

```

1  #Metric Helper
2  import tkinter
3  from tkinter import ttk, END
4
5  #Define window
6  root = tkinter.Tk()
7  root.title('Metric Helper')
8  root.iconbitmap('ruler.ico')
9  root.resizable(0,0)
10
11 #Define fonts and colors
12 field_font = ('Cambria', 10)
13 bg_color = "#c75c5c"
14 button_color = "#f5cf87"
15 root.config(bg=bg_color)
16
17 #Define functions
18 def convert():
19     """Convert from one metric prefix to another"""
20     metric_values = {
21         'femto':10**-15,
22         'pico':10**-12,
23         'nano':10**-9,
24         'micro':10**-6,
25         'milli':10**-3,
26         'centi':10**-2,
27         'deci':10**-1,
28         'base value':10**0,
29         'deca':10**1,
30         'hecto':10**2,
31         'kilo':10**3,
32         'mega':10**6,
33         'giga':10**9,
34         'tera':10**12,
35         'peta':10**15
36     }
37
38     #Clear the output field
39     output_field.delete(0, END)
40
41     #Get all user information
42     start_value = float(input_field.get())
43     start_prefix = input_combobox.get()
44     end_prefix = output_combobox.get()
45
46     #Covert to the base unit first
47     base_value = start_value*metric_values[start_prefix]
48     #Covert to new metric value
49     end_value = base_value/metric_values[end_prefix]
50
51     #Update output field with answer
52     output_field.insert(0, str(end_value))
53
54
55 #Define layout
56 #Create the input and output entry fields
57 input_field = tkinter.Entry(root, width=20, font=field_font, borderwidth=3)
58 output_field = tkinter.Entry(root, width=20, font=field_font, borderwidth=3)
59 equal_label = tkinter.Label(root, text="=", font=field_font, bg=bg_color)
60
61 input_field.grid(row=0, column=0, padx=10, pady=10)
62 equal_label.grid(row=0, column=1, padx=10, pady=10)
63 output_field.grid(row=0, column=2, padx=10, pady=10)
64
65 input_field.insert(0, 'Enter your quantity')
66
67 #Create combobox for metric values

```

```
68 metric_list = ['femto', 'pico', 'nano', 'micro', 'milli', 'centi', 'deci', 'base  
value', 'deca', 'hecto', 'kilo', 'mega', 'giga', 'tera', 'peta']  
69 input_combobox = ttk.Combobox(root, value=metric_list, font=field_font, justify='center')  
70 output_combobox = ttk.Combobox(root, value=metric_list, font=field_font,  
justify='center')  
71 to_label = tkinter.Label(root, text="to", font=field_font, bg=bg_color)  
72  
73 input_combobox.grid(row=1, column=0, padx=10, pady=10)  
74 to_label.grid(row=1, column=1, padx=10, pady=10)  
75 output_combobox.grid(row=1, column=2, padx=10, pady=10)  
76  
77 input_combobox.set('base value')  
78 output_combobox.set('base value')  
79  
80 #Create a conversion button  
81 convert_button = tkinter.Button(root, text='Convert', font=field_font, bg=button_color,  
command=convert)  
82 convert_button.grid(row=2, column=0, columnspan=3, padx=10, pady=10, ipadx=50)  
83  
84 #Run the root window's main loop  
85 root.mainloop()
```