

HW6. Array of Structures

Class number: 060

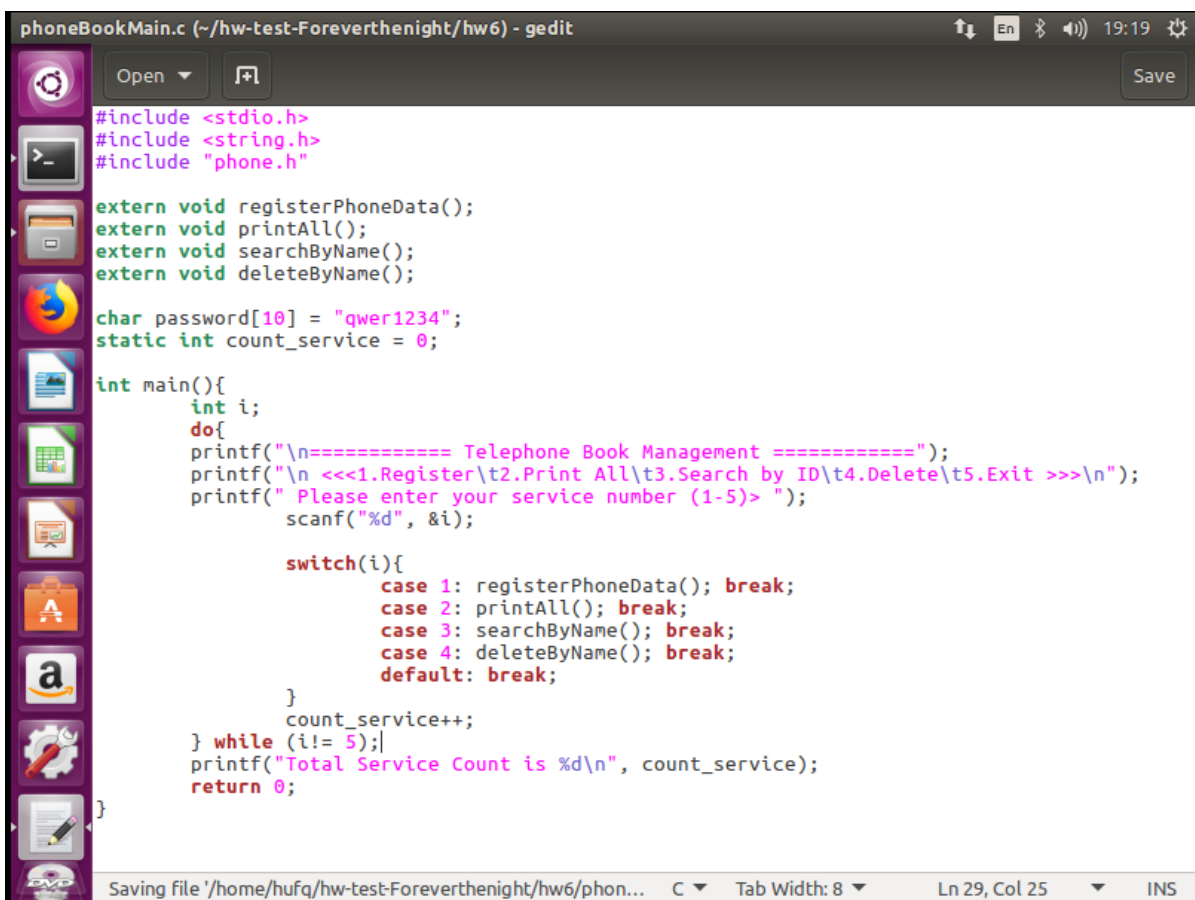
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1. Explanation for your codes (50 Points)



```
phoneBookMain.c (~/hw-test-Foreverthenight/hw6) - gedit
#include <stdio.h>
#include <string.h>
#include "phone.h"

extern void registerPhoneData();
extern void printAll();
extern void searchByName();
extern void deleteByName();

char password[10] = "qwer1234";
static int count_service = 0;

int main(){
    int i;
    do{
        printf("\n===== Telephone Book Management =====");
        printf("\n <<<1.Register\t2.Print All\t3.Search by ID\t4.Delete\t5.Exit >>>\n");
        printf(" Please enter your service number (1-5)> ");
        scanf("%d", &i);

        switch(i){
            case 1: registerPhoneData(); break;
            case 2: printAll(); break;
            case 3: searchByName(); break;
            case 4: deleteByName(); break;
            default: break;
        }
        count_service++;
    } while (i!= 5);
    printf("\nTotal Service Count is %d\n", count_service);
    return 0;
}
```

