BANK ACCOUNT MANAGEMENT SYSTEM

CSE2003- DSA PROJECT REPORT
(J Component)

submitted by

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INTRODUCTION

Our project is based on a Banking System. In other words bank account management. Our Banking System includes all the basic functions related such as:

- Account creation
- Account Modification
- Withdrawal of amount
- Deposition of amount
- Account Deletion

Programming Language for Implementation: C++

Data Structure to be used in your Project: Linked Lists

PRIMARY FUNCTIONS

Our Banking system possess following functions:

- Account creation: Any number of bank account can be created. For creation of an account the user must enter his/her name, phone number, date of birth, initial principle amount and a pin.

- Deposition: User can deposit any amount of money into his/her respective bank account securely.

- Withdrawal: User can withdrawal money from his/her respective bank account at any point of time securely.

- Account details: User can view his/her account details which includes name, phone number, date of birth, balance amount with interest etc.

- Account Modification: User can modify his/her details like his/her name, date of birth, PIN or contact details.

- Account Deletion: User can remove his/her account if he wishes.

ADDITIONAL FEATURES

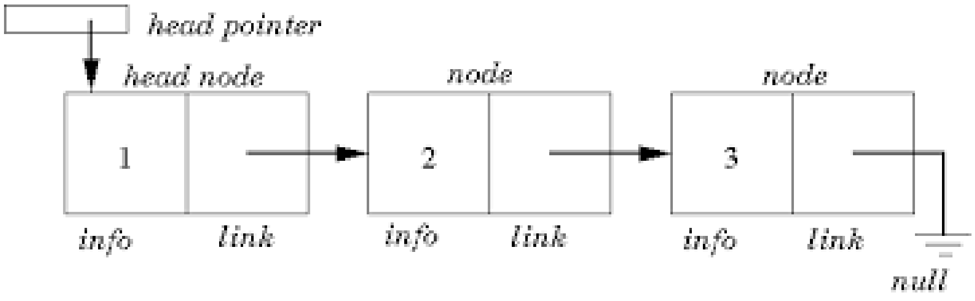
- Interest: Our bank is offering an interest of 6.5% per annum (0.54 per month), but here we are only considering months and years in the calculation of interest.

- Pin: Every bank account is equipped with a pin code decided by the account holder thus making their account much more secure.

- All the boundary conditions have been handled.

DATA STRUCTURE USED

In the following code all the accounts and its details are stored in the form of linked list and each data is accessed with the help of a pointer.



A Linked List

ALGORITHM

Step 1: Start

Step 2: Create a structure acc.

Step 3: Create variables acc_no, name, dob, phone_no, amt, m and y.

Step 4: Take inputs for every account.

Step 5: Create a linked list storing account details stored in structure named “acc”.

Step 6: Create an Insert function to create a new account whenever needed.

Step 7: Create a search function to search an account.

Step 8: Create withdraw and deposit function to withdraw and deposit amount.

Step 9: Create a modify function which calculates present amount, considering interest rate.

Step 10: Create a change function which can change the details of the account like name, pin etc.

