LAB 12 TASKS:

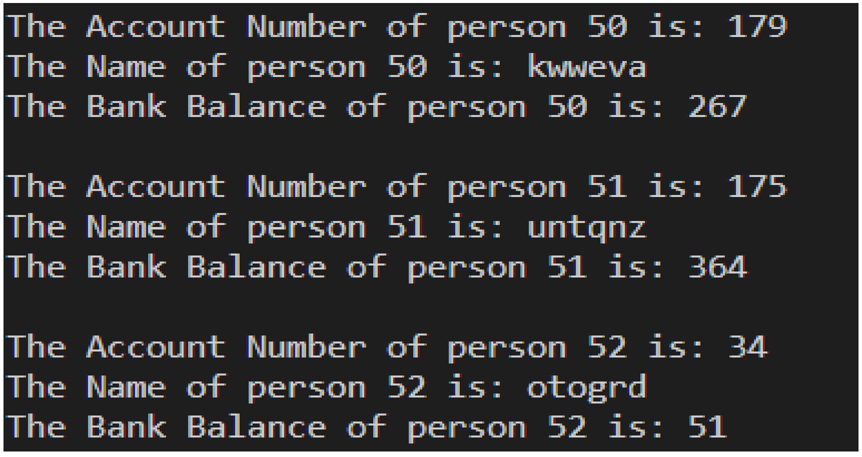
1- Tasks Create a structure to specify data of customers in a bank. The data to be stored is: Account number, Name, Balance in account. Assume maximum of 200 customers in the bank. Write a function to print the Account number and name of each customer with balance below Rs. 1000.

Source Code:

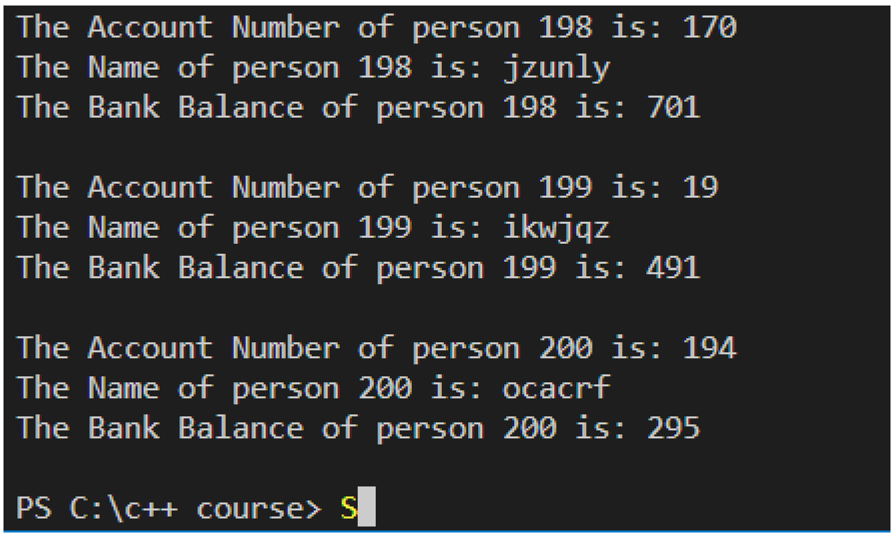
```
#include<iostream>
#include<time.h>
using namespace std;


struct data
{
   int Account_number;
   string name;
   double Balance;
};
struct data bank_data[200];



string alpha(char characters[26]);//prototype
void print_data(struct data bank_data[200],int L,int k)
{
   cout<<"The Account Number of person "<<L<<" is: 
"<<bank_data[k].Account_number<<endl;
   cout<<"The Name of person "<<L<<" is: "<<bank_data[k].name<<endl;
   cout<<"The Bank Balance of person "<<L<<" is: "<<bank_data[k].Balance<<endl;
}


int main()
{
    int L=1,k=0;
   char 
characters[26]={'a','b','c','d','e','f','g','h','i','j','k','l','m','n','o','p'
,'q','r','s','t','u','v','w','x','y','z'};
   srand(time(0));
   for(int i=0;i<200;i++)
   {
    bank_data[i].Account_number=rand()%200+1;


    bank_data[i].name=alpha(characters);


    bank_data[i].Balance=rand()%1000;

    print_data(bank_data,L,k);
    cout<<endl;
```

```
     L+=1;k+=1;
   }
   return 0;
}
string alpha(char characters[26])
{
    string result="";
    for(int j=0;j<6;j++)
    {
     result+=characters[rand()%26];
    }
   return result;
}
```