phoneBookMain.c runs mostly by invoking functions of other .c files, so it contains extern to use registerPhoneData(), printAll(), searchByName(), deleteByName() of other files.

In the main function of phoneBookMain.c, I used of storing user's request. Here is a do-while circulation to make sure it running until users make it stop.

```

*register.c (~/.hw-test-Foreverthenight/hw6) - gedit
#include <stdio.h>
#include <string.h>
#include "phone.h"

extern struct Contact PhoneBook[MAX];
extern char password[10];

void registerPhoneData(){
    char inputPassword[100];
    int wrongCount = 0;
    do{
        printf("Password: ");
        scanf("%s", inputPassword);

        if (strcmp(password, inputPassword) != 0){
            wrongCount++;
            switch(wrongCount){
                case 1: printf(">>Not Matched !!!\n"); break;
                case 2: printf(">>Not Matched (twice) !!!\n"); break;
                case 3: printf(">>Not Matched (3 times) !!!\n"); break;
            }
        }

        if (wrongCount == 3){
            printf(">>You are not allowed to access PhoneBook.\n");
            return ;
        }
    } while (strcmp(password, inputPassword) != 0);

    printf("New User Name: ");
    scanf("%s", PhoneBook[size].Name);
    printf("PhoneNumber: ");
    scanf("%s", PhoneBook[size].PhoneNumber);
    printf("Registered...\n");
    size++;

    return ;
}

```

There is two parts in register.c, firstly determine if input password is true, and then register user information if password is true.

Inputpassword[100] stores the password inputted by user, wrongCount stores times that password wrong.

```

print.c (~/.hw-test-Foreverthenight/hw6) - gedit
#include <stdio.h>
#include "phone.h"

extern struct Contact PhoneBook[MAX];

void printAll(){
    printf("<< Display all contacts in the PhoneBook >>\n");
    for (int i=0;i<size;i++){
        printf("%s\t\t\t%s\n", PhoneBook[i].Name, PhoneBook[i].PhoneNumber);
    }

    return ;
}

```

Using for circulation to print all the information.

search.c (~/hw-test-Foreverthenight/hw6) - gedit

```
#include <stdio.h>
#include <string.h>
#include "phone.h"

extern struct Contact PhoneBook[MAX];

void searchByName(){
    printf(">>Enter a name to search: ");
    char searchName[10];
    scanf("%s", searchName);
    for (int i = 0 ; i < size ; i++){
        if (strcmp(PhoneBook[i].Name, searchName) == 0){
            printf("%s\t\t\t\t%s\n", PhoneBook[i].Name, PhoneBook[i].PhoneNumber);
            return;
        }
    }
    printf("Oops! %s is not in the PhoneBook.\n", searchName);
    return;
}
```

In the searchByName(), for circulation let the name compared one by one, and then print the matched name.