Step 11: Stop

SOURCE CODE

```
#include<iostream.h>
#include<conio.h>
#include<stdio.h>
#include<string.h>
#include<dos.h>
int t=1;
struct acc{
        int acc_no;
        char name[20];
        char phone_no[10];
        float amt;
        char dob[10];
        int m,y;
        int pin;
        acc*next;
}*start=NULL,*rear=NULL,*newptr=NULL,*ptr=NULL,*p=NULL,*q=NULL,*np=NULL
;
acc* create_new_acc(acc);
void insert(acc*);
acc* search(int);
```

```
int withdraw(acc*);

void deposit(acc*);

void modify(acc*);

void change(acc*);


int main()

{clrscr();

textmode(C80);

cout<<"\n\n\n\n\n\t\t\t**********************************";

cout<<"\n\t\t\t*";

cout<<" BANK ACCOUNT MANAGEMENT SYSTEM";

cout<<" *";

cout<<"\n\t\t\t**********************************";

sleep(1);

cout<<"\n\n\n\t\t\t\t    DONE BY:\n\t\t\tHENIL JAYESH THAKOR
(18BCE0934)\n\t\t\t  HARSHITH CHUKKA  (18BCE0941)\n\t\t\t   RITVIK BHAGEL
(18BCE0958)";

cout<<"\n\n\t\t\t  Press any key to continue!!!";

getch();

start=rear=NULL;

int ch,ano,flag,p1;

char c='y';

acc a;

while(c=='y'||c=='Y')

{clrscr();
```

```
cout<<"\nMAIN MENU\n1.Create an account\n2.Remove an Account\n3.View account details\n4.Withdraw Money\n5.Deposit Money\n6.Change Account Details\n";

cout<<"\nEnter your choice: ";

cin>>ch;

switch(ch)

{

        case 1:cout<<"\nenter your name: ";

                  cin>>a.name;

                  cout<<"\nenter your phone no.: ";

                  gets(a.phone_no);

                  cout<<"\nenter your date of birth (dd/mm/yyyy): ";

                  gets(a.dob);

                  cout<<"\nenter the initial amount to be deposited: ";

                  cin>>a.amt;

                  a.acc_no=t;

                 qw: cout<<"\nenter today's date(mm yyyy): ";

                  cin>>a.m>>a.y;

                  if(a.m >12){

                  cout<<"\nInvalid Month";

                  goto qw;

                  }

                  cout<<"\nenter your pin(****): ";

                  cin>>a.pin;

                  a.next=NULL;

                  newptr=create_new_acc(a);
```

```
            if(newptr==NULL)
            {cout<<"\nSorry!\nNO MORE ACCOUNTS CAN BE CREATED…";}
            else
            {cout<<"\n ACCOUNT DATA SAVED";
            cout<<"\nYour Account No. is: "<<t;
            t++;
            }
            insert(newptr);
            cout<<"\nACCOUNT CREATED";
          break;
case 2:cout<<"\nenter your account no: ";
        cin>>ano;
        p=search(ano);
        if(p==rear||rear==NULL)
        {cout<<"\nACCOUNT NOT FOUND!!!";
            }
            else{
                cout<<"\nEnter your pin: ";
                cin>>p1;
                if(p1==np->pin){
                if(p==NULL)
                {if(np->next==NULL){
                  start=rear=NULL;}
                else
                {start=np->next;
            np->next=NULL;
            }
              }
        else{
            q=p->next;
            p->next=q->next;
            q->next=NULL;}
            cout<<"\nACCOUNT REMOVED.";
            t--;}
        else{
        cout<<"\nIncorrect Pin!!!";}
       }
     break;
case 3:cout<<"\nEnter account no: ";
       cin>>ano;
       p=search(ano);
       if(start==NULL)
       {cout<<"\nAccount not found!!!";
       }
       else if(p==rear)
       {cout<<"\nAccount not found!!!";
       }
       else{
            cout<<"\nEnter your pin: ";
            cin>>p1;
```

```
                if(p1==np->pin){
                modify(np);
                cout<<"\nThe account details are: ";
