

phonebook

Write a C program that implements the following three functions:

- The function `readin()` reads a number of persons' names and their corresponding telephone numbers, passes the data to the caller via the parameter `p`, and returns the number of names that have entered. The character `'#'` is used to indicate the end of user input.
- The function `printPB()` prints the phonebook information on the display. It will print the message "Empty phonebook" if the phonebook list is empty.
- The function `search()` finds the telephone number of an input name *target*, and then prints the name and telephone number on the screen. If the input name cannot be found, then it will print an appropriate error message. The prototypes of the two functions are given below:

The prototypes of the three functions are given below:

```
void printPB(PHONEBk *pb, int size);
int readin(PHONEBk *pb);
void search(PHONEBk *pb, int size, char *target);
```

The structure definition for `PHONEBk` is given below:

```
typedef struct {
    char name[20];
    int telno;
} PHONEBk;
```

A sample program template is given below to test the functions:

```
#include <stdio.h>
#include <string.h>
#define MAX 100
typedef struct {
    char name[20];
    int telno;
} PHONEBk;
void printPB(PHONEBk *pb, int size);
int readin(PHONEBk *pb);
void search(PHONEBk *pb, int size, char *target);
int main()
{
    PHONEBk s[MAX];
    char t[20], *p;
    int size=0, choice;
    char dummychar;

    printf("Select one of the following options: \n");
    printf("1: readin()\n");
    printf("2: search()\n");
    printf("3: printPB()\n");
    printf("4: exit()\n");
    do {
        printf("Enter your choice: \n");
```

```

scanf("%d", &choice);
switch (choice) {
    case 1:
        scanf("%c", &dummychar);
        size = readin(s);
        break;
    case 2:
        scanf("%c", &dummychar);
        printf("Enter search name: \n");
        fgets(t, 20, stdin);
        if (p=strchr(t, '\n')) *p = '\0';
        search(s, size, t);
        break;
    case 3:
        printPB(s, size);
        break;
}
} while (choice < 4);
return 0;
}
void printPB(PHONEBk *pb, int size)
{
    /* Write your code here */
}
int readin(PHONEBk *pb)
{
    /* Write your code here */
}
void search(PHONEBk *pb, int size, char *target)
{
    /* Write your code here */
}

```

Some test input and output sessions are given below:

(1) Test Case 1:

Select one of the following options:

- 1: readin()
- 2: search()
- 3: printPB()
- 4: exit()

Enter your choice:

1

Enter name:

Hui Siu Cheung

Enter tel:

1234567

Enter name:

Philip Fu

Enter tel:

2345678

Enter name:

Chen Jing

Enter tel:

3456789

Enter name:

#

Enter your choice:

3

The phonebook list:

Name: Hui Siu Cheung

Telno: 1234567

Name: Philip Fu

Telno: 2345678

Name: Chen Jing

Telno: 3456789

Enter your choice:

4

(2) Test Case 2:

Enter your choice:

2

Enter search name:

Philip Fu

Name = Philip Fu, Tel = 2345678

Enter your choice:

4

(3) Test Case 3:

Enter your choice:

2

Enter search name:

Tommy Fu

Name not found!

Enter your choice:

4

(4) Test Case 4:

Select one of the following options:

1: readin()

2: search()

3: printPB()

4: exit()

Enter your choice:

1

Enter name:

#

Enter your choice:

3

The phonebook list:

Empty phonebook

Enter your choice:

4

