MEMBUAT PROGRAM KALKULATOR SEDERHANA MENGGUNAKAN GUI PYTHON

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TKINTER

Tkinter menyediakan cara cepat dan mudah yang berorientasikan objek yang kuat dalam membuat aplikasi berbasiskan GUI. Tkinter sebenarnya bentuk OOP dari TCL/TK.

TCL (Tool Command Languange) adalah sebuah bahasa pemrograman

TK adalah library yang digunakan oleh TCL untuk membuat aplikasi GUI

KOMPONEN TKINTER

Button

Komponen Button berfungsi untuk menampilkan sebuah tombol

Entry

Menampilkan kotak teks satu baris untuk menerima masukan dari pengguna

Scroll Bar

Menambahkan fungsi geser pada beberapa komponen, seperti listbox

Canvas

Menggambar bentuk seperti garis, lingkaran, poligon, dan kotak

Label

Memberikan keterangan untuk komponen lain. Komponen ini juga dapat diisi gambar

Menu Button

Menyediakan daftar pilihan untuk pengguna

DEF AND LAMBDA

Kata kunci "DEF" adalah kata kunci yang digunakan untuk mendefinisikan sebuah Fungsi.

Lambda dalam python lebih dikenal dengan nama Anonymous Function (Fungsi yang tidak disebutkan bukanlah sebuah perintah (statemen) namun lebih namanya).

Fungsi adalah kelompok kode yang dapat digunakan kembali di bagian program yang lain

KODE MEMBUAT KALKULATOR SEDERHANA

1. IMPORT TKINTER DAN MATH

```
from tkinter import*
import tkinter.font as font
import math
```

2.MEMBUAT TAMPILAN, JUDUL, DAN FONT

```
root = Tk()
root.title("SCIENTIFIC CALCULATOR")
root.config(bg="darkgrey")
root.geometry("430x445")

myfont  = font.Font(size=15)

e = Entry(root, width=25, borderwidth=5, fg="black", bg="black")
e["font"]= myfont
e["bg"] = "#d1d1d1"
e.grid(row = 0,columnspan=5,padx=10,pady=10)

root.mainloop()
```

3. MENCETAK ANGKA

```
def cetak(nilai):
    nilai1 = e.get()
    e.delete(0,END)
    e.insert(0, str(nilai1)+str(nilai))
```

4. ARITMATIKA (PENJUMLAHAN DAN PENGURANGAN

```
def tambah():
    nomor_awal = e.get()
    global n_awal
    global mtk
    mtk = "penjumlahan"
    n_awal = int(nomor_awal)
    e.delete(0,END)

def kurang():
    nomor_awal = e.get()
    global n_awal
    global mtk
    mtk = "pengurangan"
    n_awal = int(nomor_awal)
    e.delete(0,END)
```

5. ARITMATIKA (PEMBAGIAN DAN PERKALIAN)

```
def bagi():
    nomor_awal = e.get()
    global n_awal
    global mtk
    mtk = "pembagian"
    n_awal = int(nomor_awal)
    e.delete(0,END)

def kali():
    nomor_awal = e.get()
    global n_awal
    global mtk
    mtk = "perkalian"
    n_awal = int(nomor_awal)
    e.delete(0,END)
```

6. ARITMATIKA (SISABAGI, PANGKAT,AKAR)

```
def sisabagi():
    nomor_awal = e.get()
    global n_awal
    global mtk
    mtk = "sisabagi"
    n_awal = int(nomor_awal)
    e.delete(0,END)

def pangkat():
    nomor_awal = e.get()
    global n_awal
    n_awal = int(nomor_awal)
    e.delete(0,END)
    e.insert(0,n_awal **2)

def akar():
    nomor_awal = e.get()
    global n_awal
    n_awal = int(nomor_awal)
    e.delete(0,END)
    e.insert(0,math.sqrt(n_awal))
```

7. ARITMATIKA (DEGREES,SIN,COS,TAN)

```
def deg():
    nomor_awal = e.get()
    global n_awal
    n_awal = int(nomor_awal)
    e.delete(0,END)
    e.insert(0, math.degrees(n_awal))

def sin():
    nomor_awal = e.get()
    global n_awal
    n_awal = int(nomor_awal)
    radian = math.radians(n_awal)
    e.delete(0,END)
    e.insert(0, math.sin(radian))

def cos():
    nomor_awal = e.get()
    global n_awal
    n_awal = int(nomor_awal)
    radian = math.radians(n_awal)
    e.delete(0,END)
    e.insert(0, math.cos(radian))

def tan():
    nomor_awal = e.get()
    global n_awal
    n_awal = int(nomor_awal)
    radian = math.radians(n_awal)
    e.delete(0,END)
    e.insert(0, math.tan(radian))
```