Output:



```
The Account Number of person 50 is: 179
The Name of person 50 is: kwweva
The Bank Balance of person 50 is: 267

The Account Number of person 51 is: 175
The Name of person 51 is: untqnz
The Bank Balance of person 51 is: 364

The Account Number of person 52 is: 34
The Name of person 52 is: otogrd
The Bank Balance of person 52 is: 51
```



```
The Account Number of person 198 is: 170
The Name of person 198 is: jzunly
The Bank Balance of person 198 is: 701

The Account Number of person 199 is: 19
The Name of person 199 is: ikwjqz
The Bank Balance of person 199 is: 491

The Account Number of person 200 is: 194
The Name of person 200 is: ocacrf
The Bank Balance of person 200 is: 295

PS C:\c++ course> S
```

LAB 12 TASKS:

3- Tasks i- Declare a structure named employee that stores the employee id, name, salary and department. ii- Declare an array of 5 employees for the structure defined in part(i) . Also write statements to assign the following values to the employee [3]. Employee id = “Your_roll_no” salary = 30,000 and department = “IT dept” iii- Write necessary statement to initialize all the elements of above array. iv- Write a function to take input in above array of struct employee. v- Write a function that prints the highest salaried person amongst the employees.

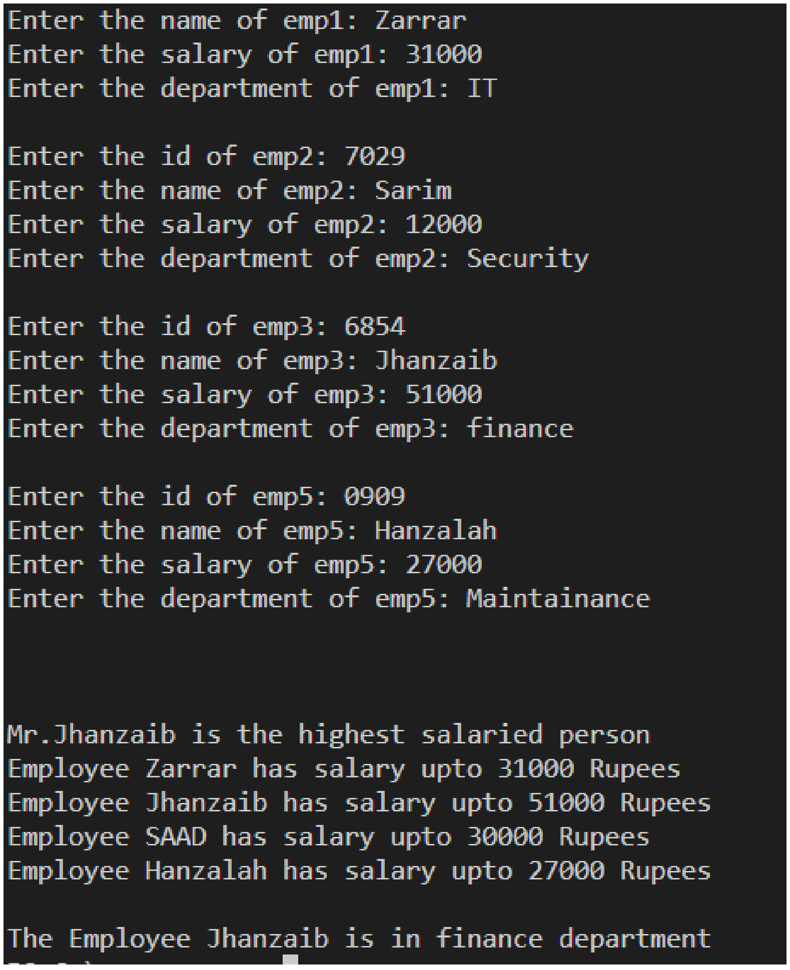
vi- Write a function that search & display records of all those employees, whose salary in greater than 15000. vii- Write a function that search & display records of all those employees, who are working in Finance department.