                cout<<"\nAccount no: "<<np->acc_no;
                cout<<"\nAccount Holder Name: ";
                puts(np->name);
                cout<<"\nAccount Holder's Phone no.: ";
                puts(np->phone_no);
                cout<<"\nAccount Holder's D.O.B.: ";
                for(int i=0;i<10;i++)
                {
                cout<<np->dob[i];
                }
                cout<<"\nPrinciple amount: "<<np->amt; }
                else{
                cout<<"\nIncorrect Pin!!!";}
          }
        break;
case 4:cout<<"\nEnter account no: ";
          cin>>ano;
          p=search(ano);
          if(start==NULL)
          {cout<<"\nAccount not found!!! ";
          }
          else if(p==rear)
```

```
            {cout<<"\nAccount not found!!! ";
            }
            else{
                  cout<<"\nEnter your pin: ";
                  cin>>p1;
                  if(p1==np->pin){
                  modify(np);
                  cout<<"\nThe account details are: ";
                  cout<<"\nAccount no"<<np->acc_no;
                  cout<<"\nAccount Holder Name: ";
                  puts(np->name);
                  cout<<"\nPrinciple amount: "<<np->amt;
                  flag=withdraw(np);
                  if(flag==-1)
                  {cout<<"\nTransaction Unsuccessful!!!";}
                  else
                  {cout<<"\nTransaction Successful!!!";
                  } }
                  else{
                  cout<<"\nIncorrect Pin!!!";}
            }
         break;
case 5:cout<<"\nEnter account no: ";
            cin>>ano;
            p=search(ano);
```

```
          if(start==NULL)
          {cout<<"\nAccount not found!!!";
          }
          else if(p==rear)
          {cout<<"\nAccount not found!!!";
          }
          else{
                cout<<"\nEnter your pin: ";
                cin>>p1;
                if(p1==np->pin){
                modify(np);
                cout<<"\nThe account details are: ";
                cout<<"\nAccount no"<<np->acc_no;
                cout<<"\nAccount Holder Name: ";
                puts(np->name);
                cout<<"\nPrinciple amount: "<<np->amt;
                deposit(np);
                cout<<"\nTransaction Successful!!!";}
                else{
                cout<<"\nIncorrect Pin!!!";}
          }
        break;
case 6: cout<<"\nEnter your account no: ";
        cin>>ano;
        search(ano);
```

```
                if(start==NULL)
                  {cout<<"\nAccount not found!!!";
                  }
                else if(p==rear)
                  {cout<<"\nAccount not found!!!";
                  }
                else
                {cout<<"\nEnter your pin: ";
                cin>>p1;
                if(p1==np->pin)
                {
                change(np);
                }
                else
                {
                cout<<"\nWRONG PIN!!!";
                }}
                break;
        default:cout<<"\nWRONG CHOICE!!!";
}
cout<<"\nDo you want to continue?(Y/N): ";
cin>>c;
}
delete ptr;
return 0;
```

```
}
acc* create_new_acc(acc b)
{
        ptr=new acc;
        ptr->acc_no=b.acc_no;
        ptr->amt=b.amt;
        strcpy(ptr->name,b.name);
        strcpy(ptr->phone_no,b.phone_no);
        strcpy(ptr->dob,b.dob);
        ptr->m=b.m;
        ptr->y=b.y;
        ptr->pin=b.pin;
        ptr->next=NULL;
        return ptr;
}

void insert(acc *newp)
{
if(start==NULL)
{
        start=newp;
        rear=newp;
        newp->next=NULL;
}
else
```