8.ARITMATIKA (LOG10, LN, FACTORIAL, EKSPONENT)

```
def lg():
    nomor_awal = e.get()
    global n_awal
    n_awal = int(nomor_awal)
    e.delete(0,END)
    e.insert(0, math.log10(n_awal))

def ln():
    nomor_awal = e.get()
    global n_awal
    n_awal = int(nomor_awal)
    e.delete(0,END)
    e.insert(0, math.log(n_awal))

def fact():
    nomor_awal = e.get()
    global n_awal
    n_awal = int(nomor_awal)
    e.delete(0,END)
    e.insert(0, math.factorial(n_awal))

def eks():
    nomor_awal = e.get()
    global n_awal
    n_awal = int(nomor_awal)
    e.delete(0,END)
    if n_awal=="":
        e.insert(0, math.e(n_awal))
    else:
        e.insert(0, math.e**(n_awal))
```

9.DELETE,RESET, DAN HASIL

```
def hapus():
    nomor_awal = e.get()
    length = len(nomor_awal)-1
    e.delete(length,END)

def reset():
    e.delete(0,END)

def hasil():
    nomor_akhir = int(e.get())
    e.delete(0,END)
    if mtk == "penjumlahan":
        e.insert(0,n_awal + int(nomor_akhir))
    elif mtk == "pengurangan":
        e.insert(0,n_awal - int(nomor_akhir))
    elif mtk == "pembagian":
        try:
            hitung = n_awal / int(nomor_akhir)
            e.insert(0,hitung)
        except ZeroDivisionError:
            e.insert(0,"Math Error")

    elif mtk == "perkalian":
        e.insert(0,n_awal * int(nomor_akhir))
    elif mtk == "sisabagi":
        e.insert(0,n_awal % int(nomor_akhir))
```

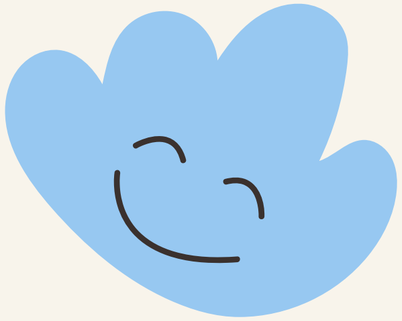
10. MEMBUAT TOMBOL (WARNA FONT & TOMBOL, UKURAN TOMBOL)

```
angka0  = Button(root,text="0",padx = 34,bg="#FFFFFF",fg="black", pady = 20,command=lambda:cetak(0))
angka1  = Button(root,text="1",padx = 34,bg="#FFFFFF",fg="black", pady = 20,command=lambda:cetak(1))
angka2  = Button(root,text="2",padx = 34,bg="#FFFFFF",fg="black", pady = 20,command=lambda:cetak(2))
angka3  = Button(root,text="3",padx = 34,bg="#FFFFFF",fg="black", pady = 20,command=lambda:cetak(3))
angka4  = Button(root,text="4",padx = 34,bg="#FFFFFF",fg="black", pady = 20,command=lambda:cetak(4))
angka5 = Button(root,text="5",padx = 34,bg="#FFFFFF",fg="black", pady = 20,command=lambda:cetak(5))
angka6  = Button(root,text="6",padx = 34,bg="#FFFFFF",fg="black", pady = 20,command=lambda:cetak(6))
angka7  = Button(root,text="7",padx = 34,bg="#FFFFFF",fg="black", pady = 20,command=lambda:cetak(7))
angka8 = Button(root,text="8",padx = 34,bg="#FFFFFF",fg="black", pady = 20,command=lambda:cetak(8))
angka9 = Button(root,text="9",padx = 34,bg="#FFFFFF",fg="black", pady = 20,command=lambda:cetak(9))
tambah = Button(root,text="+",padx = 31,bg="#878787",fg="white", pady = 20,command=tambah)
kurang = Button(root,text="-",padx = 33,bg="#878787",fg="white", pady = 20,command=kurang)
bagi  = Button(root,text="/",padx = 32,bg="#878787",fg="white", pady = 20,command=bagi)
kali = Button(root,text="x",padx = 32,bg="#878787",fg="white", pady = 20,command=kali)
pangkat = Button(root,text="^2",padx = 30,bg="#878787",fg="white", pady = 20,command=pangkat)
akar = Button(root,text="√",padx = 34,bg="#878787",fg="white", pady = 20,command=akar)
hapus = Button(root,text="DEL",padx = 70,bg="#878787",fg="red", pady = 20,command=hapus)
sisabagi = Button(root,text="%",padx = 32,bg="#878787",fg="white", pady = 20,command=sisabagi)
reset = Button(root,text="AC",padx = 33,bg="#878787",fg="red", pady = 20,command=reset)
hasil = Button(root,text="=",padx = 75,bg="orange",fg="black", pady = 20,command=hasil)
deg = Button(root,text="deg",padx = 30,bg="#878787",fg="white", pady = 20,command=deg)
sin = Button(root,text="sin",padx = 33,bg="#878787",fg="white", pady = 20,command=sin)
cos = Button(root,text="cos",padx = 32,bg="#878787",fg="white", pady = 20,command=cos)
tan = Button(root,text="tan",padx = 32,bg="#878787",fg="white", pady = 20,command=tan)
lg = Button(root,text="log",padx = 32,bg="#878787",fg="white", pady = 20,command=lg)
ln = Button(root,text="ln",padx = 32,bg="#878787",fg="white", pady = 20,command=ln)
fact = Button(root,text="x!",padx = 32,bg="#878787",fg="white", pady = 20,command=fact)
eks = Button(root,text="e",padx = 32,bg="#878787",fg="white", pady = 20,command=eks)
```

