

**American International University- Bangladesh**

**Faculty of Science and Technology**

**Department of Computer Science**

**CSC 1205: Object Oriented Programming 1 (JAVA)**

**Mid Semester Assignment**

**Summer 19-20**

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**Section: X**

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1. **Write your codes below:**

**Account.java**

public class Account {

String acc\_no;

String AccOwnerName;

Account(){}

public String getAcc\_no() {

return acc\_no;

}

public void setAcc\_no(String acc\_no) {

this.acc\_no = acc\_no;

}

public String getAccountHolderName() {

return AccOwnerName;

}

public void setAccountHolderName(String accOwnerName) {

AccOwnerName = accOwnerName;

}

}

**SavingAccount.java**

public class SavingsAccount extends Account {

double interestRate;

double balance=0.00;

public double getBalance() {

return balance;

}

public double getInterestRate() {

return interestRate;

}

public void setBalance(double balance) {

this.balance = balance;

}

public void setInterestRate(double interestRate) {

this.interestRate = interestRate;

}

double calclInterest()

{

return ((interestRate\*balance));

}

double calcBalance()

{

balance= (balance+calclInterest());

return balance;

}

void showDetails()

{

System.out.println("Account Number: "+getAcc\_no());

System.out.println("Account Holder Name: "+getAccountHolderName());

System.out.println("Balance: "+getBalance());

System.out.println("Total Interest: "+calclInterest());

System.out.println("Interest Rate: "+calcBalance());

}

void deposit(double deposit)

{

balance+=deposit;

}

void withdraw(double withdraw)

{

balance-=withdraw;

}

SavingsAccount(String acc\_no,String AccOwnerName,double interestRate,double balance)

{

setAccountHolderName(AccOwnerName);

setAcc\_no(acc\_no);

this.interestRate=interestRate;

this.balance=balance;

}

}

**SalaryAccount.java**

public class SalaryAccount extends Account {

double interestRate;

double SalaryAmount;

double balance;

public double getInterestRate() {

return interestRate;

}

public double getSalaryAmount() {

return SalaryAmount;

}

public double getBalance() {

return balance;

}

public void setInterestRate(double interestRate) {

this.interestRate = interestRate;

}

public void setSalaryAmount(double salaryAmount) {

SalaryAmount = salaryAmount;

}

public void setBalance(double balance) {

this.balance = balance;

}

double calcInterestRate()

{

return ((interestRate\*balance));

}

double calcBalance()

{

balance= (balance+calcInterestRate()+SalaryAmount);

return balance;

}

void deposit(double deposit)

{

balance+=deposit;

}

void withdraw(double withdraw)

{

balance-=withdraw;

}

void showDetails()

{

System.out.println("Account Number: "+getAcc\_no());

System.out.println("Account Holder Name: "+getAccountHolderName());

System.out.println("Balance: "+getBalance());

System.out.println("Total Interest: "+calcInterestRate());

System.out.println("Interest Rate: "+calcBalance());

}

SalaryAccount(String acc\_no,String AccOwnerName,double interestRate,double balance)

{

setAccountHolderName(AccOwnerName);

setAcc\_no(acc\_no);

this.interestRate=interestRate;

this.balance=balance;

}

}

**Start.java**

public class Start {

public static void main(String[] args) {

SavingsAccount a2=new SavingsAccount("SA111","BBA\_AIUB",0.05,3500);

a2.showDetails();

a2.deposit(5000);

System.out.println("Balance of savings account after deposit: "+a2.getBalance());

a2.withdraw(3000);

System.out.println("Balance of savings account after withdraw: "+a2.getBalance());

SalaryAccount a1=new SalaryAccount("SA222","CS\_AIUB",0.03,5000);

a1.showDetails();

a1.deposit(3000);

System.out.println("Balance of savings account after deposit: "+a1.getBalance());

a1.withdraw(1500);

System.out.println("Balance of savings account after withdraw: "+a1.getBalance());

a1.setSalaryAmount(25000);

System.out.println("Balance of savings account after Salary deposit: "+a1.calcBalance());

}

}

**Output:**

Account Number: SA111

Account Holder Name: BBA\_AIUB

Balance: 3500.0

Total Interest: 175.0

Interest Rate: 3675.0

Balance of savings account after deposit: 8675.0

Balance of savings account after withdraw: 5675.0

Account Number: SA222

Account Holder Name: CS\_AIUB

Balance: 5000.0

Total Interest: 150.0

Interest Rate: 5150.0

Balance of savings account after deposit: 8150.0

Balance of savings account after withdraw: 6650.0

Balance of savings account after Salary deposit: 31849.5

**2. What OOP concepts you have used in your code? How does that feature/s help to solve your problem statement?**

**ANSWER:** Mainly, by using inheritance, constructors, overriding etc. I solve my assignment. Those features are help me to solve this problem easily. We all knows that inheritance is the mechanism of basing an object or class upon another object or class, retaining similar implementation. Also defined as deriving new classes from existing ones such as super class or base class and then forming them into a hierarchy of classes. I have to use constructors for creating a class or struct. Constructors have the same name as the class or struct, and they usually initialize the data members of the new object. Overriding helps me allows a subclass or child class to provide a specific implementation of a method that is already provided by one of its super-classes or parent classes.

I have finished my work by using all these features. These features have helped me to solved the code in a very good way.