

МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ  
НАЦІОНАЛЬНОМУ УНІВЕРСИТЕТУ “ЛЬВІВСЬКА ПОЛІТЕХНІКА”

Кафедра систем штучного інтелекту

## Лабораторна робота №8

з дисципліни

«Алгоритмізація та програмування І»

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## Варіант №13

**Тема:** "Блоковий ввід-вивід"

**Мета:** Робота із двійковими файлами, організація вводу-виводу структурованої інформації і її зберігання на зовнішніх носіях.

### Виконати завдання:

**13**

**13.**Структура "Спортивна команда":

- назва;
- місто;
- кількість гравців;
- кількість набраних очків.

Знищити всі елементи з кількістю очків менше заданого, додати 2 елементи на початок файлу.

### Код:

```
#include <stdio.h>
```

```
//main structure of the teams
```

```
typedef struct SportTeam
```

```
{
```

```
    char name[10];
```

```
    char town[10];
```

```
    int participants;
```

```
int score;
```

```
}SportTeam;
```

```
int main()
```

```
{
```

```
    //file pointer
```

```
    FILE* fp;
```

```
    //enter the number of teams
```

```
    int teams;
```

```
    printf("Enter number of teams\n");
```

```
    scanf("%d",&teams);
```

```
    //closing file if there is an error
```

```
    fp = fopen("file.dat","wb");
```

```
    if(fp == NULL)
```

```
    {
```

```
        printf("Error");
```

```
        return 0;
```

```
    }
```

```
    //creates the copy of structure
```

```
    SportTeam SpTeam;
```

```
    //creates the array for the number of teams
```

```
    SportTeam arr[teams];
```

```

//enter the data
for(int i = 1; i <= teams;i++)
{
    printf("Name = ");
    scanf("%s",SpTeam.name);

    printf("Town = ");
    scanf("%s",SpTeam.town);

    printf("Participants = ");
    scanf("%d",&SpTeam.participants);

    printf("Score = ");
    scanf("%d",&SpTeam.score);

    printf("\n");

//writes the information to file
    fwrite(&SpTeam, sizeof(SpTeam),1,fp);
}

//reads and printf entered teams
freopen("file.dat","rb",fp);
int i = 0;
printf("The entered teams are:\n");
while(!feof(fp) && i <teams)

```

```

{
    fread(&arr[i],sizeof(SpTeam),1,fp);
    printf("\nName = %s \nTown = %s \nParticipants = %d \nScore =
%d",arr[i].name,arr[i].town, arr[i].participants, arr[i].score);
    i++;
    printf("\n");
}
printf("\n");

```

//deleting the score that is lower than current

```

printf("Deleting the score that is lower than current\n");
freopen("file.dat","wb",fp);
printf("Please give me the score\n\n");
int TheScore;
scanf("%d",&TheScore);
int count = 0;
for( i = 0; i < teams;i++)
{
    if(arr[i].score < TheScore)
    {
        count++;
        continue;
    }
}

```

//writes the given number to file

```

fwrite(&arr[i],sizeof(SpTeam),1,fp);
}

```

```

//reads and prints only the team that has bigger score than you entered
freopen("file.dat","rb",fp);
SportTeam TeamS[teams - count];
i = 0;
while(!feof(fp) && i < teams - count)
{
    fread(&TeamS[i],sizeof(SpTeam),1,fp);
    printf("\nName = %s \nTown = %s \nParticipants = %d \nScore =
%d",TeamS[i].name,TeamS[i].town, TeamS[i].participants, TeamS[i].score);
    i++;
}
printf("\n");

// Adding two elements
printf("\n");
printf("Enter 2 teams to add them: \n");
freopen("file.dat","wb",fp);

//creates the copy of structure
SportTeam TheElement;

for(i = 0; i < 2;i++)
{
    printf("Name = ");
    scanf("%s",TheElement.name);

```

```
printf("Town = ");  
scanf("%s",TheElement.town);
```

```
printf("Participants = ");  
scanf("%d",&TheElement.participants);
```

```
printf("Score = ");  
scanf("%d",&TheElement.score);
```

