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1 import tkinter as tk
2 from tkinter import messagebox, ttk
3
4 # Create the main window for the application
5 root = tk.Tk()
6 root.title("Contact Book") # Title of the window
7 root.state("zoomed") # Set window to maximize by default
8
9 # Fonts and styles
10 large_font = ("Arial", 11) # Font style used throughout the UI
11
12 # Frames for different sections of the contact book (Save, Delete, Update)
13 add_frame = tk.Frame(root, background="gray64", width=400, height=320, borderwidth=1, relief="solid")
14 add_frame.place(x=30, y=310) # Position the "Add Contact" section
15 save_contact_label = ttk.Label(add_frame, text="SAVE CONTACT", font=("Arial", 13, "bold"))
16 save_contact_label.place(x=130, y=20) # Title for the Save Contact section
17
18 delete_frame = tk.Frame(root, background="gray74", width=400, height=320, borderwidth=1, relief="solid")
19 delete_frame.place(x=440, y=310) # Position the "Delete Contact" section
20 delete_contact_label = ttk.Label(delete_frame, text="DELETE CONTACT", font=("Arial", 13, "bold"))
21 delete_contact_label.place(x=130, y=20) # Title for the Delete Contact section
22 sub_heading = ttk.Label(delete_frame, text="Using either the Name or the Phone Number.", font=("Arial", 9, "italic"))
23 sub_heading.place(x=80, y=50) # Sub-heading for clarification
24
25 update_frame = tk.Frame(root, background="gray84", width=400, height=320, borderwidth=1, relief="solid")
26 update_frame.place(x=850, y=310) # Position the "Update Contact" section
27 update_contact_label = ttk.Label(update_frame, text="UPDATE CONTACT", font=("Arial", 13, "bold"))
28 update_contact_label.place(x=130, y=20) # Title for the Update Contact section
29 upd_sub_heading = ttk.Label(update_frame, text="Search and Update contact details.", font=("Arial", 9, "italic"))
30 upd_sub_heading.place(x=110, y=50) # Sub-heading for clarification
31
32 # Listbox to display the saved contacts
33 display_saved_contact = tk.Listbox(root, height=15, width=100, bg="white smoke", borderwidth=1, relief="solid", selectmode=tk.SINGLE)
34 display_saved_contact.pack()
35 display_saved_contact.insert(0, "    Name    |    Phone Number    |    Email ID    |    Address    ") # Header in the Listbox
36
37 # Search Contact Section

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38 search_label = ttk.Label(root, text="Search Contact here:", font=("Arial, 11"), background="light gray")
39 search_label.place(x=350, y=255) # Label for search box
40 search_contact_entry = ttk.Entry(root, background="dim gray", width=50)
41 search_contact_entry.place(x=500, y=255) # Input field for search criteria
42
43 # Function to handle searching for contacts
44 def search_contact():
45     query = search_contact_entry.get().strip().lower() # Get input query and convert to lowercase
46     if not query: # If query is empty
47         messagebox.showinfo("Invalid Input", "Please enter a name or phone number to search.")
48         return
49
50     # Search through the saved contacts
51     found = False
52     for idx, entry in enumerate(display_saved_contact.get(1, tk.END), start=1): # Skip header (idx starts from 1)
53         if query in entry.lower(): # Search in lowercase for case-insensitive match
54             display_saved_contact.selection_clear(0, tk.END) # Clear previous selection
55             display_saved_contact.selection_set(idx) # Select the found contact
56             display_saved_contact.see(idx) # Scroll to the selected contact
57             found = True
58             break
59
60     if not found: # If no match was found
61         messagebox.showinfo("Not Found", "No contact found matching the search criteria.")
62
63 # Button to trigger search action
64 search_button = ttk.Button(root, text="Search!", width=20, command=search_contact)
65 search_button.place(x=820, y=255)
66
67 # Initialize an empty list to store contacts
68 contacts = []
69
70 # Save Contact Section
71 def new_contact_insertion():
72     new_name = contact_name_entry.get().strip()
73     new_phone = phone_number_entry.get().strip()
74     new_email = email_id_entry.get().strip()