Source Code:

```
#include<iostream>
#include<string.h>
#include<conio.h>
using namespace std;


struct employee
{
    int id;
    string name;
    float salary;
    string department;
};
struct employee emp[5];
void input(struct employee emp[5],int a=1)
{
    for(int i=0;i<5;i++)
    {
        if(i!=3)
        {
            cout<<"Enter the id of emp"<<a<<": ";
            cin>>emp[i].id;
            cin.ignore();
            cout<<"Enter the name of emp"<<a<<": ";
            getline(cin,emp[i].name);
            cout<<"Enter the salary of emp"<<a<<": ";
            cin>>emp[i].salary;
            cin.ignore();
            cout<<"Enter the department of emp"<<a<<": ";
            getline(cin,emp[i].department); cout<<endl;
        }
        a++;
    }
}
void highest_salary(struct employee emp[5],int s=0)
{
   s=emp[0].salary;
   for(int j=0;j<5;j++)
   {
    if(s<emp[j].salary)
    s=emp[j].salary;
   }
   for(int k=0;k<5;k++)
   {
    if(s==emp[k].salary)
    cout<<"Mr."<<emp[k].name<<" is the highest salaried person";
   }
}
```

```
void high_pay(struct employee emp[5])
{
int a=1;
    for(int L=0;L<5;L++)
    {
        if(emp[L].salary>15000)
        {
            cout<<"Employee "<<emp[L].name<<" has salary upto 
"<<emp[L].salary<<" Rupees"<<endl;
            a++;
        }
}

}
void department(struct employee emp[5])
{
    for(int h=0;h<5;h++)
    {
        if(emp[h].department=="finance department")

        {
          cout<<"The Employee "<<emp[h].name<<" is in finance department";
        }
}

}
int main()
{
  emp[3].id=045;
  emp[3].name="SAAD";
  emp[3].salary=30000;
  emp[3].department="CS dept";



  input(emp);
  cout<<"\n\n";

  highest_salary(emp);
  cout<<endl;

  high_pay(emp);
  cout<<endl;

  department(emp);


    return 0;
}
```

Output:



```
Enter the name of emp1: Zarrar
Enter the salary of emp1: 31000
Enter the department of emp1: IT

Enter the id of emp2: 7029
Enter the name of emp2: Sarim
Enter the salary of emp2: 12000
Enter the department of emp2: Security

Enter the id of emp3: 6854
Enter the name of emp3: Jhanzaib
Enter the salary of emp3: 51000
Enter the department of emp3: finance

Enter the id of emp5: 0909
Enter the name of emp5: Hanzalah
Enter the salary of emp5: 27000
Enter the department of emp5: Maintainance



Mr.Jhanzaib is the highest salaried person
Employee Zarrar has salary upto 31000 Rupees
Employee Jhanzaib has salary upto 51000 Rupees
Employee SAAD has salary upto 30000 Rupees
Employee Hanzalah has salary upto 27000 Rupees

The Employee Jhanzaib is in finance department
```

LAB 12 TASKS:

2- Tasks Write a menu driven program that depicts the working of a library. The menu options should be: a) Add book information b) Display book information c) List all books of given author d) List the title ofspecified book e) List the count of books in the library f) List the books in the order of accession number g) Exit Create a structure called library to hold accession number, title of the book, author name, price of the book, and flag indicating whether book is issued or not.

