Исходный текст программы

```c
#include <stdio.h>

#include <stdlib.h>

#include <string.h>


typedef struct {

    char Name[30];

    char TELE[30];

    char DATE[30];

} noteInterface;


void sort(noteInterface *BLOCKNOTE, int n);

int isValidMonth(char *s);


int main() {

    const char *fileName = "index.csv";

    int i;

    int n = 9;

    int count = 0;

    char userInput[50];

    char month[3];

    noteInterface BLOCKNOTE[9];


    FILE *file = fopen(fileName, "r");

    if (file != NULL) {

        for (i = 0; i < 9; i++) {

            if (fscanf(file, "%29[^,],%29[^,],%29[^,\n]\n", BLOCKNOTE[i].Name, BLOCKNOTE[i].TELE,
BLOCKNOTE[i].DATE) != 3) {

                n = i;

                i = 9;

            }

        }

        fclose(file);


        sort(BLOCKNOTE, n);


        printf("All users, sorted by name:\n");

        printf("| %-3s | %-30s | %-30s | %-30s |\n", "No", "Name", "Phone Number", "Date of Birth");

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

```c
        for (i = 0; i < n; i++) {
            printf("| %-3d | %-30s | %-30s | %-30s |\n", i + 1, BLOCKNOTE[i].Name, BLOCKNOTE[i].TELE,
BLOCKNOTE[i].DATE);
        }


        printf("\nEnter the month number (01, 02, ..., 11, 12) to see users born this month: ");
        scanf("%s", userInput);


        if (isValidMonth(userInput)) {
            for (i = 0; i < n; i++) {
                strncpy(month, BLOCKNOTE[i].DATE + 5, 2);
                month[2] = '\0';
                if (strcmp(month, userInput) == 0) {
                    count++;
                    printf("| %-3d | %-30s | %-30s | %-30s |\n", i + 1, BLOCKNOTE[i].Name, BLOCKNOTE[i].TELE,
BLOCKNOTE[i].DATE);
                }
            }
            if (count == 0) {
                printf("It seems that none of the users were born in this month");
            }
        } else {
            printf("invalid month number\n");
        }
    } else {
        perror("failed to open file");
    }


    return 0;
}



void sort(noteInterface *BLOCKNOTE, int n)  {
    noteInterface tmp;
    int i, j;


    for(i = 0; i < n; i++) {
        tmp = BLOCKNOTE[i];
        for (j = i - 1; (j >= 0) && (BLOCKNOTE[j].Name[0] > tmp.Name[0]); j--) {
            BLOCKNOTE[j+1] = BLOCKNOTE[j];
        }
```

2

```c
        BLOCKNOTE[j+1] = tmp;

    }

}


int isValidMonth(char *s) {


    return ((strlen(s) == 2) &&
        (s[0] == '1' && '0' <= s[1] && s[1] <= '2') ||
        (s[0] == '0' && '1' <= s[1] && s[1] <= '9'));

}
```

Контрольные примеры

Пример 1:

Исходный файл (10 строк):

Ann M.,88005553535,2005.06.05

Bob S.,88005553536,1990.03.15

Alice L.,88005553537,1985.11.20

John D.,88005553538,1978.09.02

Emily P.,88005553539,2002.12.10

Michael R.,88005553540,1995.07.25

Sarah H.,88005553541,1982.04.30

David C.,88005553542,1976.08.18

Olivia K.,88005553543,2001.01.28

James M.,88005553544,1993.06.08

Результат работы программы:

All users, sorted by name:

No	Name	Phone Number	Date of Birth	
1	Alice L.	88005553537	1985.11.20	
2	Ann M.	88005553535	2005.06.05	
3	Bob S.	88005553536	1990.03.15	

| 4 | David C. | 88005553542 | 1976.08.18 |

| 5 | Emily P. | 88005553539 | 2002.12.10 |

| 6 | John D. | 88005553538 | 1978.09.02 |

| 7 | Michael R. | 88005553540 | 1995.07.25 |

| 8 | Olivia K. | 88005553543 | 2001.01.28 |

| 9 | Sarah H. | 88005553541 | 1982.04.30 |

Enter the month number (01, 02, …, 11, 12) to see users born this month: 06

| 2 | Ann M. | 88005553535 | 2005.06.05 |

Пример 2:

Исходный файл:

Ann M.,88005553535,2005.06.05

Bob S.,88005553536,1990.03.15

Alice L.,88005553537,1985.11.20

Результат работы программы:

All users, sorted by name:

| No | Name | Phone Number | Date of Birth |

| 1 | Alice L. | 88005553537 | 1985.11.20 |

| 2 | Ann M. | 88005553535 | 2005.06.05 |

| 3 | Bob S. | 88005553536 | 1990.03.15 |

Enter the month number (01, 02, ..., 11, 12) to see users born this month: 02

It seems that none of the users were born in this month

Пример 3:

Исходный файл:

Ann M.,88005553535,2005.06.05

Результат работы программы:

All users, sorted by name:

| No | Name | Phone Number | Date of Birth |

| 1 | Ann M. | 88005553535 | 2005.06.05 |

Enter the month number (01, 02, ..., 11, 12) to see users born this month: 13

invalid month number

Примеры выполнения программы

```
All users, sorted by name:
| No  | Name                       | Phone Number    | Date of Birth     |
------------------------------------------------------------------------------
| 1   | Alice L.                   | 88005553537     | 1985.11.20        |
| 2   | Ann M.                     | 88005553535     | 2005.06.05        |
| 3   | Bob S.                     | 88005553536     | 1990.03.15        |
| 4   | David C.                   | 88005553542     | 1976.08.18        |
| 5   | Emily P.                   | 88005553539     | 2002.12.10        |
| 6   | John D.                    | 88005553538     | 1978.09.02        |
| 7   | Michael R.                 | 88005553540     | 1995.07.25        |
| 8   | Olivia K.                  | 88005553543     | 2001.01.28        |
| 9   | Sarah H.                   | 88005553541     | 1982.04.30        |

Enter the month number (01, 02, ..., 11, 12) to see users born this month: 06
| 2   | Ann M.                     | 88005553535     | 2005.06.05        |

Process returned 0 (0x0)   execution time : 3.144 s
Press any key to continue.
```

```
All users, sorted by name:
| No  | Name                       | Phone Number    | Date of Birth     |
------------------------------------------------------------------------------
| 1   | Alice L.                   | 88005553537     | 1985.11.20        |
| 2   | Ann M.                     | 88005553535     | 2005.06.05        |
| 3   | Bob S.                     | 88005553536     | 1990.03.15        |

Enter the month number (01, 02, ..., 11, 12) to see users born this month: 02
It seems that none of the users were born in this month
Process returned 0 (0x0)   execution time : 9.096 s
Press any key to continue.
```

```
All users, sorted by name:
| No  | Name                       | Phone Number    | Date of Birth     |
------------------------------------------------------------------------------
| 1   | Ann M.                     | 88005553535     | 2005.06.05        |

Enter the month number (01, 02, ..., 11, 12) to see users born this month: 13
invalid month number

Process returned 0 (0x0)   execution time : 1.864 s
Press any key to continue.
```

Выводы.

Были получены практические навыки работы со структурами и массивами структур в Си.