**Lab Assignment 2**

**Date Of Submission:** 17-09-2020

**Experiment 4**

**Aim:** Design a class to represent a bank account. Include the following members.

Data Members:

Name of the depositor

Account Number

Type of Account

Balance amount in the account

Methods

To deposit an amount

To withdraw an amount after checking balance

To display the name and balance

Incorporate default and parameterized constructor to provide initial values

**Concept Used:** Class, Constructor Overloading, Polymorphism

**Algorithms :**

Algorithm : depositAmount(x):

Step 1: Start

Step 2: balance += x

Step 3: Stop

Algorithm :withdrawAmount(x):

Step 1: Start

Step 2: balance -= x

Step 3: Stop

Algorithm : display()

Step 1: Start

Step 2: print name

Step 3: print accountNumber

Step 4: print account type

Step 5: print balance

Step 6: Stop

Algorithm Bank() //Default Constructor

Step 1: start

Step 2: name = “”

Step 3: accountNumber =0

Step 4: accountType = “”

Step 5: balance=0

Step 6: Stop

Algorithm Bank(n,num,type,bal)

Step 1: Start

Step 2: name = n

Step 3: accountNumber = num

Step 4: accountType = type

Step 5: balance=bal

Step 6: Stop

**Result:** The program was successfully compiled and the required output was obtained

**Program:**

/\*\*

BankAccount.java

Created By: Rohit Karunakaran

\*\*/

class BankAccount{

String name;

long accNumber;

String accType;

float balance;

public void withdraw(float amount){

//You cannot withdraw negative values

if(amount>=0){

if(balance-amount > 0){

balance-=amount;

System.out.println("Sucessfully withdrawn "+ amount+" from the account");

}

else{

System.out.println("Error! Insufficient balance in Account");

}

System.out.println("Remaining balance in Account = " + balance+"\n");

}

else{

System.out.println("Please enter a valid amount\n");

}

}

public void deposit(float amount){

//You can't deposit negative values

if(amount>0){

balance+=amount;

System.out.println("Successfully deposited "+amount+" to the account");

System.out.println("Remaining balance is "+ balance+"\n");

}

else{

System.out.println("Error!!!! Enter a valid value\n");

}

}

public void display(){

System.out.println("\n==================================================");

System.out.println("Account Number: " + accNumber);

System.out.println("Name of the Account Holder: "+ name);

System.out.println("Account Type: "+ accType);

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

System.out.println("==================================================\n");

}

//Default constructor

BankAccount(){

name = " ";

accNumber = 0l;

accType = " ";

balance = 0.0f;

}

//Paramaterised constructor

BankAccount(String n,float b, long a, String t){

name = n;

balance = b;

accType = t;

accNumber = a;

}

public static void main(String[] args){

long a;

String name;

String type;

float cash;

BankAccount benk = new BankAccount();

BankAccount benk1 = new BankAccount("Babu",8034.123f,1029343458l,"Savings");

benk.display();

benk1.display();

a = 11066049032l;

name = "Dhamodharan";

cash = 2340.0f;

type = "Checkings";

benk.name = name;

benk.accNumber=a;

benk.balance=cash;

benk.accType=type;

benk.withdraw(9000.0f);

benk1.withdraw(800f);

benk.deposit(-2000f);

benk.display();

benk1.display();

}

}

**Sample Output:**

==================================================

Account Number: 0

Name of the Account Holder:

Account Type:

Balance: 0.0

==================================================

==================================================

Account Number: 1029343458

Name of the Account Holder: Babu

Account Type: Savings

Balance: 8034.123

==================================================

Error! Insufficient balance in Account

Remaining balance in Account = 2340.0

Sucessfully withdrawn 800.0 from the account

Remaining balance in Account = 7234.123

Error!!!! Enter a valid value

==================================================

Account Number: 11066049032

Name of the Account Holder: Dhamodharan

Account Type: Checkings

Balance: 2340.0

==================================================

==================================================

Account Number: 1029343458

Name of the Account Holder: Babu

Account Type: Savings

Balance: 7234.123

==================================================

**Experiment 5**

**Aim:** Write a Java program which creates a class named 'Employee' having the following members: Name, Age, Phone number, Address, Salary. It also has a method named 'printSalary( )' which prints the salary of the Employee. Two classes 'Officer' and 'Manager' inherits the 'Employee' class. The 'Officer' and 'Manager' classes have data members 'specialization' and 'department' respectively. Now, assign name, age, phone number, address and salary to an officer and a manager by making an object of both of these classes and print the same.

