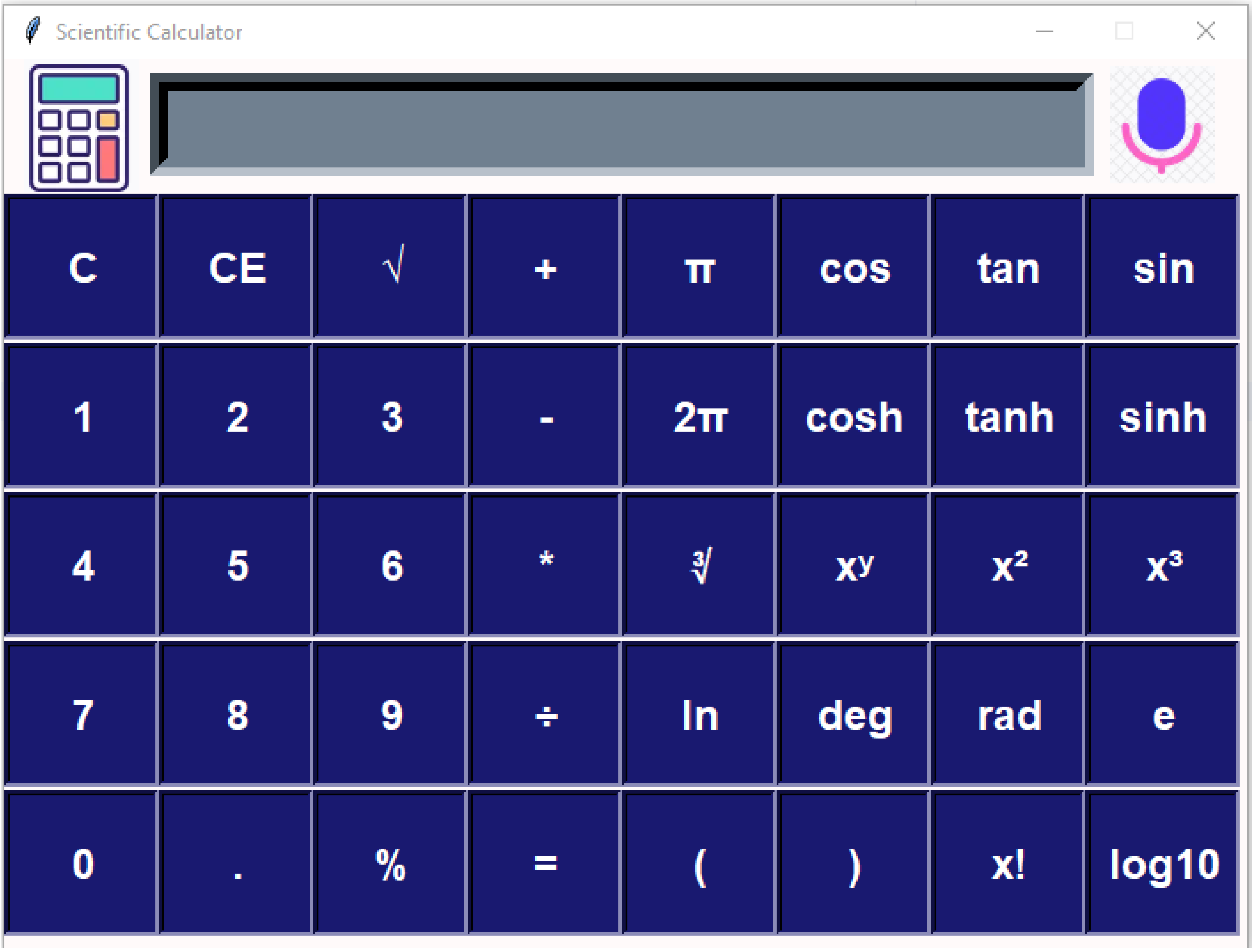
Scientific Calculator with Voice Command Integration