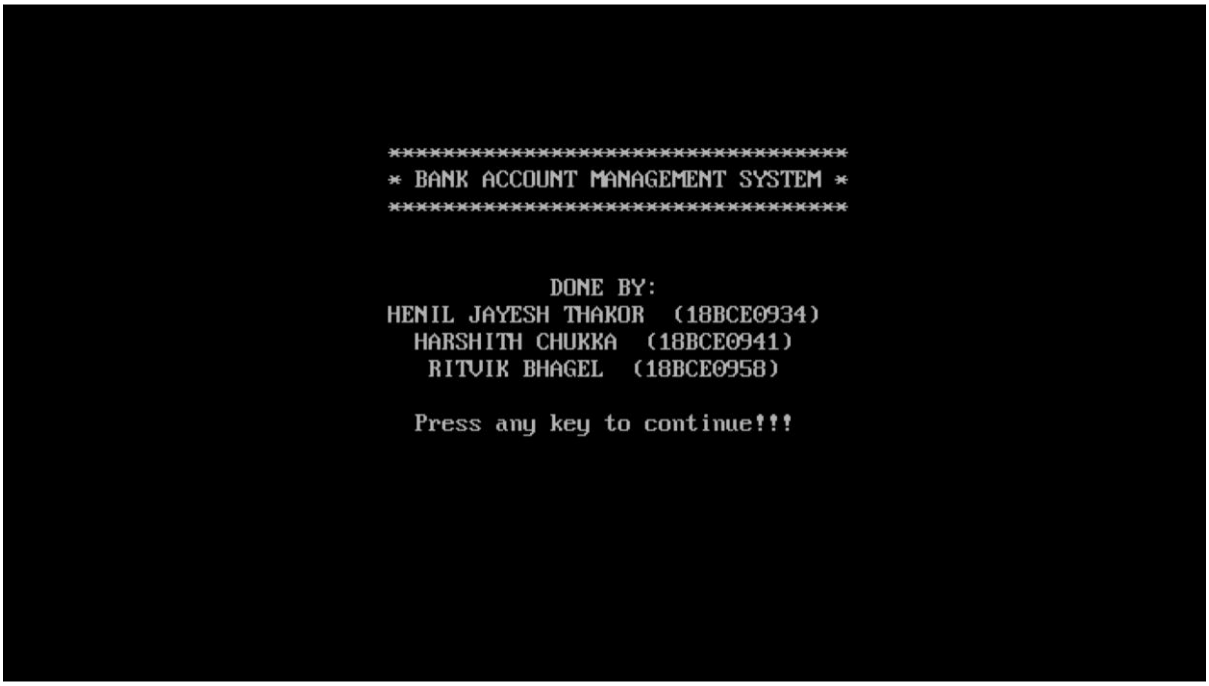
```
{ rear->next=newp;

rear=newp;

newp->next=NULL;

}

}


acc* search(int ano)

{acc*r=NULL;

np=start;

while(np->acc_no!=ano&&np!=NULL)

{

r=np;

np=np->next;

}

return r;

}

int withdraw(acc*wp)

{float amount;

cout<<"\nEnter the amount to be withdrawed: ";

cin>>amount;

if(amount>wp->amt)

{cout<<"\nYou do not have sufficient balance in your account!!";

return -1;

}

else if(amount==wp->amt)
```

```
{cout<<"\nYour account balance cannot be zero!!!";
cout<<"\nKindly remove your account to withdraw the whole principle amount";
return -1;
}
else
{wp->amt=wp->amt - amount;
cout<<"\nYour balance amount is Rs "<<wp->amt;
return 0;
}
}
void deposit(acc*dp)
{float amount;
cout<<"\nEnter the amount to be deposited: ";
cin>>amount;
dp->amt=dp->amt + amount;
cout<<"\nYour balance amount is Rs "<<dp->amt;
}
void modify(acc*mp)
{int mm,yy;
float inc;
qq: cout<<"\nEnter today's date (mm yyyy): ";
cin>>mm>>yy;
if(mm >12){
        cout<<"\nInvalid Month";
        goto qq;
        }
if(yy==mp->y)
{mp->amt=(mp->amt) + ((mp->amt)*(mm - mp->m)*0.54);}
else
{
if(mm >= mp->m)
{mp->amt=(mp->amt) + ((mp->amt)*((yy - mp->y)*6.5 + (mm - mp->m)*0.54));
}
else
{mp->amt=(mp->amt) + ((mp->amt)*((yy - mp->y)*6.5 - (mp->m - mm)*0.54));
}
}
mp->m=mm;
mp->y=yy;
}
void change(acc* mp)
{
int ch;
char c='y';
while(c=='y'||c=='Y')
{
clrscr();
cout<<"\nCHANGE DETAILS:\n1.NAME\n2.PHONE NO.\n3.D.O.B.\n4.PIN\n";
cout<<"\nEnter your choice:";
cin>>ch;
```

```
switch(ch)
{
case 1:cout<<"\nEnter new name: ";
      gets(mp->name);
      break;
case 2:cout<<"Enter  new phone no: ";
      gets(mp->phone_no);
      break;
case 3:cout<<"\nEnter new D.O.B.: ";
      gets(mp->dob);
      break;
case 4:cout<<"\nEnter new PIN: ";
      cin>>mp->pin;
      break;
default:cout<<"\nWrong Choice!!!";
}
cout<<"\nDo you want to change any other Details?(y/n): ";
cin>>c;
}
}
```