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75     new_address = address_entry.get().strip()
76
77     # Validation checks
78     if not new_name or not new_phone: # Check if name and phone number are provided
79         messagebox.showerror("Missing Information", "Name and Phone Number are required.")
80         return
81
82     if not new_phone.isdigit(): # Ensure phone number contains digits only
83         messagebox.showerror("Invalid Input", "Phone Number should contain digits only.")
84         return
85
86     # Check if the contact already exists based on phone number
87     for contact in contacts:
88         if new_phone == contact[1]: # Duplicate phone number
89             messagebox.showinfo("Duplicate Contact", "Contact already exists. Use Update to modify it.")
90             return
91
92     # Add new contact to the contacts list
93     contacts.append([new_name, new_phone, new_email, new_address])
94     refresh_display_contacts()
95
96     # Clear input fields after saving contact
97     contact_name_entry.delete(0, tk.END)
98     phone_number_entry.delete(0, tk.END)
99     email_id_entry.delete(0, tk.END)
100    address_entry.delete(0, tk.END)
101
102    messagebox.showinfo("Success", "Contact saved successfully!") # Show success message
103
104    # Function to refresh the Listbox with the latest contacts
105    def refresh_display_contacts():
106        display_saved_contact.delete(1, tk.END) # Clear all items in the Listbox except the header
107        for contact in contacts: # Loop through saved contacts
108            formatted_entry = f"    {contact[0]}    |    {contact[1]}    |    {contact[2]}    |    {contact[3]}"
109            display_saved_contact.insert(tk.END, formatted_entry) # Insert formatted contact details into Listbox
110
111    # Delete Contact Section

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112 def del_contact():
113     contact_to_delete = delete_contact_name_entry.get().strip() # Get input for name to delete
114     phone_to_delete = delete_phone_number_entry.get().strip() # Get input for phone number to delete
115
116     if not contact_to_delete and not phone_to_delete: # If neither is provided
117         messagebox.showerror("Missing Input", "Provide either Name or Phone Number to delete.")
118         return
119
120     for contact in contacts: # Loop through contacts to find the match
121         if contact_to_delete == contact[0] or phone_to_delete == contact[1]:
122             contacts.remove(contact) # Remove contact from the list
123             refresh_display_contacts() # Refresh Listbox to reflect the changes
124             messagebox.showinfo("Success", "Contact deleted successfully.")
125             delete_contact_name_entry.delete(0, tk.END) # Clear input fields
126             delete_phone_number_entry.delete(0, tk.END)
127             return
128
129     messagebox.showerror("Not Found", "No matching contact found.") # If no match was found
130
131 # Update Contact Section
132 def update_contact():
133     search_value = update_search_entry.get().strip() # Get input search value
134
135     if not search_value: # If search field is empty
136         messagebox.showerror("Missing Input", "Provide a Name, Email, or Address to update.")
137         return
138
139     # Loop through contacts to find a match and populate fields for updating
140     for contact in contacts:
141         if search_value in contact[0].lower() or search_value in contact[1].lower() or search_value in contact[2].lower() or search_value
in contact[3].lower():
142             # Populate update fields with existing contact details
143             update_name_entry.delete(0, tk.END)
144             update_phone_number_entry.delete(0, tk.END)
145             update_email_entry.delete(0, tk.END)
146             update_address_entry.delete(0, tk.END)
147

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148         update_name_entry.insert(0, contact[0])
149         update_phone_number_entry.insert(0, contact[1])
150         update_email_entry.insert(0, contact[2])
151         update_address_entry.insert(0, contact[3])
152         return
153
154     messagebox.showerror("Not Found", "No contact found with the provided details.") # If no contact found for update
155
156     def apply_update():
157         search_value = update_search_entry.get().strip() # Get search value
158         updated_name = update_name_entry.get().strip() # Get updated contact details
159         updated_phone = update_phone_number_entry.get().strip()
160         updated_email = update_email_entry.get().strip()
161         updated_address = update_address_entry.get().strip()
162
163         for contact in contacts:
164             if search_value in contact[0].lower() or search_value in contact[1].lower() or search_value in contact[2].lower() or search_value
in contact[3].lower():
165                 # Update contact details
166                 contact[0] = updated_name if updated_name else contact[0]
167                 contact[1] = updated_phone if updated_phone else contact[1]
168                 contact[2] = updated_email if updated_email else contact[2]
169                 contact[3] = updated_address if updated_address else contact[3]
170
171                 refresh_display_contacts() # Refresh Listbox with updated details
172                 messagebox.showinfo("Success", "Contact updated successfully.")
173                 return
174
175     messagebox.showerror("Not Found", "No contact found with the provided details.") # If no contact found for update
176
177     # Input Fields for Save Contact (Name, Phone, Email, Address)
178     contact_name_label = ttk.Label(add_frame, text="Name:", font=large_font, background="light gray")
179     contact_name_label.place(x=20, y=70)
180     contact_name_entry = ttk.Entry(add_frame, width=35)
181     contact_name_entry.place(x=150, y=70)
182
183     phone_number_label = ttk.Label(add_frame, text="Phone Number:", font=large_font, background="light gray")

