МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ

НАЦІОНАЛЬНОМУ УНІВЕРСИТЕТІ “ЛЬВІВСЬКА ПОЛІТЕХНІКА”

Кафедра систем штучного інтелекту

Лабораторна робота №8

з дисципліни

«Алгоритмізація та програмування І»

Виконав:

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Викладач:

Гасько Р.Т.

Львів – 2018р

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 eror
        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");

    //deliting the score that is lower than current
        printf("Deliting 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 biger 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");

    // Ading 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);
}
```

```c
#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 eror
    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");

    //deliting the score that is lower than current
    printf("Deliting the score that is lower than current\n");
    freopen("file.dat","wb",fp);
```

```
    printf("Deliting 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 biger 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");

    // Ading 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);
}
```

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/ $
```