Experiment No. :

Name of the Experiment: Creating a Bank Account Program Using Class & Objects

Theoretical Background:

Class: A class is a user defined data-type which has properties and functions known as methods.

Object: An object is an instance of class.

A class has 2 types of access modifiers:

>   1. Public
>   2. Private.

Private properties can't be accessed outside that particular class where Public properties can be accessed anywhere throughout the program.

When we create an object, a function is called by default known as Constructor. A constructor has same name as the class name and no return type.

There are 3 types of constructors:

>   1. Default Constructor: Created by default when we create an object by the compiler.

>   2. Parameterized Constructor: This is a user defined constructor. It has parameters and used to create object and at the same time updating value of the object.

>   3. Copy Constructor: It is used to copy the value of an object to another object. It is also created by default by the compiler.

Code:

```cpp
#include<bits/stdc++.h>

using namespace std;

class account{

private:

  string Name;
  long long account_ID;
  long long balance=0;

public:

  void create_account(){
     cout<<"Name:";
     cin>>Name;
     cout<<"Create account ID:";
     long long c;
     cin>>c;
        account_ID=c;
        cout<<"Account Created Successfully"<<endl;
     }

  long long check_balance(){
     return balance;
  }
```

```cpp
    void deposit(){
        long long c;
        cout<<"Enter Amount:";
        cin>>c;
        balance+=c;
        cout<<"Successfully Deposited"<<endl;
    }

    void withdraw(){
        long long c;
        cout<<"Enter amount:";
        cin>>c;
        balance-=c;
        cout<<"Money Withdrawn"<<endl;
    }

    int check(string user,long long id){
        if((Name==user)&&(account_ID==id)){
            return 1;
            }
            else return 0;
    }
};

void delete_account(account arr[],int n,int posi)
{
    for(int i=posi; i<n-1; i++)
    {
        arr[i]=arr[i+1];
    }
}

int find_ac(account arr[],int n){
    string fname;
    long long id;
    cout<<"Enter User's Name:";
    cin>>fname;
    cout<<"Enter User's Account ID:";
    cin>>id;
    for(int i=0; i<=n; i++)
    {
        if(arr[i].check(fname,id))
        return i;

    }
    cout<<"Account Not Found"<<endl;
    return -1;
}


int main(){
    account acc[100];
    int i=0,ID,b=1,posi;
```

```cpp
cout<< "**** Main Menu ****"<<endl;
cout<<endl;
cout<<"1.Open New Account"<<endl;
cout<<"2.Close Old Account"<<endl;
cout<<"3.Check Balance"<<endl;
cout<<"4.Deposit Money"<<endl;
cout<<"5.Withdraw Money"<<endl;
cout<<"6.Exit"<<endl;

while(1){
    cout<<"Choose an option from 1 to 6 :"<<endl;
    int n;
    cin>>n;

  if(n==1){
      cout<<"Give your admin ID :"<<endl;
      cin>>ID;
      if(ID==12345){
        acc[i].create_account();
        i++;
      }
      else cout<<"You Are Not Admin"<<endl;
  }

  if(n==6){
   exit(0);
  }

  if(n==2){
      cout<<"Give Your Admin ID:"<<endl;
      cin>>ID;
      if(ID==12345){
        posi=find_ac(acc,i);
        if(posi==-1) continue;
        if(acc[posi].check_balance()){
           cout<<"Account Has Money.It Can Not Be Deleted."<<endl;
        }

        else{
        delete_account(acc,i,posi);
        i--;
        cout<<"Account Has Been Deleted Successfully"<<endl;
        }

     }
      else cout<<"You Are Not Admin"<<endl;
   }

  if(n==3){
      posi=find_ac(acc,i);
      if(posi!=-1)
      cout<<"Your Balance Is :"<<acc[posi].check_balance()<<endl;
  }
```

```
        if(n==4){
            posi=find_ac(acc,i);
            if(posi!=-1)acc[posi].deposit();

        }
        if(n==5){
            posi=find_ac(acc,i);
            if(posi!=-1) acc[posi].withdraw();
        }
    }
}
```

Output:

```
**** Main Menu ****

1.Open New Account
2.Close Old Account
3.Check Balance
4.Deposit Money
5.Withdraw Money
6.Exit
Choose an option from 1 to 6 :
1
Give your admin ID :
12345
Name:Rifat
Create account ID:55555
Account Created Successfully !
Choose an option from 1 to 6 :
4
Enter User's Name:Rifat
Enter User's Account ID:55555
Enter Amount:1000
Successfully Deposited
Choose an option from 1 to 6 :
5
Enter User's Name:Rifat
Enter User's Account ID:55555
Enter amount:300
Money Withdrawn
Choose an option from 1 to 6 :
3
Enter User's Name:Rifat
Enter User's Account ID:55555
Your Balance Is :700
Choose an option from 1 to 6 :
2
Give Your Admin ID:
12345
Enter User's Name:Rifat
Enter User's Account ID:55555
Account Has Money,It Can Not Be Deleted.
Choose an option from 1 to 6 :
6

Process returned 0 (0x0)   execution time : 156.429 s
Press any key to continue.
```

Discussion:

So,We have implemented the idea of class and object in this Banking System Program. The class has some private properties which can't be accessed outside that class. We have used getter and setter functions to read and write values of those private properties. A user have to give information about his Name and Account number to create a new account. And only the admin can create and delete an account.And a account with money can not be deleted.During the balance check, deposit and withdraw money, a user has to give his account name and password correctly. Otherwise "Account Not found" message will be printed. And by entering 6 the program can be terminated.