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

```
//writes the information to file
```

```
fwrite(&TheElement, sizeof(TheElement),1,fp);
```

```
}
```

```
//writes all data that was given to a file
```

```
for( i = 0; i < teams - count;i++)
```

```
{
```

```
    fwrite(&TeamS[i],sizeof(SportTeam),1,fp);
```

```
}
```

```
//reads and prints all teams that were entered
```

```
freopen("file.dat","rb",fp);
```

```
i = 0;
```

```
SportTeam TeamSS[teams - count+2];
```

```
while(!feof(fp) && i < teams - count+2 )
```

```
{
```

```
        fread(&TeamSS[i],sizeof(SportTeam),1,fp);
        printf("\nName = %s \nTown = %s \nParticipants = %d \nScore =
%d",TeamSS[i].name,TeamSS[i].town, TeamSS[i].participants, TeamSS[i].score);
        i++;
        printf("\n");
    }

fclose(fp);
}
```



```

1  #include <stdio.h>
2
3  //main structure of the teams
4  typedef struct SportTeam
5  {
6      char name[10];
7      char town[10];
8      int participants;
9      int score;
10 }SportTeam;
11
12
13 int main()
14 {
15     //file pointer
16     FILE* fp;
17
18     //enter the number of teams
19     int teams;
20     printf("Enter number of teams\n");
21     scanf("%d",&teams);
22
23     //closing file if there is an error
24     fp = fopen("file.dat","wb");
25     if(fp == NULL)
26     {
27         printf("Error");
28         return 0;
29     }
30
31     //creates the copy of structure
32     SportTeam SpTeam;
33
34     //creates the array for the number of teams
35     SportTeam arr[teams];
36
37     //enter the data
38     for(int i = 1; i <= teams;i++)
39     {
40         printf("Name = ");
41         scanf("%s",SpTeam.name);
42
43         printf("Town = ");
44         scanf("%s",SpTeam.town);
45
46         printf("Participants = ");
47         scanf("%d",&SpTeam.participants);
48
49         printf("Score = ");
50         scanf("%d",&SpTeam.score);
51
52         printf("\n");
53
54         //writes the information to file
55         fwrite(&SpTeam, sizeof(SpTeam),1,fp);
56     }
57
58     //reads and printf entered teams
59     freopen("file.dat","rb",fp);
60     int i = 0;
61     printf("The entered teams are:\n");
62     while(!feof(fp) && i < teams)
63     {
64         fread(&arr[i],sizeof(SpTeam),1,fp);
65         printf("\nName = %s \nTown = %s \nParticipants = %d \nScore = %d",arr[i].name,arr[i].town, arr[i].participants, arr[i].score);
66         i++;
67         printf("\n");
68     }
69     printf("\n");
70
71     //deleting the score that is lower than current
72     printf("Deleting the score that is lower than current\n");
73     freopen("file.dat","wb",fp);

```

```

72 printf("Deleting the score that is lower than current\n");
73 freopen("file.dat","wb",fp);
74 printf("Please give me the score\n\n");
75 int TheScore;
76 scanf("%d",&TheScore);
77 int count = 0;
78 for( i = 0; i < teams;i++)
79 {
80     if(arr[i].score < TheScore)
81     {
82         count++;
83         continue;
84     }
85
86     //writes the given number to file
87     fwrite(&arr[i],sizeof(SpTeam),1,fp);
88 }
89
90 //reads and prints only the team that has bigger score than you entered
91 freopen("file.dat","rb",fp);
92 SportTeam TeamS[teams - count];
93 i = 0;
94 while(!feof(fp) && i < teams - count)
95 {
96     fread(&TeamS[i],sizeof(SpTeam),1,fp);
97     printf("\nName = %s \nTown = %s \nParticipants = %d \nScore = %d",TeamS[i].name,TeamS[i].town, TeamS[i].participants, TeamS[i].score);
98     i++;
99 }
100 printf("\n");
101
102 // Adding two elements
103 printf("\n");
104 printf("Enter 2 teams to add them: \n");
105 freopen("file.dat","wb",fp);
106
107 //creates the copy of structure
108 SportTeam TheElement;
109
110 for(i = 0; i < 2;i++)
111 {
112     printf("Name = ");
113     scanf("%s",TheElement.name);
114
115     printf("Town = ");
116     scanf("%s",TheElement.town);
117
118     printf("Participants = ");
119     scanf("%d",&TheElement.participants);
120
121     printf("Score = ");
122     scanf("%d",&TheElement.score);
123
124     printf("\n");
125
126     //writes the information to file
127     fwrite(&TheElement, sizeof(TheElement),1,fp);
128 }
129
130 //writes all data that was given to a file
131 for( i = 0; i < teams - count;i++)
132 {
133     fwrite(&TeamS[i],sizeof(SportTeam),1,fp);
134 }
135
136 //reads and prints all teams that were entered
137 freopen("file.dat","rb",fp);
138 i = 0;
139 SportTeam TeamSS[teams - count+2];
140
141 while(!feof(fp) && i < teams - count+2 )
142 {
143     fread(&TeamSS[i],sizeof(SportTeam),1,fp);
144     printf("\nName = %s \nTown = %s \nParticipants = %d \nScore = %d",TeamSS[i].name,TeamSS[i].town, TeamSS[i].participants, TeamSS[i].score);
145     i++;
146     printf("\n");
147 }
148 fclose(fp);
149 }

```

## Результат:

```
~/workspace/ $ make laba8
clang -fsanitize=signed-integer-overflow -fsanit
~/workspace/ $ ./laba8
Enter number of teams
2
Name = madrid
Town = united
Participants = 11
Score = 400

Name = chelsie
Town = kingdom
Participants = 11
Score = 600

The entered teams are:

Name = madrid
Town = united
Participants = 11
Score = 400

Name = chelsie
Town = kingdom
Participants = 11
Score = 600

Deliting the score that is lower than current
Please give me the score

500

Name = chelsie
Town = kingdom
Participants = 11
Score = 600

Enter 2 teams to add them:
Name = barselona
Town = kamboja
Participants = 11
Score = 400

Name = dnipro
Town = mytown
Participants = 11
Score = 500

Name = barselona
Town = kamboja
Participants = 11
Score = 400

Name = dnipro
Town = mytown
Participants = 11
Score = 500

Name = chelsie
Town = kingdom
Participants = 11
Score = 600
~/workspace/ $ █
```