**Structures**

**Example 1.** Create a program that implements the storage and processing of information about students using data structures. To store and process information about students of different courses of the same faculty, create an array of data structures stud, containing 3 records. Student information includes the following fields: -Surname of the student; -data; -course; The "data" field is a separate structure with fields: -address; -telephone. Organize the input of information about students in a separate function vvod. In the main function main (), organize the printing of information about the students of the course, the number of which will be entered from the keyboard.

#include <iostream>

using namespace std;

struct danye {

char address[10];

int tel;};

struct student {

char surname[8];

danye dst; int kurs;

};

void vvod ( student A[3]);

int i;

int main()

{

student facul1[3];

int k;

vvod(facul1);

cout<<"vvedite n kursa";

cin>>k;

for (i=0;i<3;i++)

if (facul1[i].kurs==k)

{cout<<"\n Familia: "<<facul1[i].surname;

cout<<"\n Address: "<<facul1[i].dst.address;}

return 0;

}

void vvod (student A[3])

{

for(i=0;i<3;i++)

{

cout<<"\nvvedite familiyu stud ";

cin>>A[i].surname;

cout<<"\nkurs ";

cin>>A[i].kurs;

cout<<"\n address ";

cin>>A[i].dst.address;

cout<<"\n tel ";

cin>>A[i].dst.tel;

}

}

**Example 2 Program “Library”**

Information about 4 books is entered from the keyboard:

-Surname of the author;

-Book title;

-the year of publishing;

-number of pages.

For reading information about books from the keyboard, a special function vvod is organized.

The program has a menu that allows you to choose the necessary operation with the library:

-selection and printing of books, the names of the authors of which begin with a certain letter (function **pech\_avtor**);

-exit from the program.

#include <iostream>

#include<cstdlib>

using namespace std;

struct biblioteka{

char avtor[15];

char nazv[15];

int year;

int str;};

void vvod (biblioteka A[4]);

void sort (biblioteka A[4]);

void pech\_avtor(biblioteka A[4]);

int i,j;

int main()

{ biblioteka book[4];

vvod(book);

for(i=0;i<4;i++)

{cout<<"\n------";

cout<<"\n Avtor: "<<book[i].avtor;

cout<<"\n Nazvanie: "<<book[i].nazv;

cout<<"\n Kol-vo str: "<<book[i].str;

cout<<"\n god izdania: "<<book[i].year;}

int choice;

for(;;)

{

cout<<”\n-------------------------------------“;

cout<<"\n Menu: pechat vseh knig po alfavitu - 1; \n";

cout<<" pechat knig po pervoy bukve avtora - 2; \n";

cout<<" vyhod iz menu - 3; \n";

cout<<" Vvedite nomer punkta menu \n";

cin>>choice;

switch(choice)

{

case 1:sort(book);

break;

case 2:pech\_avtor(book);

break;

case 3:exit(0);

}

}

return 0;}

//функция ввода книг

void vvod (biblioteka A[4])

{

for(i=0;i<4;i++)

{

cout<<"\nvvedite familiyu avtora ";

cin>>A[i].avtor;

cout<<"\n vvedie nazvanie knigi ";

cin>>A[i].nazv;

cout<<"\n god izdaniya ";

cin>>A[i].year;

cout<<"\n kol-vo stranic ";

cin>>A[i].str;

}

}

void pech\_avtor(biblioteka A[4])

{

char b;

cout<<"\n vvedite pervuy bukvu familii avtora ";

cin>>b;

for(i=0;i<4;i++)

{ if(A[i].avtor[0]==b)

{cout<<"\n------";

cout<<"\n Avtor: "<<A[i].avtor;

cout<<"\n Nazvanie: "<<A[i].nazv;

cout<<"\n Kol-vo str: "<<A[i].str;}

} }

**The task**. 1) Type the text of the program, compile the program, run it for execution. 2) Organize reading information about books from a text file. Information about books in the file should be stored in a column. For example:

Petrov

Utro

2001

233

Sidorov

Zemlya

1999

300

………………

3) Add a menu item for printing books by the year of publication specified from the keyboard. Organize in a separate function year.