**Concepts Used:** Class, Inheritance, Method Overloading, this keyword

**Algorithms:**

Class Employee

1. Declare fields name, age, phone, address, salary

2. Define printSalary and printDetails methods

Class Officer inherits Class Employee

1. Declare additional field specialization

2. Define constructors for with and without specialization

Class Manager inherits Class Employee

1. Declare additional field department

2. Define constructors for with and without department

**Result:** The program is successfully compiled and the required output is obtained

**Program:**

/\* Employee.java

\*

\* Done By: Rohit Karunakaran

\*

\* Details On Classes:

\*

\* Employee:

\* Attributes:

\* Name -- String

\* Age -- int

\* PhoneNumber -- long

\* Address -- String

\* Salary -- float

\* Methods:

\* printSalary() -- prints the salary of the employee

\*

\* Officer - inherited from Employee:

\* Attributes:

\* specialization -- String

\*

\* Manager - inherited from Employee:

\* Attributes:

\* department -- String

\*

\* Task: assign name, age, phoneNo, addr and salary to an office and a manager

\* by making an object of both and print the same

\* \*/

class Employee{

String name;

int age;

long phoneNo;

String addr;

float salary;

void displayEmployee(){

System.out.println("Name: "+this.name);

System.out.println("Address: "+this.addr);

System.out.println("Phone Number: "+this.phoneNo);

System.out.println("Salary : "+this.salary);

}

//Function to display the salary of the Employee

void printSalary(){

System.out.println("Salary of "+this.name+" is "+ this.salary);

}

Employee(String name, int age, long phoneNo, String addr,float salary){

this.name = name;

this.age = age;

this.phoneNo = phoneNo;

this.addr = addr;

this.salary = salary;

}

//Default Constructor

Employee(){

this(" ",0,0l," ",0.0f);

}

public static void main(String [] args){

Manager m1 = new Manager("Radhakrishnan",59,9823148320l,"123, Boulevard of Broken Dreams",4529.19f,"Research and Development");

Officer o1 = new Officer("Anto Davis",48, 9847120926l,"Green House Villa, Pulmaidhanam", 3892.81f,"Corporate Security");

m1.printSalary();

o1.printSalary();

m1.displayEmployee();

o1.displayEmployee();

}

}

class Officer extends Employee{

String spec;

void displayEmployee(){

System.out.println("=========================================");

super.displayEmployee();

System.out.println("Specialization in "+ this.spec);

System.out.println("=========================================");

System.out.println("\n");

}

Officer(String name, int age, long phoneNo, String addr,float salary,String spec){

super(name,age,phoneNo,addr,salary);

this.spec = spec;

}

Officer(){

this(" ",0,0l," ",0.0f," ");

}

}

class Manager extends Employee{

String dep;

void displayEmployee(){

System.out.println("=========================================");

super.displayEmployee();

System.out.println("Manager of "+ this.dep);

System.out.println("=========================================");

System.out.println("\n");

}

Manager(String name, int age, long phoneNo, String addr,float salary,String dep){

super(name,age,phoneNo,addr,salary);

this.dep= dep;

}

Manager(){

this(" ",0,0l," ",0.0f," ");

}

}

Sample Output:

Salary of Radhakrishnan is 4529.19

Salary of Anto Davis is 3892.81

=========================================

Name: Radhakrishnan

Address: 123, Boulevard of Broken Dreams

Phone Number: 9823148320

Salary : 4529.19

Manager of Research and Development

=========================================

=========================================

Name: Anto Davis

Address: Green House Villa, Pulmaidhanam

Phone Number: 9847120926

Salary : 3892.81

Specialization in Corporate Security

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