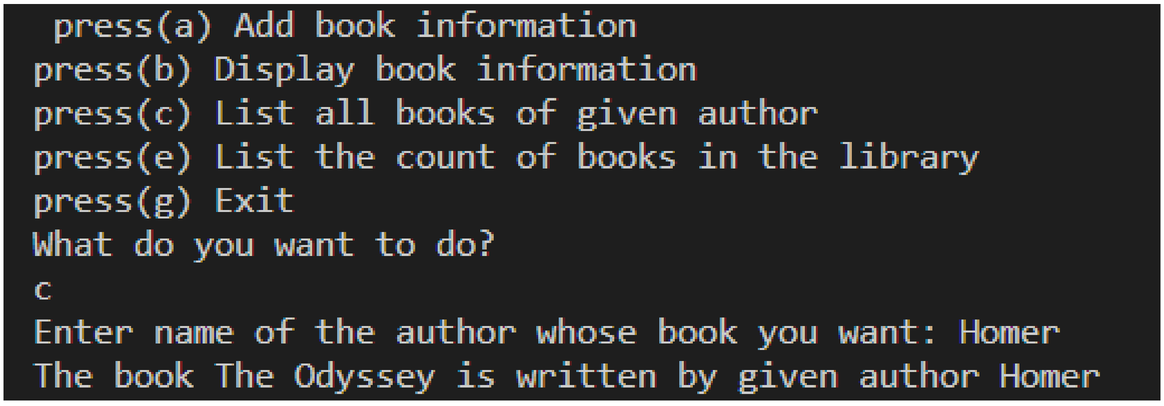
Source Code:

```
#include<iostream>
#include<cmath>
#include<stdlib.h>
using namespace std;


struct Library
{
```

```
int accession_number=0;
  string Title;
  string author_name;
  float price=0;
  string flag;
};
struct Library book[4];


void add(struct Library book[4])
{
  for(int i=0;i<4;i++)
  {char Q;
  cout<<"Do you want to make changes in book "<<book[i].accession_number<<"? ";
  cin>>Q;
  if(Q=='y')
  {
  cout<<"What is the accession number of the book? "<<endl;
  cin>>book[i].accession_number;
  cout<<"What is the Title of the book? "<<endl;
  cin>>book[i].Title;
  cout<<"what is the author name? "<<endl;
  cin>>book[i].author_name;
  cout<<"What is the price of the book? "<<endl;
  cin>>book[i].price;
  cout<<"Book is issued or not? "<<endl;
  cin>>book[i].flag;
   } }


}
void display(struct Library book[4])
{int a=1;
  for(int j=0;j<4;j++)
  {
    cout<<"The accession number of book "<<a<<" is:
"<<book[j].accession_number<<endl;
    cout<<"The Title of book "<<a<<" is: "<<book[j].Title<<endl;
    cout<<"The author name of book "<<a<<" is: "<<book[j].author_name<<endl;
    cout<<"The Price of book "<<a<<" is: "<<book[j].price<<endl;
    cout<<"The book "<<a<<" is: "<<book[j].flag<<endl;
    a++;
  }
}
void Books_List(struct Library book[4])
{int a=1;string N;
  cout<<"Enter name of the author whose book you want: ";
  cin>>N;
  for(int L=0;L<4;L++)
  {
  if(N==book[L].author_name)
  {
    cout<<"The book "<<book[L].Title<<" is written by given author
"<<book[L].author_name<<endl;
  } }
  // goto bm;
}
void Titles(struct Library book[4])
```

```
{
  int a=1;int Na;
  cout<<"Enter accession number of the book you want: ";
  cin>>Na;
  for(int h=0;h<4;h++)
  {
  if(Na==book[h].accession_number)
  {
    cout<<"The book "<<book[h].author_name<<" is written by
"<<book[h].author_name<<endl;
  } }
  // goto bm;
}
void Counts(struct Library book[4])
{
  int no=0;
  for(int g=0;g<4;g++)
  {
    no++;
  }
  cout<<"The total number of books in library are: "<<no<<endl;
  // goto bm;
}
void menu(struct Library book[4])
{
  cout<<" press(a) Add book information"<<endl;
  cout<<"press(b) Display book information"<<endl;
  cout<<"press(c) List all books of given author"<<endl;
  // cout<<"press(d) List the title ofspecified book"<<endl;
  cout<<"press(e) List the count of books in the library"<<endl;
  // cout<<"press(f) List the books in the order of accession number"<<endl;
  cout<<"press(g) Exit"<<endl;


char D;
cout<<"What do you want to do?"<<endl;
cin>>D;
if(D=='a')
{add(book);}
else if(D=='b')
{display(book);}
else if(D=='c')
{Books_List(book);}
else if(D=='e')
{Counts(book);}
else if(D=='g')
{
  cout<<"\t==Program is closed==";
  exit(0);
}
}
int main()
{A:
  book[0].accession_number=01;
  book[0].Title="The Odyssey";
  book[0].author_name="Homer";
  book[0].price=10.99;
  book[0].flag="issued";
book[1].accession_number=02;
  book[1].Title="Gulliver's Travels";
  book[1].author_name="Jonathan Swift";
  book[1].price=13.99;
  book[1].flag="not-issued";


  book[2].accession_number=03;
  book[2].Title="Treasure Island";
  book[2].author_name="Robert Louis Stevenson";
  book[2].price=2.6;
  book[2].flag="issued";


  book[3].accession_number=04;
  book[3].Title="The Adventures of Huckleberry Finn";
  book[3].author_name="Mark Twain";
  book[3].price=13.19;
  book[3].flag="issued";
  menu(book);


  goto A;
  return 0;
}
```

Output:



```
  press(a) Add book information
 press(b) Display book information
 press(c) List all books of given author
 press(e) List the count of books in the library
 press(g) Exit
 What do you want to do?
 c
 Enter name of the author whose book you want: Homer
 The book The Odyssey is written by given author Homer
```

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