VIT - Vellore

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BCSE102P_Structured and Object Oriented Programming Lab_VL2024250502365

VIT V_Structured and OOP_Lab 6_COD_Hard_Single inheritance

Attempt : 1
Total Mark : 10
Marks Obtained : 10

Section 1 : Coding

1. Problem Statement

Design a simple banking system that includes savings accounts. The system allows users to create savings accounts, deposit money, withdraw money, and calculate interest for the accounts. Each account has a unique account number and starts with an initial balance. The interest rate for each savings account is provided during its creation.

Classes:

Account: A base class for a bank account. It stores the account number and balance. It provides methods to deposit, withdraw, get the balance, and get the account number.

SavingsAccount: Inherits from the Account class. It represents a savings account with an additional interest rate. It has methods to calculate and add interest and display the account balance.

Answer

```
// You are using GCC
#include<iostream>
#include<iomanip>
#include<cmath>
using namespace std;

class Account{
   public:
      string acc_no;
      float balance;
      Account (string account, float bal)
      {
         acc_no = account;
         balance = bal;
      }
      void deposit(float amount){
         balance += amount;
         cout<<"Deposited "<< fixed << setprecision(2) <<amount<<"
successfully."<<endl;
      }
      void withdrawl(float amount){
         if(amount <= balance){
            balance -= amount;
            cout<<"Withdrawn "<< fixed << setprecision(2) << amount <<"
successfully."<< endl;
         }
      }
      float getBalance() const{
         return balance;
      }
      string account_no()
      {
         return acc_no;
      }
};
```

```
class SavingsAccount : public Account{
    public:
        float intrest_rate;
        SavingsAccount(string account, float bal, float rate) : Account(account , bal)
{
            intrest_rate = rate;
        }
        void addIntrest(){
            float intrest = balance * ((intrest_rate)/100);
            balance += intrest;
            cout<<"Interest added: "<<fixed << setprecision(2) << intrest <<endl;
        }
        void showBalance() const {
            cout<<"Savings Account Balance: "<< fixed << setprecision(2) << balance
<<endl;
        }
};

int main(){

    string acc_no;
    float amt_withdrawl;
    float balance;
    float intrest_rate;
    float deposite_amt;

    cin >> acc_no;
    cin >> balance;
    cin >> intrest_rate;
    cin >> deposite_amt;
    cin >> amt_withdrawl;

    SavingsAccount account(acc_no,balance,intrest_rate);
    account.deposit(deposite_amt);
    account.withdrawl(amt_withdrawl);
    account.addIntrest();
    account.showBalance();
    return 0;
}
```

Status : Correct **Marks : 10/10**