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2 #Importing GUI library
3 from tkinter import *
4 #Creating main window
5 entry = Tk()
6 #Globalizing Variable
7 global name
8 #Establishing Variables
9 name = StringVar()
10 #Creating name box and placing it
11 entry_box = Entry(entry, textvariable=name, width=25)
12 entry_box.grid(column=0, row=1, columnspan=2)
13 #Setting title of main window
14 entry.title("Welcome")
15 #Creating label and placing it
16 nameLabel = Label(entry, text="Name")
17 nameLabel.grid(column=0, row=0, columnspan=2)
18 #Creating and placing and spacer box
19 spacer = Frame(entry, height=5)
20 spacer.grid(column=0, row=2, columnspan=2)
21 #Calculator function
22 def calc():
23     #Setting up calculator window
24     root = Tk()
25     #Conditional statement to determine what the title of the window should be
26     #If the user didn't input any name
27     if str(name.get()) == "":
28         root.title("Calculator")
29     #If the user inputted a name
30     elif str(name.get()) != "":
31         root.title(str(name.get()) + "'s Calculator")
32     #Globalizing and establishing variables
33     global problem
34     problem = ""
35     global answer
36     answer = 0
37     global decima1
38     decima1 = False
39     global unit1
40     unit1 = ""
41     global amount
42     amount = 0
43     global unit2
44     unit2 = ""
45     #Fucntion for converter
46     def convert():
47         #Setting up convert window
48         convert = Tk()
49         #Function for distance button
50         def distance():
51             #Setting up distance window
52             distance = Tk()
53             #Functions for each distance converter window button

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54     def mm1():
55         global unit1
56         unit1 = "mm"
57     def cm1():
58         global unit1
59         unit1 = "cm"
60     def m1():
61         global unit1
62         unit1 = "m"
63     def km1():
64         global unit1
65         unit1 = "km"
66     global unit2
67     def mm2():
68         global unit2
69         unit2 = "mm"
70     def cm2():
71         global unit2
72         unit2 = "cm"
73     def m2():
74         global unit2
75         unit2 = "m"
76     def km2():
77         global unit2
78         unit2 = "km"
79     def solve():
80         global unit1
81         global unit2
82         global amount
83         global answer
84         SI = {'mm':0.001, 'cm':0.01, 'm':1.0, 'km':1000.}
85         firstUnit = SI[unit1]
86         secondUnit = SI[unit2]
87         print(amount)
88         print(firstUnit)
89         print(secondUnit)
90         answer = float(entry.get())*firstUnit/secondUnit
91         displayLabel.config(text=answer)
92     global amount
93     #defining different buttons for the convertor
94     mm1Button = Button(distance, text="MM", command=mm1, width=10)
95     cm1Button = Button(distance, text="CM", command=cm1, width=10)
96     m1Button = Button(distance, text="M", command=m1, width=10)
97     km1Button = Button(distance, text="KM", command=km1, width=10)
98     mm2Button = Button(distance, text="MM", command=mm2, width=10)
99     cm2Button = Button(distance, text="CM", command=cm2, width=10)
100    m2Button = Button(distance, text="M", command=m2, width=10)
101    km2Button = Button(distance, text="KM", command=km2, width=10)
102    entry = Entry(distance, width=10)
103    #placing different the buttons for the convertor in the window
104    solveButton = Button(distance, text="Solve", command=solve, width=10)

