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1 import tkinter as tk
2 from tkinter import ttk
3 import string
4 import random
5
6 # Initialize the main application window
7 root = tk.Tk()
8 root.title("Password Generator") # Set the title of the window
9 root.geometry('600x400') # Set the window size
10 root.configure(bg="SkyBlue1") # Set the background color of the window
11 large_font = ("Arial", 11) # Define a common font for labels
12
13 # Create a frame for the input section
14 input_frame = tk.Frame(root, bg="cyan2", width=580, height=100, relief="solid", bd=1)
15 input_frame.place(x=10, y=10)
16
17 # Create a frame for the checkboxes section
18 checkbox_frame = tk.Frame(root, bg="cyan3", width=580, height=100, relief="solid", bd=1)
19 checkbox_frame.place(x=10, y=130)
20
21 # Create a frame for the output section
22 output_frame = tk.Frame(root, bg="CadetBlue3", width=580, height=120, relief="solid", bd=1)
23 output_frame.place(x=10, y=250)
24
25 # Input length label
26 length_label = ttk.Label(input_frame, text="Enter the length of password:", font=large_font, background="grey61")
27 length_label.place(x=80, y=30)
28
29 # Dropdown for selecting password length
30 password_length = ttk.Entry(input_frame, justify="center", width=30, background="white")
31 password_length.place(x=300, y=30)
32
33 # Warning label for invalid selections
34 warning_label = ttk.Label(input_frame, text="", font=("Arial", 11), foreground="red4", background="cyan2")
35 warning_label.place(x=300, y=60)
36
37 # Function to display a warning when no length is selected
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38 def on_combo_select(event):
39     if not password_length.get(): # Check if no value is selected
40         warning_label.config(text="Please select the length of password characters.")
41     else:
42         warning_label.config(text="") # Clear the warning when valid
43
44 # Bind the Combobox selection event to the function
45 password_length.bind("<<ComboboxSelected>>", on_combo_select)
46
47 # Checkboxes for selecting character types
48 includes = ttk.Label(checkbox_frame, text='Include:', font=large_font, background= "grey61")
49 includes.place(x=20, y=10)
50
51 # Variables to track checkbox states
52 var1 = tk.IntVar() # Upper-case letters
53 var2 = tk.IntVar() # Lower-case letters
54 var3 = tk.IntVar() # Numeric digits
55 var4 = tk.IntVar() # Symbols
56
57 # Add checkboxes for each character type
58 checkbox1 = ttk.Checkbutton(checkbox_frame, text='Upper-case letters', variable=var1, command= lambda: calculate_complexity())
59 checkbox1.place(x=100, y=10)
60 checkbox2 = ttk.Checkbutton(checkbox_frame, text='Lower-case letters', variable=var2, command= lambda: calculate_complexity())
61 checkbox2.place(x=250, y=10)
62 checkbox3 = ttk.Checkbutton(checkbox_frame, text='Numeric digits', variable=var3, command= lambda: calculate_complexity())
63 checkbox3.place(x=100, y=40)
64 checkbox4 = ttk.Checkbutton(checkbox_frame, text='Symbols', variable=var4, command= lambda: calculate_complexity())
65 checkbox4.place(x=250, y=40)
66
67 # Output frame labels and password display entry
68 generated_password_label = tk.Label(output_frame, text="Generated Password:", background= "grey61", font=("Arial", 11))
69 generated_password_label.place(x=20, y=20)
70
71 # Entry box to display the generated password
72 password_entry = tk.Entry(output_frame, width=40, font=("Arial", 12), justify="center", relief="solid")
73 password_entry.place(x=180, y=20)
74
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75 # Add a label for displaying password complexity
76 complexity_label = ttk.Label(checkbox_frame, text="", font=("Arial", 12), background="white")
77 complexity_label.place(x=100, y=70)
78
79 # Function to calculate and display password complexity
80 def calculate_complexity():
81     selected_count = sum([var1.get(), var2.get(), var3.get(), var4.get()]) # Count selected options
82     if selected_count == 1:
83         complexity_label.config(text="Complexity: Very Weak", foreground="red", background= "white")
84     elif selected_count == 2:
85         complexity_label.config(text="Complexity: Weak", foreground="orange", background= "white")
86     elif selected_count == 3:
87         complexity_label.config(text="Complexity: Strong", foreground="blue", background= "white")
88     elif selected_count == 4:
89         complexity_label.config(text="Complexity: Very Strong", foreground="green", background= "white")
90     else:
91         complexity_label.config(text="Complexity: Select at least one option", foreground="gray21", background= "white")
92
93 # Label to display a warning when no character types are selected
94 not_selected_options = ttk.Label(checkbox_frame, text='', background="white", foreground="gray21")
95 not_selected_options.place(x=100, y=70)
96
97 # Function to generate the password
98 def final_generation():
99     if not password_length.get(): # Check if password length is not selected
100         warning_label.config(text="Please select the password length first.")
101         return
102
103     getting_length = int(password_length.get()) # Get the selected length
104     selected_characters = ""
105
106     # Add characters based on selected options
107     if var1.get():
108         selected_characters += string.ascii_uppercase
109     if var2.get():
110         selected_characters += string.ascii_lowercase
111     if var3.get():

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112     selected_characters += string.digits
113     if var4.get():
114         selected_characters += string.punctuation
115
116     # Generate password if at least one option is selected
117     if selected_characters:
118         result = random.choices(selected_characters, k=getting_length) # Randomly select characters
119         password_entry.delete(0, tk.END) # Clear the entry box
120         password_entry.insert(0, "".join(result)) # Insert the generated password
121     else:
122         complexity_label.config(text="Select at least one character type.", font=("Arial", 11))
123         password_entry.delete(0, tk.END)
124
125     # Button to generate the password
126     final_button = ttk.Button(checkbox_frame, text='GENERATE!', command=final_generation)
127     final_button.place(x=460, y=30)
128
129     # Function to copy password to clipboard
130     def copy_to_clipboard():
131         root.clipboard_clear() # Clear the clipboard
132         root.clipboard_append(password_entry.get()) # Append the password to the clipboard
133         root.update() # Update the clipboard
134
135     # Button to copy the generated password
136     copy_button = ttk.Button(output_frame, text="Copy Password", command=copy_to_clipboard)
137     copy_button.place(x=450, y=70)
138
139     # Run the application
140     root.mainloop()
```

Output:

— □ ×

✎ Password Generator

Enter the length of password:

Include:

☐ Upper-case letters

☐ Lower-case letters

☐ Numeric digits

☐ Symbols

GENERATE!

Generated Password:

Copy Password