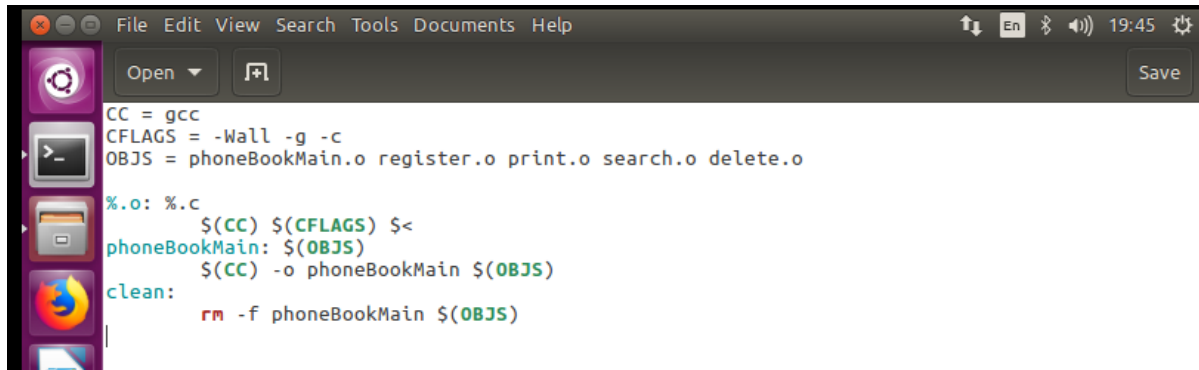
delete.c (~/hw-test-Foreverthenight/hw6) - gedit

```
#include <stdio.h>
#include <string.h>
#include "phone.h"

extern struct Contact PhoneBook[MAX];

void deleteByName(){
    printf("Enter a name to delete: ");
    char deleteName[10];
    scanf("%s", deleteName);
    int findIndex=-1;
    for (int i=0;i<size;i++){
        if (strcmp(PhoneBook[i].Name, deleteName)==0) findIndex=i;
    }
    if (findIndex==-1)
        printf("Oops! %s is not in the PhoneBook.\n", deleteName);
    else{
        for (int i = findIndex ; i < size-1 ; i++){
            strcpy(PhoneBook[i].Name, PhoneBook[i+1].Name);
            strcpy(PhoneBook[i].PhoneNumber, PhoneBook[i+1].PhoneNumber);
        }
        printf("%s is deleted...\n", deleteName);
        size--;
    }
    return ;
}
```

First of all, search if there exist a matched name, and delete the matched information, print out error message if not.



```
File Edit View Search Tools Documents Help
Open [icon] Save

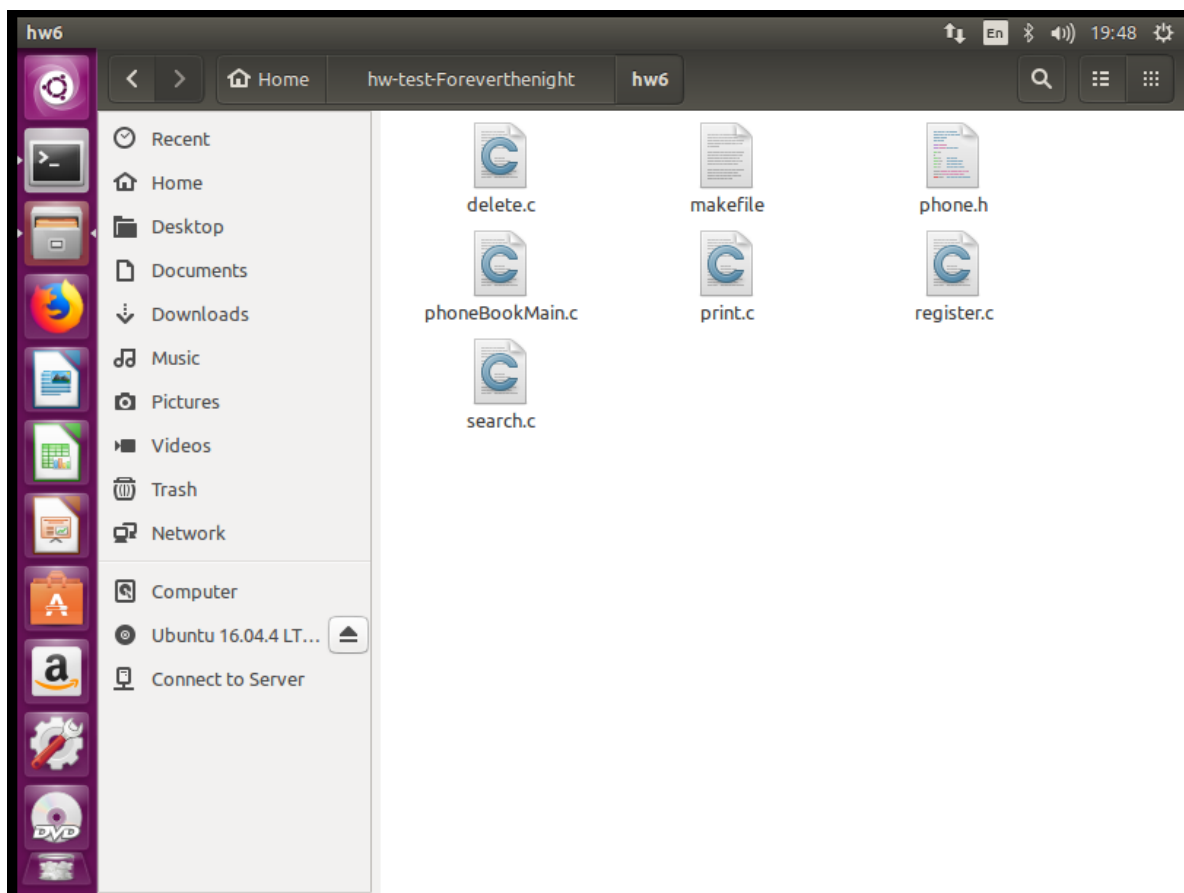
CC = gcc
CFLAGS = -Wall -g -c
OBJS = phoneBookMain.o register.o print.o search.o delete.o

%.o: %.c
    $(CC) $(CFLAGS) $<
phoneBookMain: $(OBJS)
    $(CC) -o phoneBookMain $(OBJS)
clean:
    rm -f phoneBookMain $(OBJS)
```

In the first two lines, using macro the replays some long options.

%o:%c means all the .c files is prerequisite of the corresponding .o files.

2. Program Execution (20 points)



The screenshot shows a terminal window titled "Terminal" with a sidebar on the left containing various application icons. The main window displays the following commands and output:

```
hufq@hufq-virtual-machine: ~/hw-test-Foreverthenight/hw6
hufq@hufq-virtual-machine:~/hw-test-Foreverthenight/hw6$ make
gcc -Wall -g -c phoneBookMain.c
gcc -Wall -g -c register.c
gcc -Wall -g -c print.c
gcc -Wall -g -c search.c
gcc -Wall -g -c delete.c
gcc -o phoneBookMain phoneBookMain.o register.o print.o search.o delete.o
hufq@hufq-virtual-machine:~/hw-test-Foreverthenight/hw6$ ./phoneBookMain

===== Telephone Book Management =====
<<<1.Register 2.Print All 3.Search by ID 4.Delete 5.Exit >>>
Please enter your service number (1-5)> ^C
hufq@hufq-virtual-machine:~/hw-test-Foreverthenight/hw6$
```

3. Github repository(20 points)

The screenshot shows a terminal window with the following commands and output:

```
hufq@hufq-virtual-machine:~/hw-test-Foreverthenight$ git config --global core.autocrlf false
hufq@hufq-virtual-machine:~/hw-test-Foreverthenight$ git init
Reinitialized existing Git repository in /home/hufq/hw-test-Foreverthenight/.git/
hufq@hufq-virtual-machine:~/hw-test-Foreverthenight$ git add *.c
hufq@hufq-virtual-machine:~/hw-test-Foreverthenight$ git add *.h
warning: CRLF will be replaced by LF in phone.h.
The file will have its original line endings in your working directory.
hufq@hufq-virtual-machine:~/hw-test-Foreverthenight$ git config --global core.autocrlf false
hufq@hufq-virtual-machine:~/hw-test-Foreverthenight$ git init
Reinitialized existing Git repository in /home/hufq/hw-test-Foreverthenight/.git/
hufq@hufq-virtual-machine:~/hw-test-Foreverthenight$ git add *.h
hufq@hufq-virtual-machine:~/hw-test-Foreverthenight$ git add makefile
hufq@hufq-virtual-machine:~/hw-test-Foreverthenight$
```

```

hufq@hufq-virtual-machine:~/hw-test-Foreverthenight$ git status
On branch master

Initial commit

Changes to be committed:
  (use "git rm --cached <file>..." to unstage)

        new file:   delete.c
        new file:   hw6/phone.h
        new file:   makefile
        new file:   manual_list.c
        new file:   phone.h
        new file:   phoneBookMain.c
        new file:   print.c
        new file:   push_double_list.c
        new file:   push_list.c
        new file:   register.c
        new file:   search.c

```

```

hufq@hufq-virtual-machine:~$ git commit -m "c source file"
[master (root-commit) 03601af] c source file
 6 files changed, 141 insertions(+)
 create mode 100644 .cache/vmware/drag_and_drop/tVgDmL/delete.c
 create mode 100644 .cache/vmware/drag_and_drop/veCno7/phone.h
 create mode 100644 .cache/vmware/drag_and_drop/wPoNQv/phoneBookMain.c
 create mode 100644 .cache/vmware/drag_and_drop/wPoNQv/print.c
 create mode 100644 .cache/vmware/drag_and_drop/wPoNQv/register.c
 create mode 100644 .cache/vmware/drag_and_drop/wPoNQv/search.c
hufq@hufq-virtual-machine:~$

```

```

hufq@hufq-virtual-machine:~/hw-test-Foreverthenight$ git push -f pb master
Username for 'https://github.com': Foreverthenight
Password for 'https://Foreverthenight@github.com':
Counting objects: 13, done.
Compressing objects: 100% (12/12), done.
Writing objects: 100% (13/13), 3.33 KiB | 0 bytes/s, done.
Total 13 (delta 1), reused 0 (delta 0)
remote: Resolving deltas: 100% (1/1), done.
To https://github.com/pnusystemprog/hw-test-Foreverthenight.git
+ ee0d350...9173603 master -> master (forced update)

```

4. Discussion (10 points)

```

hufq@hufq-virtual-machine:~/hw-test-Foreverthenight
hufq@hufq-virtual-machine:~/hw-test-Foreverthenight$ git config --global user.name "hufq"
hufq@hufq-virtual-machine:~/hw-test-Foreverthenight$ git commit -m "Add a source codes"
[master (root-commit) 9173603] Add a source codes
warning: CRLF will be replaced by LF in delete.c.
The file will have its original line endings in your working directory.
warning: CRLF will be replaced by LF in hw6/phone.h.
The file will have its original line endings in your working directory.
warning: CRLF will be replaced by LF in manual_list.c.
The file will have its original line endings in your working directory.
warning: CRLF will be replaced by LF in phone.h.
The file will have its original line endings in your working directory.
warning: CRLF will be replaced by LF in phoneBookMain.c.
The file will have its original line endings in your working directory.
warning: CRLF will be replaced by LF in print.c.
The file will have its original line endings in your working directory.
warning: CRLF will be replaced by LF in push_double_list.c.
The file will have its original line endings in your working directory.
warning: CRLF will be replaced by LF in push_list.c.
The file will have its original line endings in your working directory.
warning: CRLF will be replaced by LF in register.c.
The file will have its original line endings in your working directory.
warning: CRLF will be replaced by LF in search.c.
The file will have its original line endings in your working directory.
 11 files changed, 286 insertions(+)
 create mode 100644 delete.c

```

Reason:

CRLF : linebreak of windows

LF : linebreak of linux

Solution:

Using command `git config core.autocrlf false` to make it work.