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104         solveButton = Button(distance, text="Solve", command=solve, width=10)
105         displayLabel = Label(distance, text="")
106         mm1Button.grid(column=0, row=0)
107         cm1Button.grid(column=1, row=0)
108         m1Button.grid(column=0, row=1)
109         km1Button.grid(column=1, row=1)
110         entry.grid(column=0, row=2, columnspan=2)
111         mm2Button.grid(column=0, row=3)
112         cm2Button.grid(column=1, row=3)
113         m2Button.grid(column=0, row=4)
114         km2Button.grid(column=1, row=4)
115         solveButton.grid(column=0, row=5, columnspan=2)
116         displayLabel.grid(column=0, row=6, columnspan=2)
117         distance.mainloop()
118         distanceButton = Button(convert, text="Distance", command=distance, height=5, width=10)
119         distanceButton.pack()
120         convert.mainloop()
121         #giving the function of the buttons for the calculator
122         def one():
123             global problem
124             problem += "1"
125             label1.config(text=problem)
126         def two():
127             global problem
128             problem += "2"
129             label1.config(text=problem)
130         def three():
131             global problem
132             problem += "3"
133             label1.config(text=problem)
134         def four():
135             global problem
136             problem += "4"
137             label1.config(text=problem)
138         def five():
139             global problem
140             problem += "5"
141             label1.config(text=problem)
142         def six():
143             global problem
144             problem += "6"
145             label1.config(text=problem)
146         def seven():
147             global problem
148             problem += "7"
149             label1.config(text=problem)
150         def eight():
151             global problem
152             problem += "8"
153             label1.config(text=problem)
154         def nine():
155             global problem

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157     label1.config(text=problem)
158     def zero():
159         global problem
160         problem += "0"
161         label1.config(text=problem)
162     def clear():
163         global problem
164         global decima1
165         problem = ""
166         label1.config(text=problem)
167         decima1 = False
168     def divide():
169         global problem
170         problem += " / "
171         label1.config(text=problem)
172     def multiply():
173         global problem
174         problem += " * "
175         label1.config(text=problem)
176     def subtract():
177         global problem
178         problem += " - "
179         label1.config(text=problem)
180     def add():
181         global problem
182         problem += " + "
183         label1.config(text=problem)
184     def decimal():
185         global problem
186         global decima1
187         decima1 = True
188         problem += "."
189         label1.config(text=problem)
190     def equals():
191         global problem
192         global answer
193         #Determining whether or not the user already inputted a decimal
194         #If the user inputted a decimal
195         if decima1 == True:
196             answer = eval(problem)
197             label1.config(text=answer)
198             problem = str(answer)
199         #If the user didn't input a decimal
200         elif decima1 == False:
201             problem = problem + "."
202             answer = eval(problem)
203             label1.config(text=answer)
204             problem = str(answer)
205         #defining the buttons for the calculator in the window
206         oneButton = Button(root, text="1", command=one, height=5, width=10)
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207 twoButton = Button(root, text="2", command=two, height=5, width=10)
208 threeButton = Button(root, text="3", command=three, height=5, width=10)
209 fourButton = Button(root, text="4", command=four, height=5, width=10)
210 fiveButton = Button(root, text="5", command=five, height=5, width=10)
211 sixButton = Button(root, text="6", command=six, height=5, width=10)
212 sevenButton = Button(root, text="7", command=seven, height=5, width=10)
213 eightButton = Button(root, text="8", command=eight, height=5, width=10)
214 nineButton = Button(root, text="9", command=nine, height=5, width=10)
215 zeroButton = Button(root, text="0", command=zero, height=5, width=10)
216 clearButton = Button(root, text="C", fg="red", command=clear, height=5, width=22)
217 divideButton = Button(root, text="/", command=divide, height=5, width=10)
218 multiplyButton = Button(root, text="X", command=mulitply, height=5, width=10)
219 subtractButton = Button(root, text="-", command=subtract, height=5, width=10)
220 addButton = Button(root, text="+", command=add, height=5, width=10)
221 equalsButton = Button(root, text="=", command>equals, height=5, width=22)
222 decimalButton = Button(root, text=".", command=decimal, height=5, width=10)
223 converterButton = Button(root, text="Converter")
224 label1 = Label(root, text="", height=5)
225 #establishing the buttons for the calculator in the window
226 convertButton.grid(column=0, row=5)
227 oneButton.grid(column=0, row=4)
228 twoButton.grid(column=1, row=4)
229 threeButton.grid(column=2, row=4)
230 fourButton.grid(column=0, row=3)
231 fiveButton.grid(column=1, row=3)
232 sixButton.grid(column=2, row=3)
233 sevenButton.grid(column=0, row=2)
234 eightButton.grid(column=1, row=2)
235 nineButton.grid(column=2, row=2)
236 zeroButton.grid(column=1, row=5)
237 clearButton.grid(column=0, row=1, columnspan=2)
238 divideButton.grid(column=3, row=1)
239 multiplyButton.grid(column=3, row=2)
240 subtractButton.grid(column=3, row=3)
241 addButton.grid(column=3, row=4)
242 decimalButton.grid(column=2, row=1)
243 equalsButton.grid(column=2, columnspan=2, row=5)
244 label1.grid(row=0, column=0, columnspan=4)
245 root.mainloop()
246 #Function for convert button on calculator
247 #See the function defined above for comments
248 def convert():
249     convert = Tk()
250     def distance():
251         distance = Tk()
252         def mm1():
253             global unit1
254             unit1 = "mm"
255         def cm1():
256             global unit1
257             unit1 = "cm"
258         def m1():

