, pady = 5,sticky=W+E)
boton_punto.grid(row= 5, column = 2,padx = 5, pady = 5,sticky=W+E)
boton_igual.grid(row= 5, column = 4,padx = 5, pady = 5,sticky=W+E)
boton_mod.grid(row= 5, column = 3,padx = 5, pady = 5,sticky=W+E)
```

```
ventana.mainloop()
```