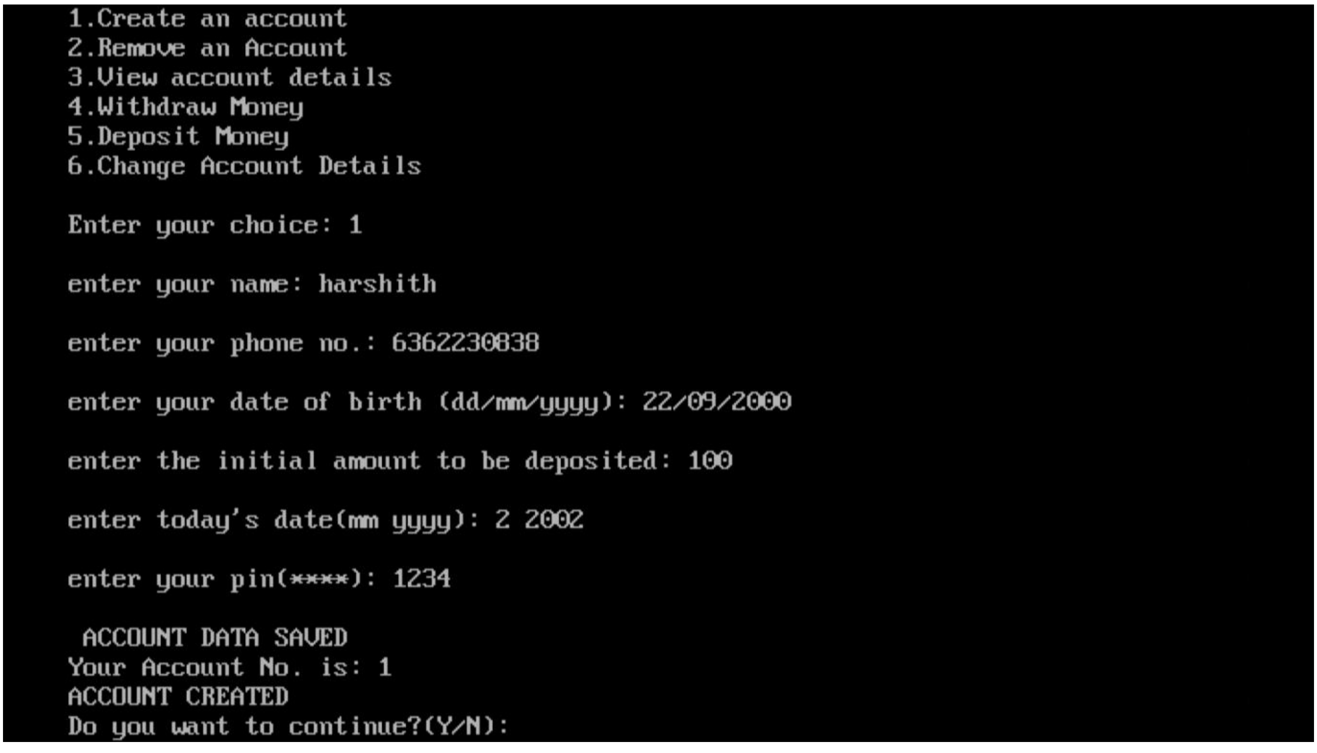
PROGRAM OUTPUT

Home screen:



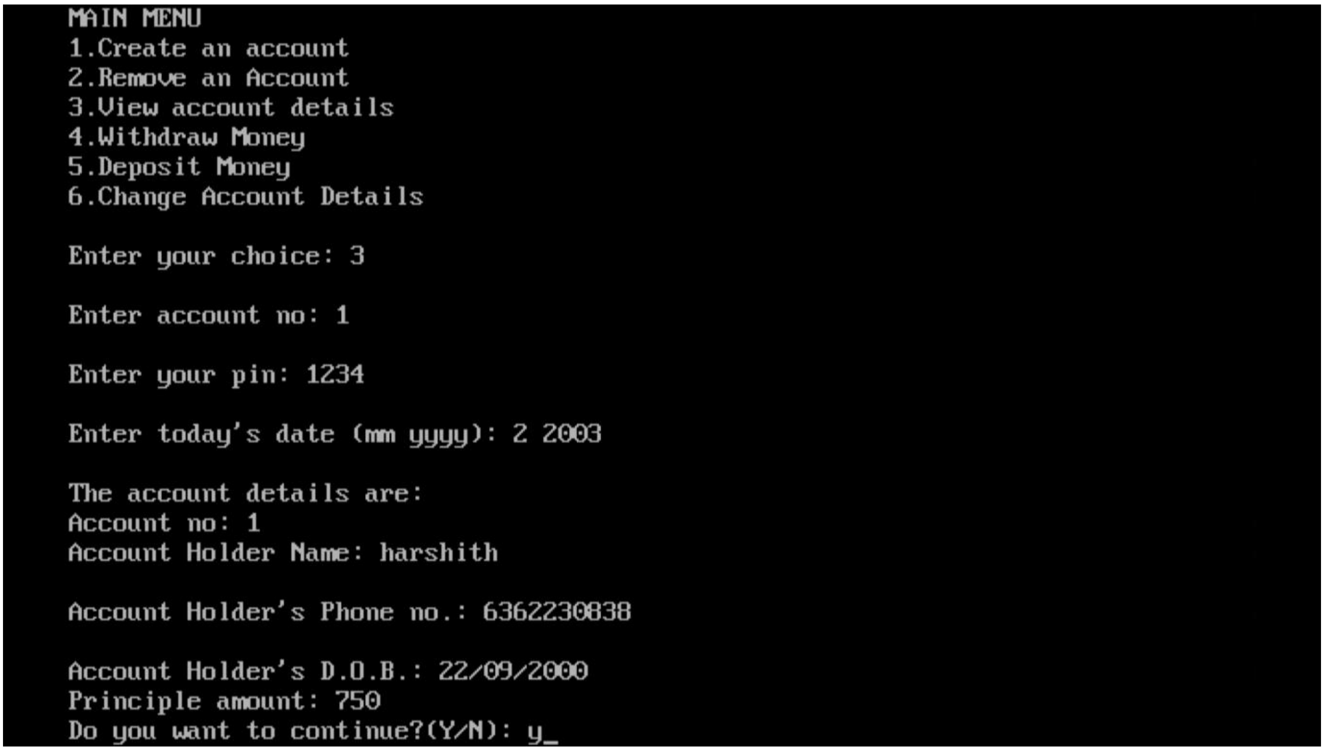
```
***********************************
* BANK ACCOUNT MANAGEMENT SYSTEM *
***********************************


            DONE BY:
HENIL JAYESH THAKOR  (18BCE0934)
  HARSHITH CHUKKA  (18BCE0941)
   RITVIK BHAGEL  (18BCE0958)

  Press any key to continue!!!
```