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259         global unit1
260         unit1 = "m"
261     def km1():
262         global unit1
263         unit1 = "km"
264     global unit2
265     def mm2():
266         global unit2
267         unit2 = "mm"
268     def cm2():
269         global unit2
270         unit2 = "cm"
271     def m2():
272         global unit2
273         unit2 = "m"
274     def km2():
275         global unit2
276         unit2 = "km"
277     def solve():
278         global unit1
279         global unit2
280         global amount
281         global answer
282         SI = {'mm':0.001, 'cm':0.01, 'm':1.0, 'km':1000.}
283         firstUnit = SI[unit1]
284         secondUnit = SI[unit2]
285         print(amount)
286         print(firstUnit)
287         print(secondUnit)
288         answer = float(entry.get())*firstUnit/secondUnit
289         displayLabel.config(text=answer)
290     global amount
291     mm1Button = Button(distance, text="MM", command=mm1, width=10)
292     cm1Button = Button(distance, text="CM", command=cm1, width=10)
293     m1Button = Button(distance, text="M", command=m1, width=10)
294     km1Button = Button(distance, text="KM", command=km1, width=10)
295     mm2Button = Button(distance, text="MM", command=mm2, width=10)
296     cm2Button = Button(distance, text="CM", command=cm2, width=10)
297     m2Button = Button(distance, text="M", command=m2, width=10)
298     km2Button = Button(distance, text="KM", command=km2, width=10)
299     entry = Entry(distance, width=10)
300     solveButton = Button(distance, text="Solve", command=solve, width=10)
301     displayLabel = Label(distance, text="")
302     mm1Button.grid(column=0, row=0)
303     cm1Button.grid(column=1, row=0)
304     m1Button.grid(column=0, row=1)
305     km1Button.grid(column=1, row=1)
306     entry.grid(column=0, row=2, columnspan=2)
307     mm2Button.grid(column=0, row=3)
308     cm2Button.grid(column=1, row=3)
309     m2Button.grid(column=0, row=4)
310     km2Button.grid(column=1, row=4)
311     solveButton.grid(column=0, row=5, columnspan=2)
312     displayLabel.grid(column=0, row=6, columnspan=2)

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312         displayLabel.grid(column=0, row=6, columnspan=2)
313         distance.mainloop()
314         distanceButton = Button(convert, text="Distance", command=distance, height=5, width=10)
315         distanceButton.pack()
316         convert.mainloop()
317 #Defining and placing buttons in main window
318 convertButton = Button(entry, text="Convertor", command=convert, height=5, width=10)
319 convertButton.grid(column=1, row=3)
320 calcButton = Button(entry, text="Calculator", command=calc, height=5, width=10)
321 calcButton.grid(column=0, row=3)
322 entry.mainloop()
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