Calculator UI

CODE:

```
from tkinter import *
import math
from pygame import mixer
import speech_recognition

mixer.init()

def click(value):
    ex = entryField.get()  # 472 ex[0:len(ex)-1]
    answer=''

    try:

        if value == 'C':
            ex=ex[0:len(ex)-1]  # 47
            entryField.delete(0, END)
            entryField.insert(0, ex)
            return

        elif value == 'CE':
            entryField.delete(0, END)

        elif value == '√':
            answer = math.sqrt(eval(ex))

        elif value == 'π':
            answer = math.pi

        elif value == 'cos':
            answer = math.cos(math.radians(eval(ex)))

        elif value == 'tan':
            answer = math.tan(math.radians(eval(ex)))

        elif value == 'sin':
            answer = math.sin(math.radians(eval(ex)))

        elif value == '2π':
            answer = 2*math.pi

        elif value == 'cosh':
            answer = math.cosh(eval(ex))

        elif value == 'tanh':
            answer = math.tanh(eval(ex))

        elif value == 'sinh':
            answer = math.sinh(eval(ex))

        elif value == chr(8731):
            answer = eval(ex)**(1/3)

        elif value == 'x\u02b8': # 7**2
            entryField.insert(END,'**')
            return

        elif value == 'x\u00B2':
            answer = eval(ex) ** 2

        elif value == 'x\u00B3':
            answer = eval(ex) ** 3

        elif value == 'ln':
            answer = math.log2(eval(ex))

        elif value == 'deg':
            answer = math.degrees(eval(ex))

        elif value == 'rad':
            answer = math.radians(eval(ex))

        elif value == 'e':
            answer = math.e

        elif value == 'log10':
            answer = math.log10(eval(ex))

        elif value == 'x!':
            answer = math.factorial(eval(ex))

        elif value == chr(247): # 7/2=3.5
            entryField.insert(END,"/")
            return

        elif value == '=':
            answer = eval(ex)

        else:
            entryField.insert(END,value)
            return

        entryField.delete(0, END)
        entryField.insert(0, answer)

    except SyntaxError:
        pass

def add(a,b):
    return a+b

def sub(a,b):
    return a-b

def mul(a,b):
    return a*b

def div(a,b):
    return a/b

def mod(a,b):
    return a % b

def lcm(a,b):
    l=math.lcm(a,b)
    return l

def hcf(a,b):
    h=math.lcm(a,b)
    return h
```

```
operations= {'ADD':add,"ADDITION":add,'SUM':add,'Plus':add, 'SUBTRACTION':sub, 'DIFFERENCE':sub,'MINUS':sub,
        'SUBTRACT':sub, 'PRODUCT':mul,'MULTIPLICATION':mul,'MULTIPLY':mul, 'MULTIPLE':mul, 'INTOO':mul,
        'DIVISION':div,'DIV':div, 'DIVIDE': div, 'BY':div, 'LCM':lcm, 'LEAST COMMON MULTIPLE':lcm,'HCF':hcf,
        'GCD':hcf,'Highest Common Factor':hcf,'Greatest Common Divisor':hcf, 'MOD':mod, 'REMAINDER':mod,
        'MODULUS':mod}

def findNumbers(t):
   l=[]
   for num in t:
      try:
        l.append(int(num))
      except ValueError:
        pass
   return l

def audio( ):
   mixer.music.load('music1.mp3')
   mixer.music.play()
   sr = speech_recognition.Recognizer()
   with speech_recognition.Microphone()as m:
     try:
        sr.adjust_for_ambient_noise(m,duration=0.2)
        voice = sr.listen(m)
        text = sr.recognize_google(voice)

        mixer.music.load('music2.mp3')
        mixer.music.play()
        text_list=text.split(' ')
        for word in text_list:
           if word.upper() in operations.keys():
             l= findNumbers(text_list)
             print(l)
             result=operations[word.upper()](l[0],l[1]) # mul(3.0, 2.0)
             entryField.delete(0,END)
             entryField.insert(END, result)

           else:
              pass

     except:
        pass

root=Tk()
root.title('Scientific Calculator')
root.config(bg='snow')
root.geometry('700x502')
root.resizable(width=False, height=False,)

logoImage=PhotoImage(file='logoo.PNG')
logoLabel=Label(root,image=logoImage,bd=0)
logoLabel.grid(row=0,column=0,)

entryField=Entry(root,font=('arial',23, 'bold'),bg='slate gray',fg='white',bd=10,relief=SUNKEN, width=30)
entryField.grid(row=0,column=0,columnspan=8)

micImage=PhotoImage(file='mic.PNG')
micButton=Button(root,image=micImage,bd=0,bg='snow',command=audio)
micButton.grid(row=0,column=7)
```

```
button_text_list = ['C', 'CE','√','+','π','cos','tan','sin',
             '1', '2', '3', '-','2π','cosh','tanh','sinh',
             '4', '5', '6', '*', chr(8731),'x\u02b8','x\u00B2', 'x\u00B3',
             '7', '8', '9', '÷','ln','deg','rad','e',
              '0','.', '%', '=','(', ')', 'x!','log10']

rowvalue=1
columnvalue=0
for i in button_text_list:

  button=Button(root,width=5,height=2,bd=3,relief=SUNKEN,text=i,bg='midnight blue',fg='white',
          font=('arial',18,'bold'),activebackground='midnight blue',command=lambda button=i:click(button))
  button.grid(row=rowvalue,column=columnvalue,pady=1)
  columnvalue+=1
  if columnvalue>7:
    rowvalue+=1
    columnvalue=0

root.mainloop()
```

Thank you ☺