11. MEMBUAT PENEMPATAN TOMBOL

```
angka0.grid(row=5,column=2)
angka1.grid(row=4,column=1)
angka2.grid(row=4,column=2)
angka3.grid(row=4,column=3)
angka4.grid(row=3,column=1)
angka5.grid(row=3,column=2)
angka6.grid(row=3,column=3)
angka7.grid(row=2,column=1)
angka8.grid(row=2,column=2)
angka9.grid(row=2,column=3)
```

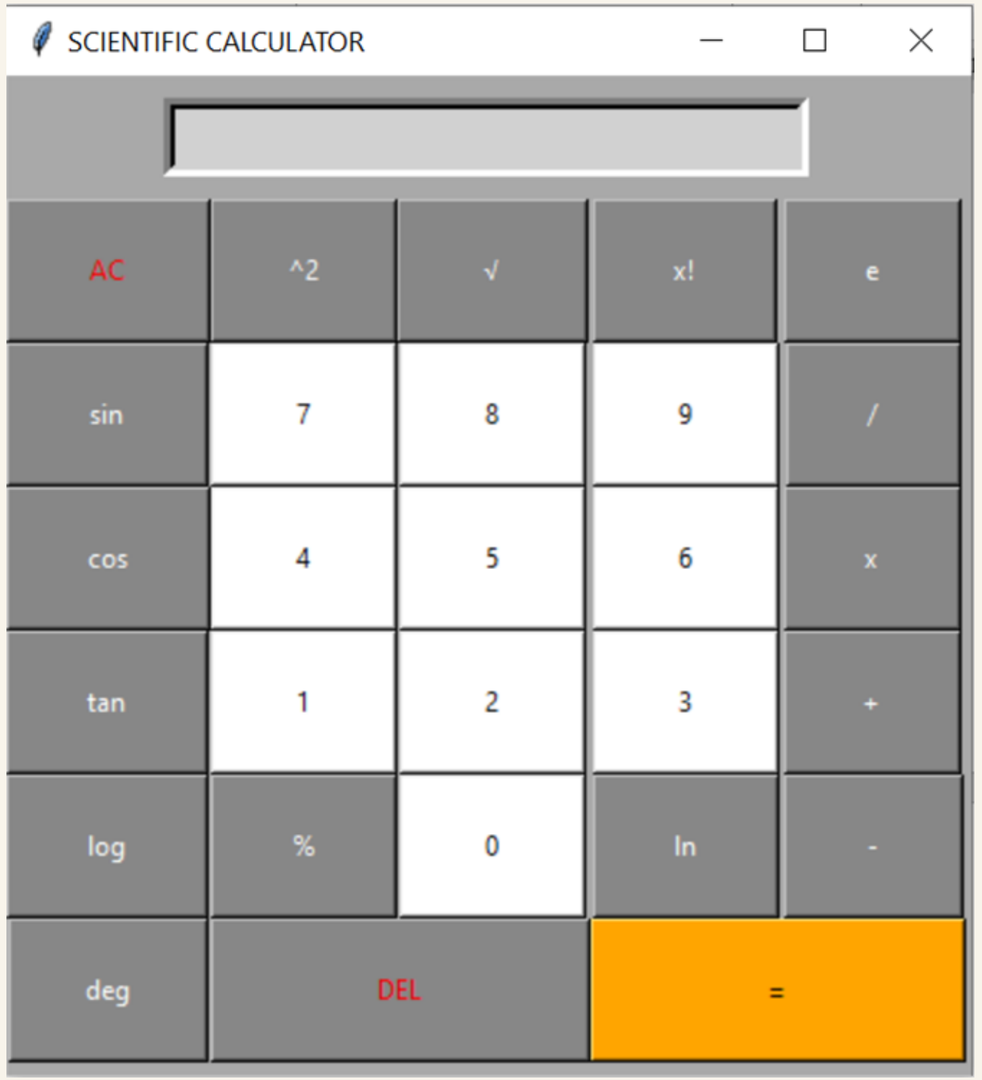
```
bagi.grid(row=2,column=4)
kali.grid(row=3,column=4)
tambah.grid(row=4,column=4)
kurang.grid(row=5,column=4)
reset.grid(row=1,column=0)
hasil.grid(row=6,column=3,columnspan=2)
pangkat.grid(row=1,column=1)
akar.grid(row=1,column=2)
sisabagi.grid(row=5,column=1)
hapus.grid(row=6,column=1,columnspan=2)
deg.grid(row=6,column=0)
sin.grid(row=2,column=0)
cos.grid(row=3,column=0)
tan.grid(row=4,column=0)
lg.grid(row=5,column=0)
ln.grid(row=5,column=3)
fact.grid(row=1,column=3)
eks.grid(row=1,column=4)
```



OUTPUT

More details

OUTPUT


SCIENTIFIC CALCULATOR
AC
^2
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DEL
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THANKS FOR YOUR ATTENTION