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from tkinter import *
from tkinter import messagebox

calculator = Tk()
calculator.title("CALCULATOR")
calculator.resizable(0, 1)#remove or change this in order to get different
screen sizes

class Application(Frame):
   def __init__(self, master, *args, **kwargs):
      Frame.__init__(self, master, *args, **kwargs)
      self.createWidgets()

   def replaceText(self, text):
      self.display.delete(0, END)
      self.display.insert(0, text)

   def appendToDisplay(self, text):
      self.entryText = self.display.get()
      self.textLength = len(self.entryText)

      if self.entryText == "0":
         self.replaceText(text)
      else:
         self.display.insert(self.textLength, text)

   def calculateExpression(self):#python's calculate function
      self.expression = self.display.get()
      self.expression = self.expression.replace("%", "/ 100")

      try:
         self.result = eval(self.expression)
         self.replaceText(self.result)
      except:
         messagebox.showinfo("ERROR", "Invalid input", icon="warning",
parent=calculator)

   def clearText(self):#clears imput on pressing C on Calculator
      self.replaceText("0")

   def createWidgets(self):
      self.display = Entry(self, font=("Helvetica", 16), borderwidth=0,
relief=RAISED, justify=RIGHT)
      self.display.insert(0, "0")
      self.display.grid(row=0, column=0, columnspan=5)

#This is the First Row
      self.sevenButton = Button(self, font=("Helvetica", 11), text="7",
borderwidth=0, command=lambda: self.appendToDisplay("7"))
      self.sevenButton.grid(row=1, column=0, sticky="NWNESWSE")

      self.eightButton = Button(self, font=("Helvetica", 11), text="8",
borderwidth=0, command=lambda: self.appendToDisplay("8"))
      self.eightButton.grid(row=1, column=1, sticky="NWNESWSE")

      self.nineButton = Button(self, font=("Helvetica", 11), text="9",
borderwidth=0, command=lambda: self.appendToDisplay("9"))
      self.nineButton.grid(row=1, column=2, sticky="NWNESWSE")

      self.timesButton = Button(self, font=("Helvetica", 11), text="*",
borderwidth=0, command=lambda: self.appendToDisplay("*"))
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        self.timesButton.grid(row=1, column=3, sticky="NWNESWSE")

        self.clearButton = Button(self, font=("Helvetica", 11), text="C",
borderwidth=0, command=lambda: self.clearText())
        self.clearButton.grid(row=1, column=4, sticky="NWNESWSE")

#This is the Second Row
        self.fourButton = Button(self, font=("Helvetica", 11), text="4",
borderwidth=0, command=lambda: self.appendToDisplay("4"))
        self.fourButton.grid(row=2, column=0, sticky="NWNESWSE")

        self.fiveButton = Button(self, font=("Helvetica", 11), text="5",
borderwidth=0, command=lambda: self.appendToDisplay("5"))
        self.fiveButton.grid(row=2, column=1, sticky="NWNESWSE")

        self.sixButton = Button(self, font=("Helvetica", 11), text="6",
borderwidth=0, command=lambda: self.appendToDisplay("6"))
        self.sixButton.grid(row=2, column=2, sticky="NWNESWSE")

        self.divideButton = Button(self, font=("Helvetica", 11), text="/",
borderwidth=0, command=lambda: self.appendToDisplay("/"))
        self.divideButton.grid(row=2, column=3, sticky="NWNESWSE")

        self.percentageButton = Button(self, font=("Helvetica", 11),
text="%", borderwidth=0, command=lambda: self.appendToDisplay("%"))
        self.percentageButton.grid(row=2, column=4, sticky="NWNESWSE")

#This is the Third Row
        self.oneButton = Button(self, font=("Helvetica", 11), text="1",
borderwidth=0, command=lambda: self.appendToDisplay("1"))
        self.oneButton.grid(row=3, column=0, sticky="NWNESWSE")

        self.twoButton = Button(self, font=("Helvetica", 11), text="2",
borderwidth=0, command=lambda: self.appendToDisplay("2"))
        self.twoButton.grid(row=3, column=1, sticky="NWNESWSE")

        self.threeButton = Button(self, font=("Helvetica", 11), text="3",
borderwidth=0, command=lambda: self.appendToDisplay("3"))
        self.threeButton.grid(row=3, column=2, sticky="NWNESWSE")

        self.minusButton = Button(self, font=("Helvetica", 11), text="-",
borderwidth=0, command=lambda: self.appendToDisplay("-"))
        self.minusButton.grid(row=3, column=3, sticky="NWNESWSE")

        self.equalsButton = Button(self, font=("Helvetica", 11), text="=",
borderwidth=0, command=lambda: self.calculateExpression())
        self.equalsButton.grid(row=3, column=4, sticky="NWNESWSE", rowspan=2)

#This is the Fourth Row
        self.zeroButton = Button(self, font=("Helvetica", 11), text="0",
borderwidth=0, command=lambda: self.appendToDisplay("0"))
        self.zeroButton.grid(row=4, column=0, columnspan=2,
sticky="NWNESWSE")

        self.dotButton = Button(self, font=("Helvetica", 11), text=".",
borderwidth=0, command=lambda: self.appendToDisplay("."))
        self.dotButton.grid(row=4, column=2, sticky="NWNESWSE")

        self.plusButton = Button(self, font=("Helvetica", 11), text="+",
borderwidth=0, command=lambda: self.appendToDisplay("+"))
        self.plusButton.grid(row=4, column=3, sticky="NWNESWSE")
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app = Application(calculator).grid()
calculator.mainloop()
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