#-\*-coding: utf-8-\*-

from Tkinter import \*

import math

class calc:

def getandreplace(self):

"""replace x with \* and ÷ with /"""

self.expression = self.e.get()

self.newtext=self.expression.replace(self.newdiv,'/')

self.newtext=self.newtext.replace('x','\*')

def equals(self):

"""when the equal button is pressed"""

self.getandreplace()

try:

self.value= eval(self.newtext) #evaluate the expression using the eval function

except SyntaxError or NameErrror:

self.e.delete(0,END)

self.e.insert(0,'Invalid Input!')

else:

self.e.delete(0,END)

self.e.insert(0,self.value)

def squareroot(self):

"""squareroot method"""

self.getandreplace()

try:

self.value= eval(self.newtext) #evaluate the expression using the eval function

except SyntaxError or NameErrror:

self.e.delete(0,END)

self.e.insert(0,'Invalid Input!')

else:

self.sqrtval=math.sqrt(self.value)

self.e.delete(0,END)

self.e.insert(0,self.sqrtval)

def square(self):

"""square method"""

self.getandreplace()

try:

self.value= eval(self.newtext) #evaluate the expression using the eval function

except SyntaxError or NameErrror:

self.e.delete(0,END)

self.e.insert(0,'Invalid Input!')

else:

self.sqval=math.pow(self.value,2)

self.e.delete(0,END)

self.e.insert(0,self.sqval)

def clearall(self):

"""when clear button is pressed,clears the text input area"""

self.e.delete(0,END)

def clear1(self):

self.txt=self.e.get()[:-1]

self.e.delete(0,END)

self.e.insert(0,self.txt)

def action(self,argi):

"""pressed button's value is inserted into the end of the text area"""

self.e.insert(END,argi)

def \_\_init\_\_(self,master):

"""Constructor method"""

master.title('Calulator')

master.geometry()

self.e = Entry(master)

self.e.grid(row=0,column=0,columnspan=6,pady=3)

self.e.focus\_set() #Sets focus on the input text area

self.div='÷'

self.newdiv=self.div.decode('utf-8')

#Generating Buttons

Button(master,text="=",width=10,command=lambda:self.equals()).grid(row=4, column=4,columnspan=2)

Button(master,text='AC',width=3,command=lambda:self.clearall()).grid(row=1, column=4)

Button(master,text='C',width=3,command=lambda:self.clear1()).grid(row=1, column=5)

Button(master,text="+",width=3,command=lambda:self.action('+')).grid(row=4, column=3)

Button(master,text="x",width=3,command=lambda:self.action('x')).grid(row=2, column=3)

Button(master,text="-",width=3,command=lambda:self.action('-')).grid(row=3, column=3)

Button(master,text="÷",width=3,command=lambda:self.action(self.newdiv)).grid(row=1, column=3)

Button(master,text="%",width=3,command=lambda:self.action('%')).grid(row=4, column=2)

Button(master,text="7",width=3,command=lambda:self.action('7')).grid(row=1, column=0)

Button(master,text="8",width=3,command=lambda:self.action(8)).grid(row=1, column=1)

Button(master,text="9",width=3,command=lambda:self.action(9)).grid(row=1, column=2)

Button(master,text="4",width=3,command=lambda:self.action(4)).grid(row=2, column=0)

Button(master,text="5",width=3,command=lambda:self.action(5)).grid(row=2, column=1)

Button(master,text="6",width=3,command=lambda:self.action(6)).grid(row=2, column=2)

Button(master,text="1",width=3,command=lambda:self.action(1)).grid(row=3, column=0)

Button(master,text="2",width=3,command=lambda:self.action(2)).grid(row=3, column=1)

Button(master,text="3",width=3,command=lambda:self.action(3)).grid(row=3, column=2)

Button(master,text="0",width=3,command=lambda:self.action(0)).grid(row=4, column=0)

Button(master,text=".",width=3,command=lambda:self.action('.')).grid(row=4, column=1)

Button(master,text="(",width=3,command=lambda:self.action('(')).grid(row=2, column=4)

Button(master,text=")",width=3,command=lambda:self.action(')')).grid(row=2, column=5)

Button(master,text="√",width=3,command=lambda:self.squareroot()).grid(row=3, column=4)

Button(master,text="x²",width=3,command=lambda:self.square()).grid(row=3, column=5)

#Main

root = Tk()

obj=calc(root) #object instantiated

root.mainloop()