Account Creation:



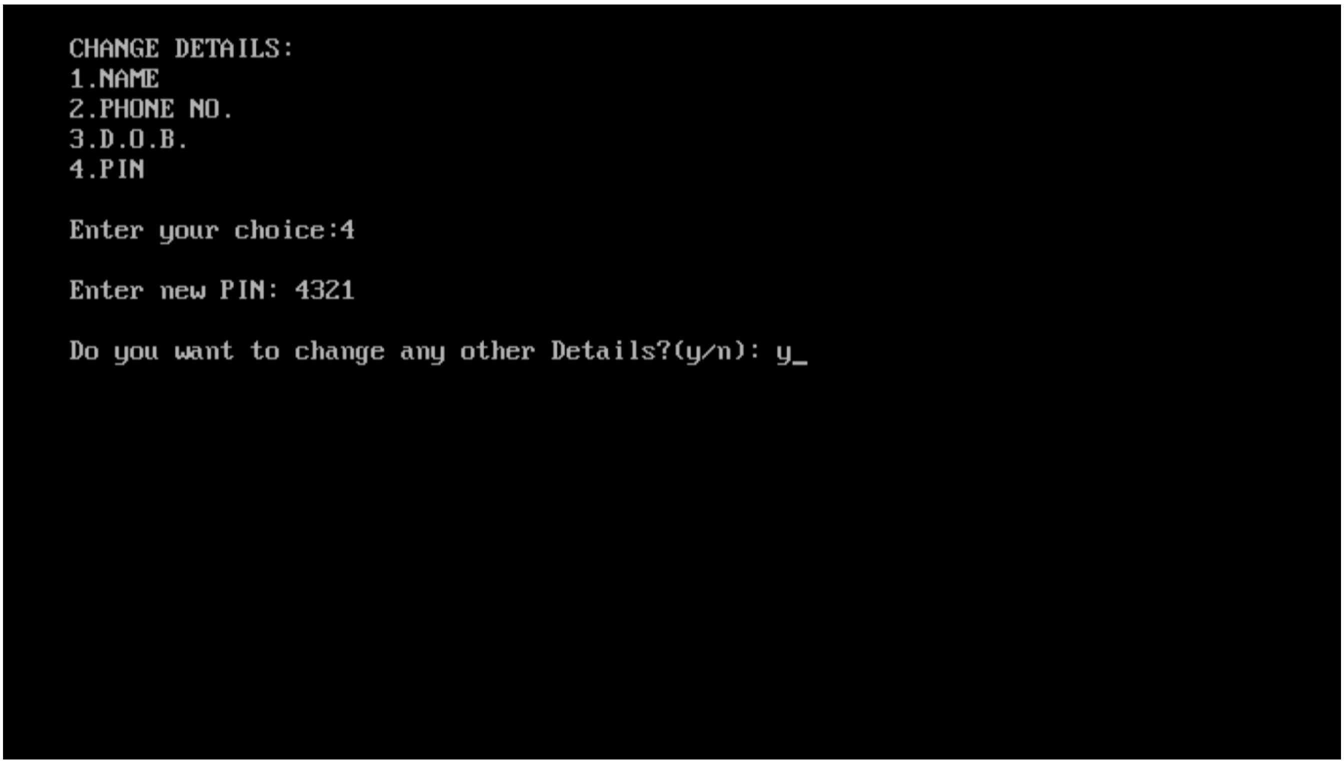
```
1.Create an account
2.Remove an Account
3.View account details
4.Withdraw Money
5.Deposit Money
6.Change Account Details

Enter your choice: 1

enter your name: harshith

enter your phone no.: 6362230838

enter your date of birth (dd/mm/yyyy): 22/09/2000

enter the initial amount to be deposited: 100

enter today's date(mm yyyy): 2 2002

enter your pin(****): 1234

 ACCOUNT DATA SAVED
Your Account No. is: 1
ACCOUNT CREATED
Do you want to continue?(Y/N):
```

Account Details:



