The structure is created using the struct keyword and the required variables are declared inside the structure. Typedef keyword has been used to create the structure. The typedef is a keyword used in C programming to provide some meaningful names to the already existing variable in the C program.

```c
#include <stdio.h>
#include <stdlib.h>
#include <string.h>

struct person
{
    char name[30];
    char country_code[4];
    long int mble_no;
    char sex[8];
    char mail[100];
};

// Defining person data type.
typedef struct person person;
```

Since we have will be using functions in our C project, all. The required functions are declared.

```c
// All function declaration.
void remove_all();
void print_menu();
void add_person();
void list_record();
void search_person();
void remove_person();
void update_person();
void take_input(person *p);
```

The start function is created where the user is given the list of choices of things that he can perform in the phone book like to add a person, update contact details, etc and as the user inputs the choice the corresponding function gets executed.

```c
// This function will start our program.
void start()
{
    int choice;
    while (1)
    {
        print_menu();
        scanf("%d", &choice);
        switch (choice)
        {
        case 1:
            list_record();
            getchar();
            getchar();
            break;
        case 2:
            add_person();
            getchar();
            getchar();
            break;
        case 3:
            search_person();
            getchar();
            getchar();
            break;
        case 4:
            remove_person();
            getchar();
            getchar();
            break;
        case 5:
            update_person();
            getchar();
            getchar();
            break;
        case 6:
            remove_all();
            getchar();
            getchar();
            break;
        default:
            system("clear");
            printf("Thanks for using phonebook visit again : )\n");
            getchar();
            getchar();
            exit(1);
        }
    }
}
```

At the start of the main program the start function is called to display the list of choices.

```c
// Program starts here.
int main()
{
    start();
    return 0;
}
```

The phone book application is been made under the concepts of functions and file handling.

The following things can be done in the phone book application :
1. List Record.
2. Add Person.
3. Search Person Details.
4. Remove Person.
5. Update Person.
6. Delete all Contacts.
7. Exit Phonebook.

For example if the user selects the add person option the function corresponding to it will be executed and the file in which the data will be stored will also be opened and the user will be asked to input the following details.
- Name
- Country Code
- Mobile Number
- Gender
- E-mail address

If the file fails to open it will throw an error saying "Error in file opening, Plz try again".

Similarly the application works for all other choices.

Output :

• Add Person :

```
*************************************************************
*                 Welcome TO My phone book                 *
*************************************************************

              1) list record

              2) Add person

              3) Search person Details

              4) Remove person

              5) Update person

              6) Delete all contacts

              7) exit Phonebook


                     Enter your Choice : 2
```

```
Enter name : Arun
Enter country code : 91
Enter mobile no : 9287364738
Enter sex : M
Enter email : aruntechie@icloud.com
```

```
Record added Successfully
Press any key to continue ....
```

• List Record :

```
*************************************************************
*                 Welcome TO My phone book                 *
*************************************************************

              1) list record

              2) Add person

              3) Search person Details

              4) Remove person

              5) Update person

              6) Delete all contacts

              7) exit Phonebook


                     Enter your Choice : 1
```

```
*************************************************************
*            Here is all records listed in phonebook       *
*************************************************************

 NAME                    COUNTRY CODE        PHONE NO          SEX                EMAIL
-----------------------------------------------------------------------------------------------------
Raj                          91             9837162537          M             raj@gmail.com
Arun                         91             9287364738          M             aruntechie@icloud.com
Shivani                      91             8392857694          F             shivani3@yahoo.com
Udai shetty                  91             7596849388          M             shetty@gmail.com
Sheela                       91             9384658392          F             jawani@gamil.com

Press any key to continue....
```

- Search Person Details :

```
***************************************************************
*                   Welcome TO My phone book                  *
***************************************************************
        1) list record

        2) Add person

        3) Search person Details

        4) Remove person

        5) Update person

        6) Delete all contacts

        7) exit Phonebook

              Enter your Choice : 3
```

```
Enter Phone number of the person you want to search : 9837162537
  NAME                          COUNTRY CODE        PHONE NO           SEX             EMAIL
----------------------------------------------------------------------------------------------------------------------
Raj                             91                  9837162537         M               raj@gmail.com

Press any key to continue....
```

- Update Person :

```
***************************************************************
*                   Welcome TO My phone book                  *
***************************************************************
        1) list record

        2) Add person

        3) Search person Details

        4) Remove person

        5) Update person

        6) Delete all contacts

        7) exit Phonebook

              Enter your Choice : 5
```

```
Data updated successfully
Press any key to continue....
```

- Remove Person :

```
************************************************************
*                    Welcome TO My phone book              *
************************************************************
            1) list record

            2) Add person

            3) Search person Details

            4) Remove person

            5) Update person

            6) Delete all contacts

            7) exit Phonebook


                    Enter your Choice : 4
```

```
Enter Phone number of the person you want to remove from phonebook : 9837162534
```

```
Person removed successfully
Press any key to continue....
```

- Delete all Contacts :

```
*****************************************************************
*                    Welcome TO My phone book                  *
*****************************************************************
            1) list record

            2) Add person

            3) Search person Details

            4) Remove person

            5) Update person

            6) Delete all contacts

            7) exit Phonebook


                    Enter your Choice : 6
```

```
All data in the phonebook deleted successfully
Press any key to continue ...
```

- Exit Phonebook :

```
Thanks for using phonebook visit again : )
```