

```

1  #include <stdio.h>
2  #include <stdlib.h>
3  #include <string.h>
4  struct Contact {
5      char name[50];
6      char email[50];
7      char phoneNumber[15];
8  };
9  void addContact(struct Contact **addressBook, int *size) {
10     (*size)++;
11     if (*size == 1) {
12         *addressBook = malloc(sizeof(struct Contact));
13     } else {
14         *addressBook = realloc(*addressBook, (*size) * sizeof(struct Contact));
15     }
16
17     if (*addressBook == NULL) {
18         printf("Memory allocation error.\n");
19         exit(EXIT_FAILURE);
20     }
21     printf("\nEnter details for the new contact:\n");
22     printf("Name: ");
23     scanf("%s", (*addressBook)[*size - 1].name);
24     printf("Email: ");
25     scanf("%s", (*addressBook)[*size - 1].email);
26     printf("Phone Number: ");
27     scanf("%s", (*addressBook)[*size - 1].phoneNumber);
28
29     printf("Contact added successfully!\n");
30 }
31 void deleteContact(struct Contact **addressBook, int *size, int index) {
32     if (index >= 0 && index < *size) {
33         for (int i = index; i < *size - 1; i++) {
34             (*addressBook)[i] = (*addressBook)[i + 1];
35         }
36         (*size)--;
37         *addressBook = realloc(*addressBook, (*size) * sizeof(struct Contact));
38         if (*size > 0 && *addressBook == NULL) {
39             printf("Memory allocation error during deletion.\n");
40             exit(EXIT_FAILURE);
41         }
42         printf("Contact deleted successfully!\n");
43     } else {
44         printf("Invalid index. No contact deleted.\n");
45     }
46 }
47 void displayContacts(const struct Contact *addressBook, int size) {
48     printf("\nAddress Book:\n");
49     for (int i = 0; i < size; i++) {
50         printf("Contact %d:\n", i + 1);
51         printf("Name: %s\n", addressBook[i].name);
52         printf("Email: %s\n", addressBook[i].email);
53         printf("Phone Number: %s\n", addressBook[i].phoneNumber);
54         printf("\n");
55     }
56 }
57 void freeAddressBook(struct Contact *addressBook) {
58     free(addressBook);
59 }
60 int main() {
61     struct Contact *addressBook = NULL;
62     int size = 0;
63     int choice, index;
64
65     do {
66         printf("\nAddress Book Menu:\n");

```

```
67     printf("1. Add Contact\n");
68     printf("2. Delete Contact\n");
69     printf("3. Display Contacts\n");
70     printf("4. Exit\n");
71     printf("Enter your choice: ");
72     scanf("%d", &choice);
73
74     switch (choice) {
75         case 1:
76             addContact(&addressBook, &size);
77             break;
78         case 2:
79             printf("Enter the index of the contact to delete: ");
80             scanf("%d", &index);
81             deleteContact(&addressBook, &size, index - 1);
82             break;
83         case 3:
84             displayContacts(addressBook, size);
85             break;
86         case 4:
87             printf("Exiting program. Freeing memory...\n");
88             break;
89         default:
90             printf("Invalid choice. Please enter a valid option.\n");
91     }
92     while (choice != 4);
93     freeAddressBook(addressBook);
94
95     return 0;
96 }
```