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184 phone_number_label.place(x=20, y=120)
185 phone_number_entry = ttk.Entry(add_frame, width=35)
186 phone_number_entry.place(x=150, y=120)
187
188 email_id_label = ttk.Label(add_frame, text="Email ID:", font=large_font, background="light gray")
189 email_id_label.place(x=20, y=170)
190 email_id_entry = ttk.Entry(add_frame, width=35)
191 email_id_entry.place(x=150, y=170)
192
193 address_label = ttk.Label(add_frame, text="Address:", font=large_font, background="light gray")
194 address_label.place(x=20, y=220)
195 address_entry = ttk.Entry(add_frame, width=35)
196 address_entry.place(x=150, y=220)
197
198 save_contact_button = ttk.Button(add_frame, text="Save Contact", width=20, command=new_contact_insertion)
199 save_contact_button.place(x=230, y=270)
200
201 # Input Fields for Delete Contact (Name and Phone Number)
202 delete_contact_name_label = ttk.Label(delete_frame, text="Name:", font=large_font, background="light gray")
203 delete_contact_name_label.place(x=20, y=100)
204 delete_contact_name_entry = ttk.Entry(delete_frame, width=35)
205 delete_contact_name_entry.place(x=150, y=100)
206
207 delete_phone_number_label = ttk.Label(delete_frame, text="Phone Number:", font=large_font, background="light gray")
208 delete_phone_number_label.place(x=20, y=170)
209 delete_phone_number_entry = ttk.Entry(delete_frame, width=35)
210 delete_phone_number_entry.place(x=150, y=170)
211
212 delete_contact_button = ttk.Button(delete_frame, text="Delete Contact", width=20, command=del_contact)
213 delete_contact_button.place(x=150, y=250)
214
215 # Input Fields for Update Contact (Search, Name, Phone, Email, Address)
216 update_search_label = ttk.Label(update_frame, text="Search:", font=large_font, background="light gray")
217 update_search_label.place(x=20, y=80)
218 update_search_entry = ttk.Entry(update_frame, width=35)
219 update_search_entry.place(x=150, y=80)
220
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221 update_name_label = ttk.Label(update_frame, text="Name:", font=large_font, background="light gray")
222 update_name_label.place(x=20, y=130)
223 update_name_entry = ttk.Entry(update_frame, width=35)
224 update_name_entry.place(x=150, y=130)
225
226 update_phone_number_label = ttk.Label(update_frame, text="Phone Number:", font=large_font, background="light gray")
227 update_phone_number_label.place(x=20, y=160)
228 update_phone_number_entry = ttk.Entry(update_frame, width=35)
229 update_phone_number_entry.place(x=150, y=160)
230
231 update_email_label = ttk.Label(update_frame, text="Email ID:", font=large_font, background="light gray")
232 update_email_label.place(x=20, y=190)
233 update_email_entry = ttk.Entry(update_frame, width=35)
234 update_email_entry.place(x=150, y=190)
235
236 update_address_label = ttk.Label(update_frame, text="Address:", font=large_font, background="light gray")
237 update_address_label.place(x=20, y=220)
238 update_address_entry = ttk.Entry(update_frame, width=35)
239 update_address_entry.place(x=150, y=220)
240
241 update_contact_button = ttk.Button(update_frame, text="Find Contact", width=20, command=update_contact)
242 update_contact_button.place(x=20, y=270)
243
244 apply_update_button = ttk.Button(update_frame, text="Apply Update", width=20, command=apply_update)
245 apply_update_button.place(x=230, y=270)
246
247 root.mainloop() # Start the Tkinter main loop to run the app
```

# OUTPUT:

 Contact Book—□×

Name	Phone Number	Email ID	Address
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Search Contact here:

### SAVE CONTACT

Name:

Phone Number:

Email ID:

Address:

### DELETE CONTACT

*Using either the Name or the Phone Number.*

Name:

Phone Number:

### UPDATE CONTACT

*Search and Update contact details.*

Search:

Name:

Phone Number:

Email ID:

Address: