Исходный текст программы

```c
#include <stdio.h>

#include <stdlib.h>

#include <string.h>

#include <ctype.h>


#define MAXLEN 256


typedef struct professionStruct {

    int id;

    char name[MAXLEN];

    struct professionStruct* next;

    struct professionStruct* prev;

} Profession;


typedef struct professionHeadStruct {

    Profession* first;

    Profession* last;

    int count;

} ProfessionHead;


typedef struct userStruct {

    int id;

    char *fullName;

    int age;

    float friendsRating;

    float publicRating;

    int friendsCount;

    int* friendsId;

    Profession* profession;

    struct userStruct* next;

    struct userStruct* prev;

} User;


typedef struct userHeadStruct {

    User* first;

    User* last;

    int count;

} UserHead;
```

```c
void appOption(ProfessionHead* professionHead, UserHead* userHead, int option);
void appGUI(ProfessionHead* pHead, UserHead* uHead);
void deleteProfessionGUI(ProfessionHead* head, UserHead* userHead);

void printMenu();
void printProfessionHeader();
void printAllProfessions(ProfessionHead* head);
void printUserHeader();
void printAllUsers(UserHead* uHead);
void printOptionHeader(const char* optionDescription);
void pressEnterToContinue();
void clearConsole();
void trimForDisplay(char *output, const char *input, int maxLength);
void printUser(User *user);
void printProfession(Profession *profession);
void printLongLine();
void printShortLine();

ProfessionHead* makeProfessionHead();
Profession* makeProfessionNode(char name[MAXLEN]);
void pushBackProfessionNode(ProfessionHead* head, Profession* profession);
void deleteProfessionNode(ProfessionHead* pHead, UserHead* uHead, Profession* profession);
void freeProfessionList(ProfessionHead* head);
void readProfessions(char* filename, ProfessionHead* head);
Profession* findProfessionById(ProfessionHead* head, int id);
Profession* findProfessionByName(ProfessionHead* head, char name[MAXLEN]);

UserHead* makeUserHead();
User* makeUserNode(ProfessionHead* pHead, UserHead* uHead, char** str);
void pushBackUserNode(UserHead* head, User* user);
void freeUserStruct(User* user);
void freeUserList(UserHead* head);
void clearUsersProfessionById(UserHead* head, int id);
void readUsers(char* filename, UserHead* head, ProfessionHead* pHead);

void nullString(char str[MAXLEN]);
void trim(char str[MAXLEN]);
char **split(char *str, int length, char sep);
void inputIntrray(UserHead* uHead, User* user, char *str, char sep);
int startsWithIgnoreCase(const char *str, const char *prefix);
```

```c
void clearStdin();

int main() {
    UserHead* userHead = NULL;
    ProfessionHead* professionHead = NULL;

    userHead = makeUserHead();
    professionHead = makeProfessionHead();

    if (userHead != NULL && professionHead != NULL) {
        appGUI(professionHead, userHead);
    } else {
        printf("Error: memory allocation error\n");
    }

    return 0;
}

void appGUI(ProfessionHead* professionHead, UserHead* userHead) {
    int option;

    readProfessions("professions.csv", professionHead);
    readUsers("users.csv", userHead, professionHead);

    do {
        clearConsole();
        printMenu();
        scanf("%d", &option);
        clearStdin();
        if (option != 0) {
            appOption(professionHead, userHead, option);
        } else {
            clearConsole();
        }
    } while (option != 0);

    freeProfessionList(professionHead);
    freeUserList(userHead);
}
```

```c
void appOption(ProfessionHead* professionHead, UserHead* userHead, int option) {
    clearConsole();
    switch (option) {
        case 1:
            printOptionHeader("Print all users");
            printAllUsers(userHead);
            break;
        case 2:
            printOptionHeader("Print all professions");
            printAllProfessions(professionHead);
            break;
        case 3:
            printOptionHeader("Delete profession before id");
            deleteProfessionGUI(professionHead, userHead);
            break;
        default:
            clearConsole();
            printf("\nFailed: invalid option\n");
            break;
    }
    pressEnterToContinue();
}

void deleteProfessionGUI(ProfessionHead* pHead, UserHead* uHead) {
    int id;
    Profession* profession = NULL;

    if (pHead->first != NULL) {
        printAllProfessions(pHead);
        printf("\nEnter profession id to delete profession before it (or 0 to return to menu): ");
        scanf("%d", &id);
        clearStdin();
        if (id > 0) {
            id--;
            profession = findProfessionById(pHead, id);
            if (profession == NULL) {
                printf("\nFailed: there is no profession with id %d\n", id);
            } else {
                printf("\nProfession with id %d:\n", id);
                printProfessionHeader();
                printProfession(profession);
                printShortLine();
                deleteProfessionNode(pHead, uHead, profession);
                printf("\nSuccess: profession with id %d has been removed!\n", id);
            }
        } else if (id < 0) {
            printf("\nFailed: ID must be always positive\n");
        }
    } else {
        printf("The list of professions is empty\n");
    }
}

void printMenu() {
    printShortLine();
    printf("|           Choose an option           |\n");
    printf("|--------------------------------------|\n");
    printf("| 0. Exit                              |\n");
    printf("| 1. Print all users                   |\n");
    printf("| 2. Print all professions             |\n");
    printf("| 3. Delete profession before id       |\n");
    printShortLine();
    printf("Option: ");
}

void printProfessionHeader() {
    printShortLine();
    printf("| ID |            Name                 |\n");
    printf("|----|---------------------------------|\n");
}

void printAllProfessions(ProfessionHead* head) {
    Profession *q;

    printProfessionHeader();
    q = head->first;
    while (q != NULL) {
        printProfession(q);
        q = q->next;
    }
    printShortLine();

}


void printUserHeader() {

    printLongLine();

    printf("| ID |      Full Name        | Age |   Profession    | Friends Rating | Public Rating |
Friends count |      Friends IDs     |\n");

    printf("|----|-----------------------|-----|-----------------|----------------|---------------|-----
----------|----------------------|\n");

}



void printAllUsers(UserHead* uHead) {

    User *q;


    printUserHeader();

    q = uHead->first;

    while (q != NULL) {

        printUser(q);

        q = q->next;

    }

    printLongLine();

}


void printLongLine() {


printf("==================================================================================================
===============================\n");

}


void printShortLine() {

    printf("========================================\n");

}


void printOptionHeader(const char* optionDescription) {

    printShortLine();

    printf("| Option: %-28s |\n", optionDescription);

    printShortLine();

    printf("\n");

}


void pressEnterToContinue() {
    printf("\nPress ENTER to continue ");
    clearStdin();
    clearConsole();
}

void clearConsole() {
    #if defined(_WIN32) || defined(_WIN64)
        system("cls");
    #else
        system("clear");
    #endif
}

void trimForDisplay(char *output, const char *input, int maxLength) {
    if (strlen(input) > maxLength) {
        strncpy(output, input, maxLength - 3);
        output[maxLength - 3] = '\0';
        strcat(output, "...");
    } else {
        strcpy(output, input);
    }
}

void printUser(User *user) {
    char friendsIds[MAXLEN] = "";
    char idStr[10];
    int i;
    char profession[MAXLEN] = "undefined";
    char trimmedFullName[23], trimmedProfession[17], trimmedFriendsIds[30];

    if (user->profession != NULL) {
        trimForDisplay(profession, user->profession->name, sizeof(profession));
    }

    for (i = 0; i < user->friendsCount; i++) {
        sprintf(idStr, "%d", user->friendsId[i]);
        strcat(friendsIds, idStr);
        if (i < user->friendsCount - 1) {
            strcat(friendsIds, ", ");
        }
    }

    trimForDisplay(trimmedFullName, user->fullName, 22);
    trimForDisplay(trimmedProfession, profession, 16);
    trimForDisplay(trimmedFriendsIds, friendsIds, 21);

    printf("| %-2d | %-22s | %-3d | %-16s | %-14.1f | %-13.1f | %-13d | %21s |\n",
           user->id, trimmedFullName, user->age, trimmedProfession, user->friendsRating, user->publicRating, user->friendsCount, trimmedFriendsIds);
}

void printProfession(Profession *profession) {
    char trimmedProfessionName[32];
    trimForDisplay(trimmedProfessionName, profession->name, 31);
    printf("| %-2d | %-31s |\n", profession->id, trimmedProfessionName);
}


ProfessionHead* makeProfessionHead() {
    ProfessionHead* head = NULL;

    head = (ProfessionHead*)malloc(sizeof(ProfessionHead));
    if (head != NULL) {
        head->count = 0;
        head->first = NULL;
        head->last = NULL;
    } else {
        perror("Memory allocation failed");
    }

    return head;
}

Profession* makeProfessionNode(char name[MAXLEN]) {
    Profession* profession = NULL;

    profession = (Profession*)malloc(sizeof(Profession));

    if (profession != NULL) {
        profession->id = 0;
        strcpy(profession->name, name);
```

```c
        profession->next = NULL;
        profession->prev = NULL;
    }

    return profession;
}

void pushBackProfessionNode(ProfessionHead* head, Profession* profession) {
    head->count++;

    if (head->first == NULL) {                  /* list is empty */
        head->first = profession;               /* first element is profession */
        head->last = profession;                /* last element is profession */
        profession->id = 1;

    } else  {                                   /* list has only one element */
        profession->id = head->last->id + 1;
        profession->prev = head->last;          /* profession's previous element is last element */
        head->last->next = profession;          /* profession becomes element after last element */
        head->last = profession;                /* profession becomes last element */
    }
}

void deleteProfessionNode(ProfessionHead* pHead, UserHead* uHead, Profession* profession) {
    if (pHead->first == profession) {
        pHead->first = profession->next;
        if (profession->next != NULL) {
            profession->next->prev = profession->prev;
        }
    } else if (pHead->last == profession) {
        pHead->last = profession->prev;
        if (profession->prev != NULL) {
            profession->prev->next = profession->next;
        }
    } else {
        if (profession->prev != NULL) {
            profession->prev->next = profession->next;
        }
        if (profession->next != NULL) {
            profession->next->prev = profession->prev;
        }
    }
    clearUsersProfessionById(uHead, profession->id);
    free(profession);
    pHead->count--;
}

void freeProfessionList(ProfessionHead* head) {
    Profession *q, *q1;
        q = head->first;
    while (q != NULL) {
        q1 = q->next;
        free(q);
        q = q1;
    }
    free(head);
}

void readProfessions(char* filename, ProfessionHead* head) {
    FILE* file;
    Profession* profession;
    int n, count, i;
    char temp[MAXLEN];

            profession = NULL;
        n = count = 0;
        file = fopen(filename, "r");

        if (file != NULL) {
            while ((fgets(temp, MAXLEN, file)) != NULL) n++;
            rewind(file);

            for (i = 0; i < n; i++) {
                nullString(temp);
                fgets(temp, MAXLEN, file);
                trim(temp);
                profession = makeProfessionNode(temp);
                if (profession != NULL) {
                    pushBackProfessionNode(head, profession);
                    count++;
                }
            }
            fclose(file);
        } else {
            perror("Failed to open file");
        }

        if (count != n) {
            perror("Failed to read from file");
            freeProfessionList(head);
            }
}

Profession* findProfessionById(ProfessionHead* head, int id) {
    Profession* q = NULL;
    q = head->first;
    while (q != NULL && q->id != id) {
        q = q->next;
    }
    return q;
}

UserHead* makeUserHead() {
    UserHead* head = NULL;

    head = (UserHead*)malloc(sizeof(UserHead));
    if (head != NULL) {
        head->count = 0;
        head->first = NULL;
        head->last = NULL;
    } else {
        perror("Memory allocation failed");
    }

    return head;
}

User* makeUserNode(ProfessionHead* pHead, UserHead* uHead, char** str) {
    User* user = NULL;
    user = (User*)malloc(sizeof(User));

    if (user != NULL) {
        user->fullName = str[0];
        user->age = atoi(str[1]);
        free(str[1]);
        user->profession = findProfessionByName(pHead, str[2]);
        free(str[2]);
        user->friendsRating = atof(str[3]);
        free(str[3]);
        user->publicRating = atof(str[4]);
        free(str[4]);
        user->friendsCount = atoi(str[5]);
        free(str[5]);

        if (user->friendsCount > 0) {
            user->friendsId = NULL;
            inputIntrray(uHead, user, str[6], ',');
        } else {
            user->friendsId = NULL;
        }
        free(str[6]);

        free(str);

        user->next = NULL;
        user->prev = NULL;
    } else {
        perror("Memory allocation failed");
    }

    return user;
}

void pushBackUserNode(UserHead* head, User* user) {
    head->count++;

    if (head->first == NULL) {
        head->first = user;
        head->last = user;
        user->id = 1;

    } else  {
        user->id = head->last->id + 1;
        user->prev = head->last;
        head->last->next = user;
        head->last = user;
    }
}

void freeUserStruct(User* user) {
    if (user != NULL) {
        free(user->fullName);
        user->fullName = NULL;
        if (user->friendsId != NULL) {
            free(user->friendsId);
            user->friendsId = NULL;
        }

        free(user);
    }
}

void freeUserList(UserHead* head) {
    User *q, *q1;
    /* there are two pointers here because we need to remember
    the next value of the structure we are going to free */
        q = head->first;
    while (q != NULL) {
        q1 = q->next;
        freeUserStruct(q);
        q = q1;
    }
    free(head);
}

void clearUsersProfessionById(UserHead* head, int id) {
    User* q = NULL;

    q = head->first;
    while (q != NULL) {
        if (q->profession != NULL && q->profession->id == id) {
            q->profession = NULL;
        }
        q = q->next;
    }
}

void readUsers(char* filename, UserHead* head, ProfessionHead* pHead) {
    FILE* file;
    User* user;
    int n, count, i, slen;
    char** splitArray;
    char temp[MAXLEN];

    user = NULL;
    n = count = 0;
    file = fopen(filename, "r");

    if (file != NULL) {
        while ((fgets(temp, MAXLEN, file)) != NULL) n++;
        rewind(file);

        for (i = 0; i < n; i++, count++) {
            nullString(temp);
            fgets(temp, MAXLEN, file);
            slen = strlen(temp);
            trim(temp);
            splitArray = split(temp, slen, ';');
            if (splitArray != NULL) {
                user = makeUserNode(pHead, head, splitArray);
                if (user != NULL) {
                    pushBackUserNode(head, user);
                }
            }
        }
        fclose(file);
    } else {
        perror("Failed to open file");
    }
    if (count != n) {
        perror("Failed to read from file");
        freeUserList(head);
    }
}

void nullString(char str[MAXLEN]) {
    int i;
    for (i = 0; i < MAXLEN; i++) {
        str[i] = '\0';
    }
}

void trim(char str[MAXLEN]) {
    int i, flag = 0;
    str[MAXLEN - 1] = '\0';
    for (i = 0; str[i] != '\0' && !flag; i++) {
        if (str[i] == '\n' || str[i] == '\r') {
            str[i] = '\0';
            flag = 1;
        }
    }
}

char **split(char *str, int length, char sep) {
    int count = 0;
    int i = 0;
    int start = 0;
    int j = 0;
    int wordLen = 0;
    char **result = NULL;
    char *newStr = NULL;
    int allocError = 0;

    for (i = 0; i < length; i++) {
        if (str[i] == sep) count++;
    }
    count++;
```

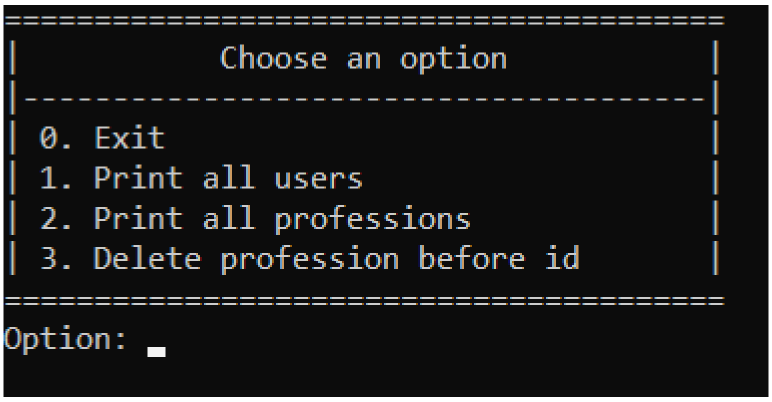
```c
    result = malloc(count * sizeof(char *));
    if (result == NULL) {
        perror("Memory allocation failed");
    } else {
        for (i = 0; i < length; i++) {
            if (str[i] == ';' || str[i] == '\0') {
                wordLen = i - start;
                newStr = malloc((wordLen + 1) * sizeof(char));
                if (newStr == NULL) {
                    perror("Memory allocation failed");
                    allocError = 1;
                    i = length;
                } else {
                    strncpy(newStr, str + start, wordLen);
                    newStr[wordLen] = '\0';
                    result[j++] = newStr;
                    start = i + 1;
                }
            }
        }

        if (allocError) {
            for (i = 0; i < j; i++) {
                free(result[i]);
            }
            free(result);
            result = NULL;
        }
    }

    return result;
}

void inputIntrray(UserHead* uHead, User* user, char *str, char sep) {
    int enteredIdCount = 0, sepCount = 0;
    int start = 0;
    int i, len, isInputValid, n;
    char tempStr[MAXLEN];
    int enteredIds[MAXLEN];
    for (i = 0; str[i] != '\0'; i++) {

        if (str[i] == sep) sepCount++;

    }

    sepCount++;


    if (sepCount > MAXLEN) {

        printf("It seems that the number of entered IDs is too big -> updating friends count: %d\n",
MAXLEN);

        sepCount = MAXLEN - 1;

    }


    if (user->friendsCount != sepCount) {

        printf("It seems that the number of entered IDs does not correspond to the specified number of
friends\n");

        sepCount = user->friendsCount;

    }


    isInputValid = 1;

    for (i = 0; str[i] != '\0' && isInputValid && enteredIdCount < sepCount; i++) {

        if (str[i] == ',' || str[i + 1] == '\0') {

            len = (str[i] == ',') ? (i - start) : (i - start + 1);

            strncpy(tempStr, str + start, len);

            tempStr[len] = '\0';


            n = atoi(tempStr);

            if (n != 0) {

                enteredIds[enteredIdCount++] = n;

                start = i + 1;

            } else {

                printf("It seems that your input is not valid. Please check your input and try again\n");

                isInputValid = 0;

            }

        }

    }


    user->friendsId = malloc(sepCount * sizeof(int));

    if (user->friendsId == NULL) {

        perror("Memory allocation failed");

    } else {

        for (i = 0; i < sepCount; i++) {

            user->friendsId[i] = enteredIds[i];
        }
    }
}

void clearStdin() {
    int c;
    while ((c = getchar()) != '\n' && c != EOF) { }
}

Profession* findProfessionByName(ProfessionHead* head, char name[MAXLEN]) {
    Profession* q = NULL;

    q = head->first;
    while (q != NULL && strcmp(q->name, name) != 0) {
        q = q->next;
    }

    return q;
}
```

Контрольные примеры

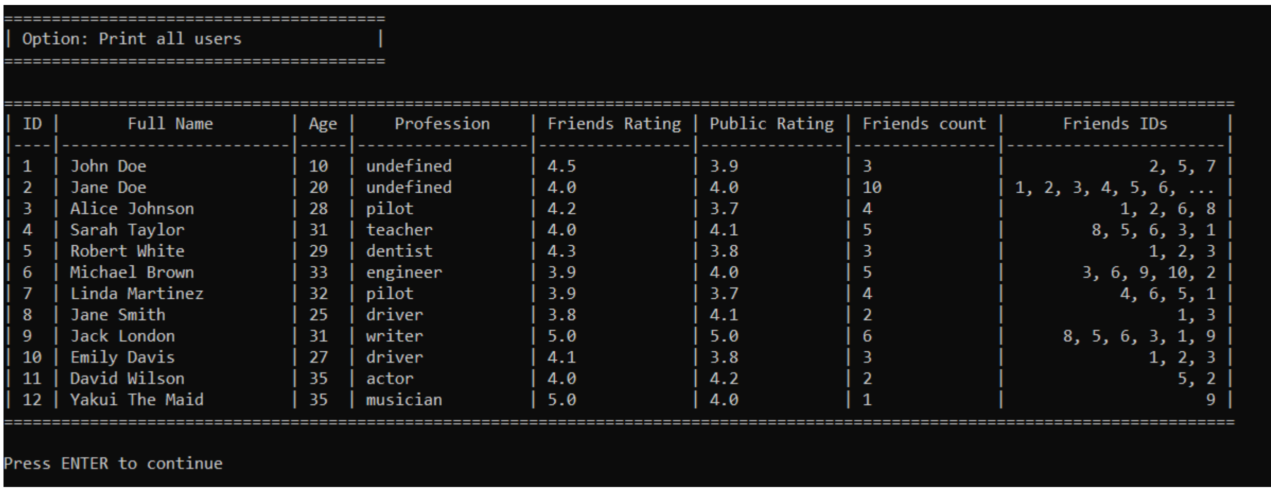
Пример 1:

```
=======================================
| Option: Print all users             |
=======================================

=================================================================================================================================
| ID |       Full Name        | Age |    Profession    | Friends Rating | Public Rating | Friends count |      Friends IDs      |
|----|------------------------|-----|------------------|----------------|---------------|---------------|-----------------------|
| 1  | John Doe               | 10  | undefined        | 4.5            | 3.9           | 3             |               2, 5, 7 |
| 2  | Jane Doe               | 20  | undefined        | 4.0            | 4.0           | 10            | 1, 2, 3, 4, 5, 6, ... |
| 3  | Alice Johnson          | 28  | pilot            | 4.2            | 3.7           | 4             |            1, 2, 6, 8 |
| 4  | Sarah Taylor           | 31  | teacher          | 4.0            | 4.1           | 5             |         8, 5, 6, 3, 1 |
| 5  | Robert White           | 29  | dentist          | 4.3            | 3.8           | 3             |               1, 2, 3 |
| 6  | Michael Brown          | 33  | engineer         | 3.9            | 4.0           | 5             |        3, 6, 9, 10, 2 |
| 7  | Linda Martinez         | 32  | pilot            | 3.9            | 3.7           | 4             |            4, 6, 5, 1 |
| 8  | Jane Smith             | 25  | driver           | 3.8            | 4.1           | 2             |                  1, 3 |
| 9  | Jack London            | 31  | writer           | 5.0            | 5.0           | 6             |      8, 5, 6, 3, 1, 9 |
| 10 | Emily Davis            | 27  | driver           | 4.1            | 3.8           | 3             |               1, 2, 3 |
| 11 | David Wilson           | 35  | actor            | 4.0            | 4.2           | 2             |                  5, 2 |
| 12 | Yakui The Maid         | 35  | musician         | 5.0            | 4.0           | 1             |                     9 |
=================================================================================================================================

=======================================
| Option: Print all professions       |
=======================================

=======================================
| ID |            Name                |
|----|--------------------------------|
| 1  | pilot                          |
| 2  | engineer                       |
| 3  | teacher                        |
| 4  | driver                         |
| 5  | dentist                        |
| 6  | actor                          |
| 7  | writer                         |
| 8  | musician                       |
========================================

========================================
| Option: Delete profession before id  |
========================================

========================================
| ID |            Name                 |
|----|---------------------------------|
| 1  | pilot                           |
| 2  | engineer                        |
| 3  | teacher                         |
| 4  | driver                          |
| 5  | dentist                         |
| 6  | actor                           |
| 7  | writer                          |
| 8  | musician                        |
========================================

Enter profession id to delete profession before it (or 0 to return to menu): 1

Failed: there is no profession with id 0




========================================
| Option: Delete profession before id  |
========================================

========================================
| ID |            Name                 |
|----|---------------------------------|
| 1  | pilot                           |
| 2  | engineer                        |
| 3  | teacher                         |
| 4  | driver                          |
| 5  | dentist                         |
| 6  | actor                           |
| 7  | writer                          |
| 8  | musician                        |
========================================

Enter profession id to delete profession before it (or 0 to return to menu): 2

Profession with id 1:
========================================
| ID |              Name               |
|----|---------------------------------|
| 1  | pilot                           |
========================================

Success: profession with id 1 has been removed!

========================================
| Option: Print all users              |
========================================

=================================================================================================================================
| ID |       Full Name        | Age |    Profession    | Friends Rating | Public Rating | Friends count |      Friends IDs      |
|----|------------------------|-----|------------------|----------------|---------------|---------------|-----------------------|
| 1  | John Doe               | 10  | undefined        | 4.5            | 3.9           | 3             |               2, 5, 7 |
| 2  | Jane Doe               | 20  | undefined        | 4.0            | 4.0           | 10            | 1, 2, 3, 4, 5, 6, ... |
| 3  | Alice Johnson          | 28  | undefined        | 4.2            | 3.7           | 4             |            1, 2, 6, 8 |
| 4  | Sarah Taylor           | 31  | teacher          | 4.0            | 4.1           | 5             |         8, 5, 6, 3, 1 |
| 5  | Robert White           | 29  | dentist          | 4.3            | 3.8           | 3             |               1, 2, 3 |
| 6  | Michael Brown          | 33  | engineer         | 3.9            | 4.0           | 5             |        3, 6, 9, 10, 2 |
| 7  | Linda Martinez         | 32  | undefined        | 3.9            | 3.7           | 4             |            4, 6, 5, 1 |
| 8  | Jane Smith             | 25  | driver           | 3.8            | 4.1           | 2             |                  1, 3 |
| 9  | Jack London            | 31  | writer           | 5.0            | 5.0           | 6             |      8, 5, 6, 3, 1, 9 |
| 10 | Emily Davis            | 27  | driver           | 4.1            | 3.8           | 3             |               1, 2, 3 |
| 11 | David Wilson           | 35  | actor            | 4.0            | 4.2           | 2             |                  5, 2 |
| 12 | Yakui The Maid         | 35  | musician         | 5.0            | 4.0           | 1             |                     9 |
=================================================================================================================================
```

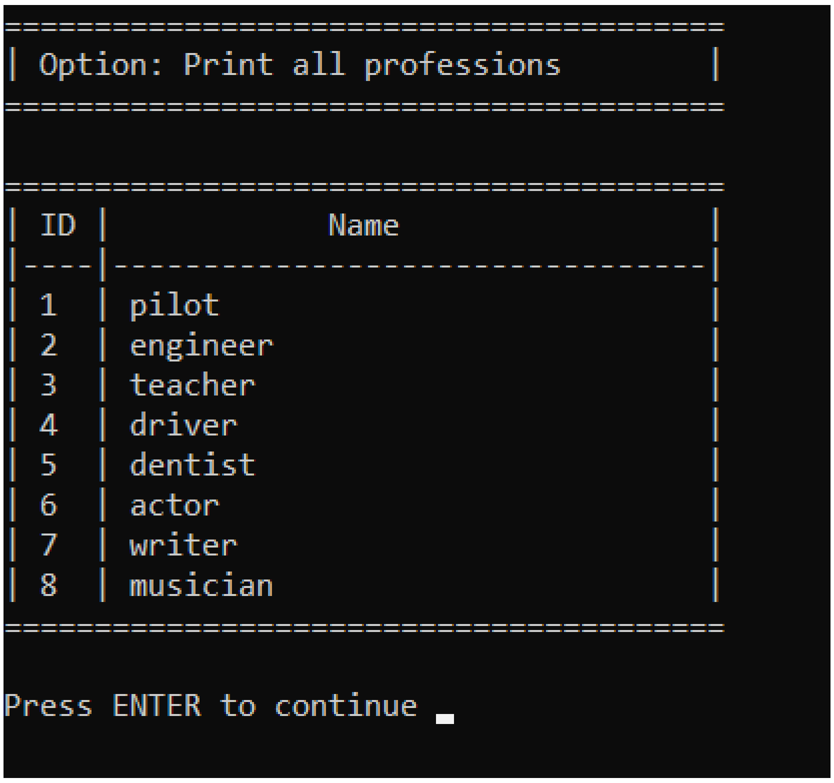
Примеры выполнения программы



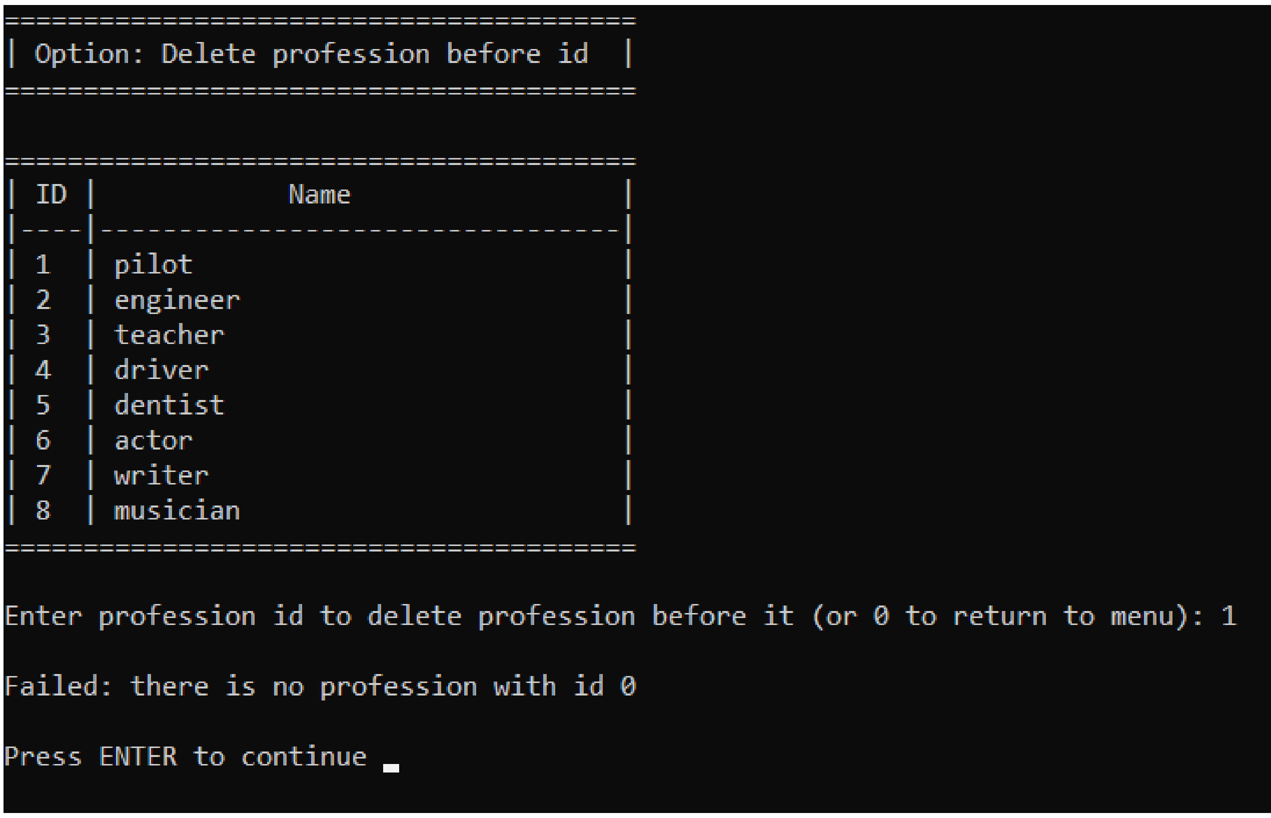
```
========================================
|           Choose an option           |
|--------------------------------------|
| 0. Exit                              |
| 1. Print all users                   |
| 2. Print all professions             |
| 3. Delete profession before id       |
========================================
Option: _
```



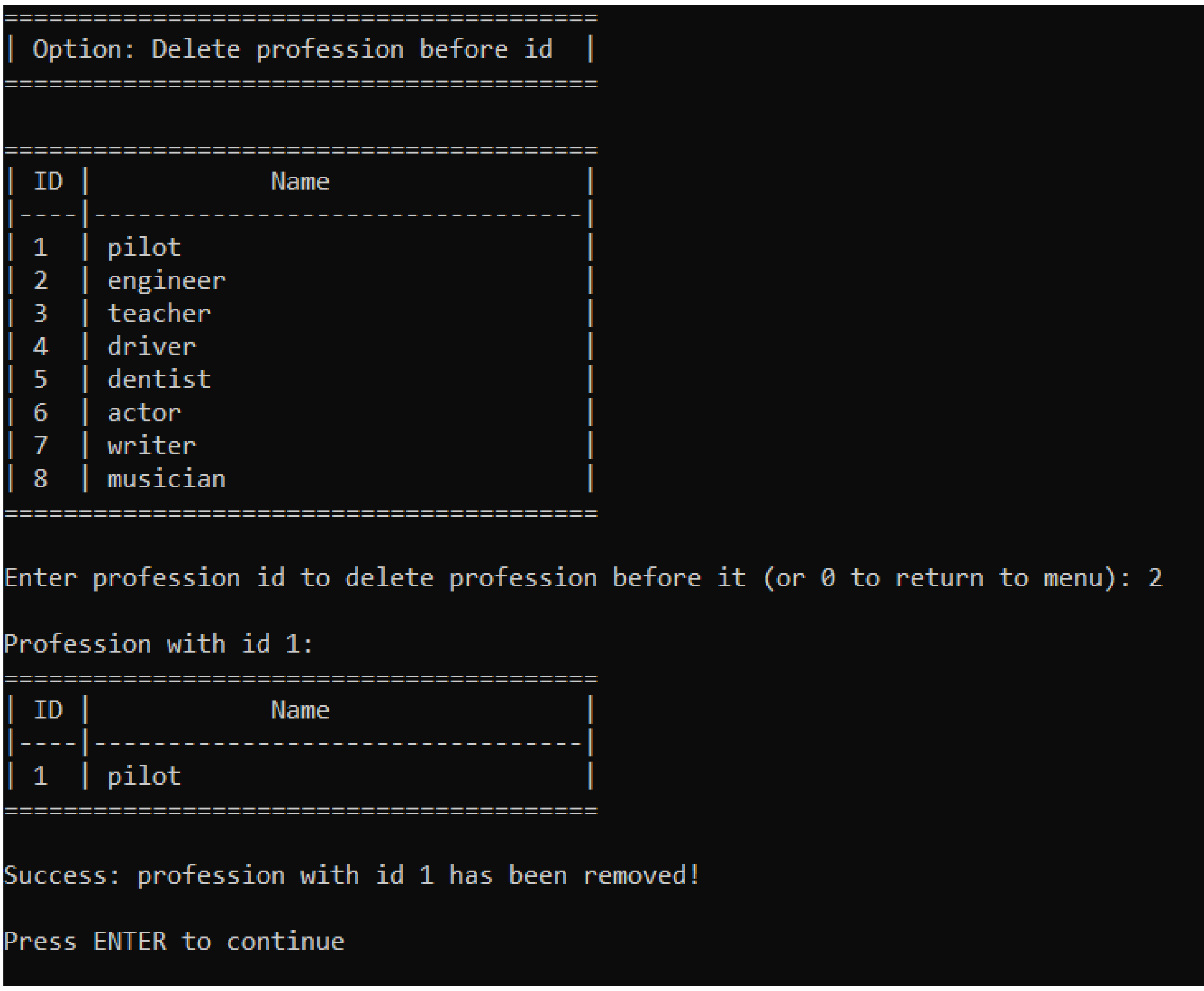
```
========================================
| Option: Print all users              |
========================================

===================================================================================================================================
| ID |       Full Name        | Age |    Profession     | Friends Rating | Public Rating | Friends count |       Friends IDs      |
|----|------------------------|-----|-------------------|----------------|---------------|---------------|------------------------|
| 1  | John Doe               | 10  | undefined         | 4.5            | 3.9           | 3             |                2, 5, 7 |
| 2  | Jane Doe               | 20  | undefined         | 4.0            | 4.0           | 10            |  1, 2, 3, 4, 5, 6, ... |
| 3  | Alice Johnson          | 28  | pilot             | 4.2            | 3.7           | 4             |             1, 2, 6, 8 |
| 4  | Sarah Taylor           | 31  | teacher           | 4.0            | 4.1           | 5             |          8, 5, 6, 3, 1 |
| 5  | Robert White           | 29  | dentist           | 4.3            | 3.8           | 3             |                1, 2, 3 |
| 6  | Michael Brown          | 33  | engineer          | 3.9            | 4.0           | 5             |         3, 6, 9, 10, 2 |
| 7  | Linda Martinez         | 32  | pilot             | 3.9            | 3.7           | 4             |             4, 6, 5, 1 |
| 8  | Jane Smith             | 25  | driver            | 3.8            | 4.1           | 2             |                   1, 3 |
| 9  | Jack London            | 31  | writer            | 5.0            | 5.0           | 6             |       8, 5, 6, 3, 1, 9 |
| 10 | Emily Davis            | 27  | driver            | 4.1            | 3.8           | 3             |                1, 2, 3 |
| 11 | David Wilson           | 35  | actor             | 4.0            | 4.2           | 2             |                   5, 2 |
| 12 | Yakui The Maid         | 35  | musician          | 5.0            | 4.0           | 1             |                      9 |
===================================================================================================================================

Press ENTER to continue
```



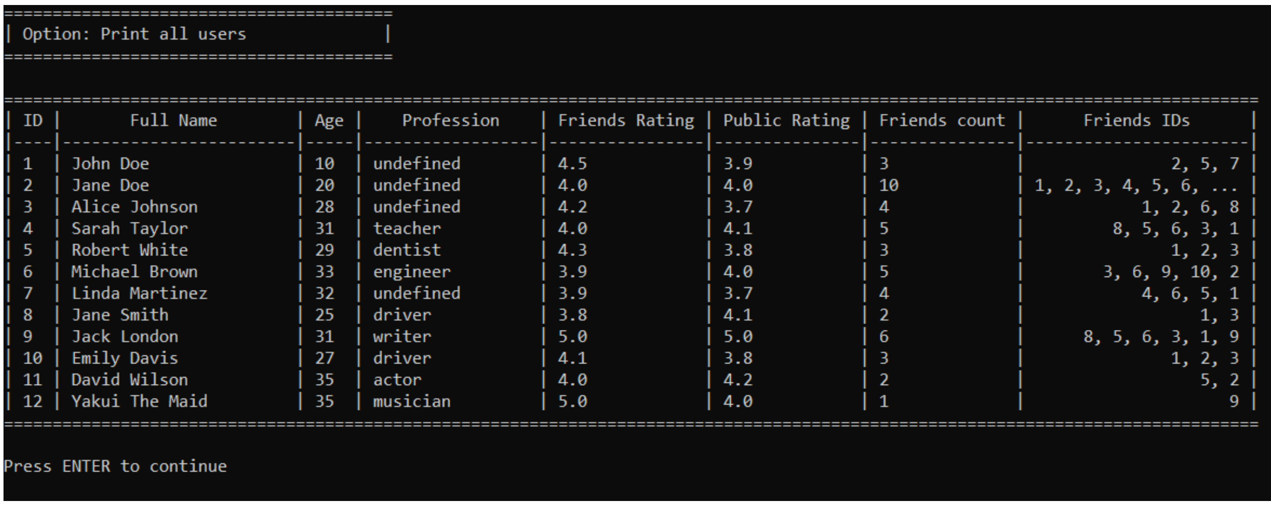
```
========================================
| Option: Print all professions        |
========================================


========================================
| ID |              Name               |
|----|---------------------------------|
| 1  | pilot                           |
| 2  | engineer                        |
| 3  | teacher                         |
| 4  | driver                          |
| 5  | dentist                         |
| 6  | actor                           |
| 7  | writer                          |
| 8  | musician                        |
========================================


Press ENTER to continue _
```



```
========================================
| Option: Delete profession before id  |
========================================

========================================
| ID |              Name               |
|----|---------------------------------|
| 1  | pilot                           |
| 2  | engineer                        |
| 3  | teacher                         |
| 4  | driver                          |
| 5  | dentist                         |
| 6  | actor                           |
| 7  | writer                          |
| 8  | musician                        |
========================================

Enter profession id to delete profession before it (or 0 to return to menu): 1

Failed: there is no profession with id 0

Press ENTER to continue
```



```
========================================
| Option: Delete profession before id  |
========================================

========================================
| ID |              Name               |
|----|---------------------------------|
| 1  | pilot                           |
| 2  | engineer                        |
| 3  | teacher                         |
| 4  | driver                          |
| 5  | dentist                         |
| 6  | actor                           |
| 7  | writer                          |
| 8  | musician                        |
========================================

Enter profession id to delete profession before it (or 0 to return to menu): 2

Profession with id 1:
========================================
| ID |              Name               |
|----|---------------------------------|
| 1  | pilot                           |
========================================

Success: profession with id 1 has been removed!

Press ENTER to continue
```



```
========================================
| Option: Print all users              |
========================================

==================================================================================================================================
| ID |        Full Name        | Age |     Profession     | Friends Rating | Public Rating | Friends count |      Friends IDs        |
|----|-------------------------|-----|--------------------|----------------|---------------|---------------|-------------------------|
| 1  | John Doe                | 10  | undefined          | 4.5            | 3.9           | 3             |                 2, 5, 7 |
| 2  | Jane Doe                | 20  | undefined          | 4.0            | 4.0           | 10            | 1, 2, 3, 4, 5, 6, ...   |
| 3  | Alice Johnson           | 28  | undefined          | 4.2            | 3.7           | 4             |              1, 2, 6, 8 |
| 4  | Sarah Taylor            | 31  | teacher            | 4.0            | 4.1           | 5             |           8, 5, 6, 3, 1 |
| 5  | Robert White            | 29  | dentist            | 4.3            | 3.8           | 3             |                 1, 2, 3 |
| 6  | Michael Brown           | 33  | engineer           | 3.9            | 4.0           | 5             |          3, 6, 9, 10, 2 |
| 7  | Linda Martinez          | 32  | undefined          | 3.9            | 3.7           | 4             |              4, 6, 5, 1 |
| 8  | Jane Smith              | 25  | driver             | 3.8            | 4.1           | 2             |                    1, 3 |
| 9  | Jack London             | 31  | writer             | 5.0            | 5.0           | 6             |        8, 5, 6, 3, 1, 9 |
| 10 | Emily Davis             | 27  | driver             | 4.1            | 3.8           | 3             |                 1, 2, 3 |
| 11 | David Wilson            | 35  | actor              | 4.0            | 4.2           | 2             |                    5, 2 |
| 12 | Yakui The Maid          | 35  | musician           | 5.0            | 4.0           | 1             |                       9 |
==================================================================================================================================

Press ENTER to continue
```

Выводы.

В результате выполнения работы были получены практические навыки работы с линейными двусвязными списками в языке С.