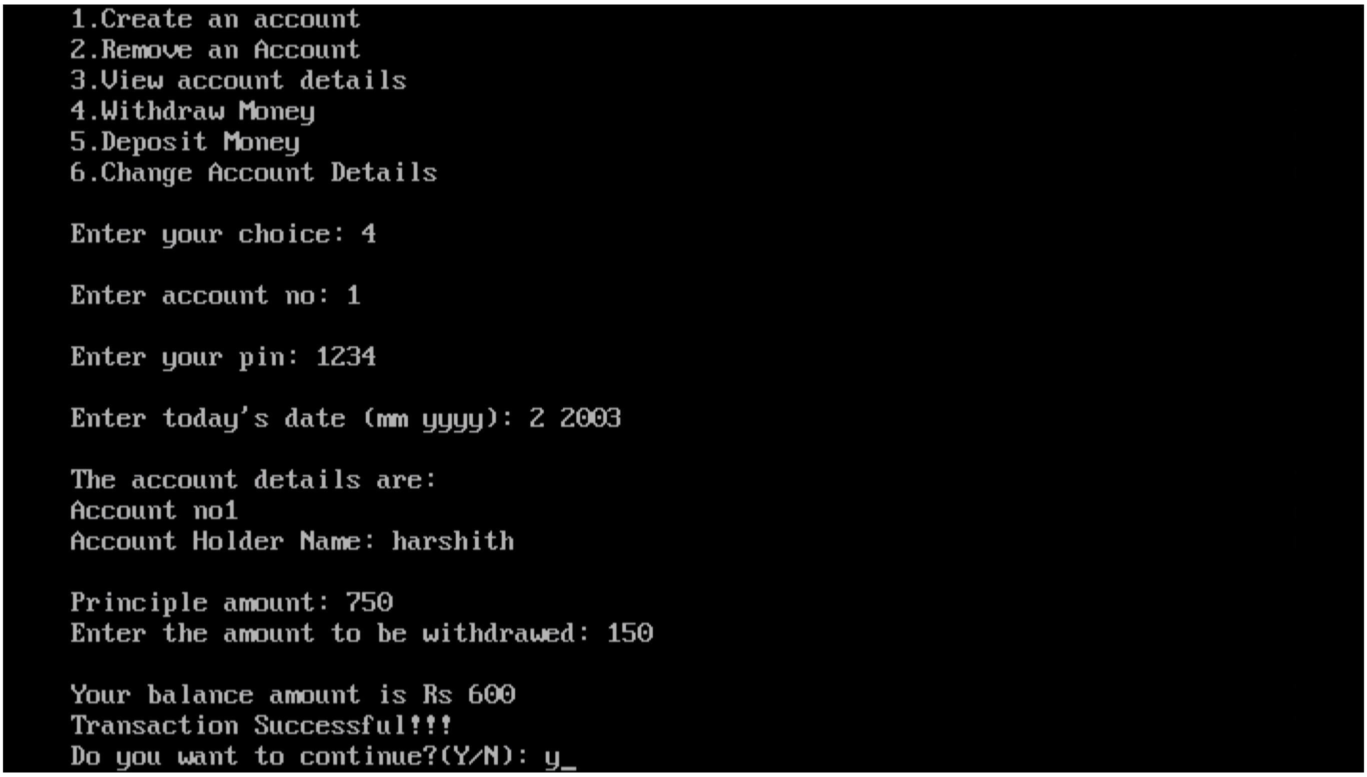
```
MAIN MENU
1.Create an account
2.Remove an Account
3.View account details
4.Withdraw Money
5.Deposit Money
6.Change Account Details

Enter your choice: 3

Enter account no: 1

Enter your pin: 1234

Enter today's date (mm yyyy): 2 2003

The account details are:
Account no: 1
Account Holder Name: harshith

Account Holder's Phone no.: 6362230838

Account Holder's D.O.B.: 22/09/2000
Principle amount: 750
Do you want to continue?(Y/N): y_
```

Account Modification:



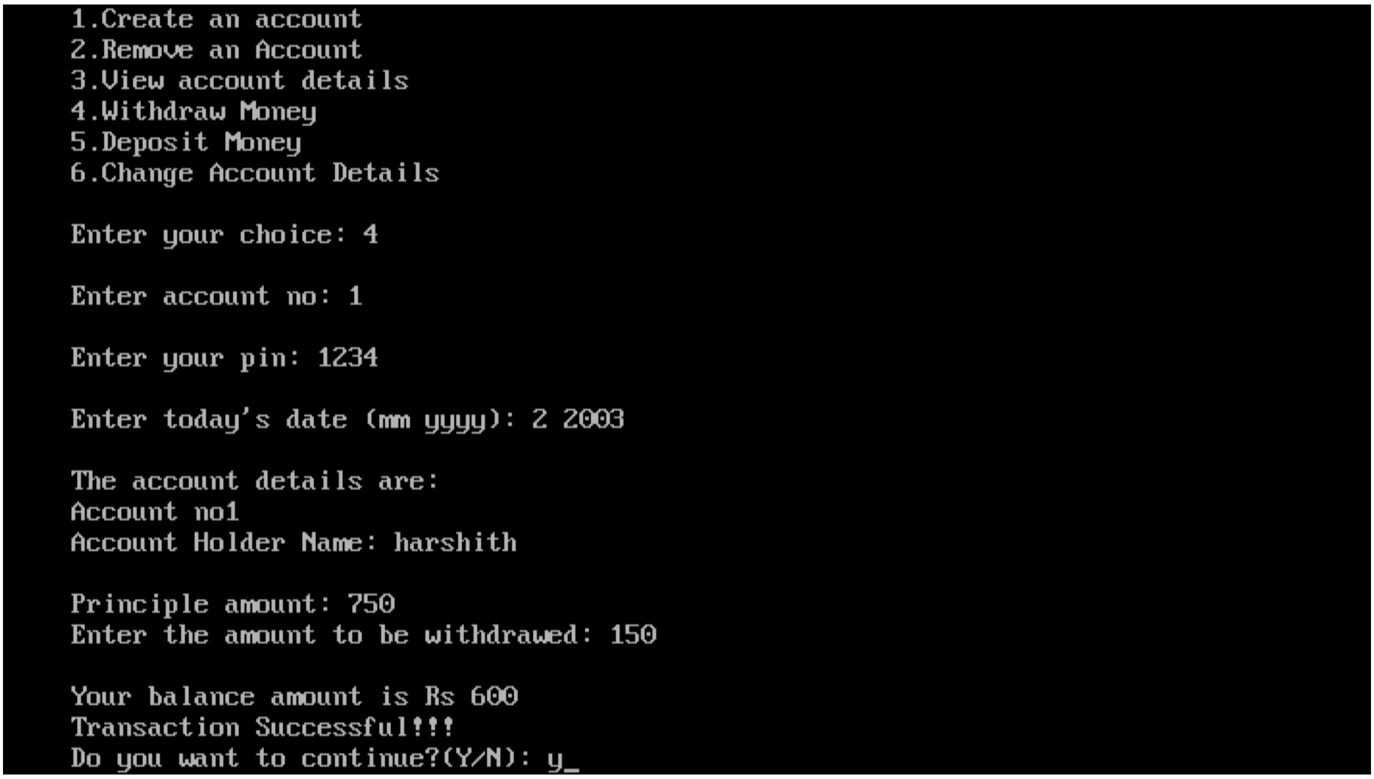
```
CHANGE DETAILS:
1.NAME
2.PHONE NO.
3.D.O.B.
4.PIN

Enter your choice:4

Enter new PIN: 4321

Do you want to change any other Details?(y/n): y_
```

Withdrawal of amount:



```
1.Create an account
2.Remove an Account
3.View account details
4.Withdraw Money
5.Deposit Money
6.Change Account Details

Enter your choice: 4

Enter account no: 1

Enter your pin: 1234

Enter today's date (mm yyyy): 2 2003

The account details are:
Account no1
Account Holder Name: harshith

Principle amount: 750
Enter the amount to be withdrawed: 150

Your balance amount is Rs 600
Transaction Successful!!!
Do you want to continue?(Y/N): y_
```

Deposition of amount:



```
1.Create an account
2.Remove an Account
3.View account details
4.Withdraw Money
5.Deposit Money
6.Change Account Details

Enter your choice: 4

Enter account no: 1

Enter your pin: 1234

Enter today's date (mm yyyy): 2 2003

The account details are:
Account no1
Account Holder Name: harshith

Principle amount: 750
Enter the amount to be withdrawed: 150

Your balance amount is Rs 600
Transaction Successful!!!
Do you want to continue?(Y/N): y_
```

SCOPE OF IMPROVEMENT

- Accuracy of interest calculation could have been increased by considering the number of days.
- The account details could have been more secured by storing it in a class, matching the real life examples.
- A function to transfer money from one account to another could have been included.

CONCLUSION

Complex data of various bank accounts can be easily stored, modified and processed using linear data structures like linked list associated with modifying functions.

----------------x----------------