PROGRAM 5:

Develop a Java program to create a class Bank that maintains two kinds of account for its customers, one called savings account and the other current account. The savings account provides compound interest and withdrawal facilities but no cheque book facility. The current account provides cheque book facility but no interest. Current account holders should also maintain a minimum balance and if the balance falls below this level, a service charge is imposed.

Create a class Account that stores customer name, account number and type of account. From this derive the classes Cur-acct and Sav-acct to make them more specific to their requirements. Include the necessary methods in order to achieve the following tasks:

a) Accept deposit from customer and update

the balance.

- b) Display the balance.
- c) Compute and deposit interest
- d) Permit withdrawal and update the balance

Check for the minimum balance, impose penalty if

necessary and update the balance.

CODE:

```
import java.util.Scanner;
   protected String customerName;
   protected String accountType;
   protected double balance;
   public Account (String customerName, int accountNumber, String
accountType, double balance) {
       this.customerName = customerName;
       this.accountNumber = accountNumber;
       this.accountType = accountType;
       this.balance = balance;
   public void deposit(double amount) {
       balance += amount;
       System.out.println("Deposit Successful. New Balance: " + balance);
```

```
public void displayBalance() {
       System.out.println("Current Balance: " + balance);
   public void withdraw(double amount) {
       balance -= amount;
       System.out.println("Withdrawal Successful. New Balance: " +
balance);
   private static final double PENALTY = 50;
   public CurAcct(String customerName, int accountNumber, double balance)
       super(customerName, accountNumber, "Current", balance);
   public void withdraw(double amount) {
        if (balance - amount < MIN BALANCE) {</pre>
           System.out.println("Insufficient balance. Minimum balance of "
            super.withdraw(amount);
            if (balance < MIN BALANCE) {</pre>
                balance -= PENALTY;
                System.out.println("Minimum balance breached. Penalty of "
   public void issueChequeBook() {
```

```
System.out.println("Cheque Book Issued.");
   public SavAcct(String customerName, int accountNumber, double balance)
       super(customerName, accountNumber, "Savings", balance);
   public void withdraw(double amount) {
        if (amount <= balance) {</pre>
           super.withdraw(amount);
           System.out.println("Insufficient funds for withdrawal.");
   public void computeAndDepositInterest() {
        double interest = balance * Math.pow((1 + INTEREST RATE),
COMPOUND FREQUENCY) - balance;
       balance += interest;
       System.out.println("Interest of " + interest + " computed and
added to your balance. New Balance: " + balance);
public class amb {
   private static Scanner scanner = new Scanner(System.in);
   public static Account createAccount() {
        System.out.print("Enter customer name: ");
```

```
String customerName = scanner.nextLine();
       System.out.print("Enter account number: ");
       int accountNumber = scanner.nextInt();
       System.out.print("Enter initial balance: ");
       double balance = scanner.nextDouble();
       scanner.nextLine(); // consume newline character
       System.out.println("Select Account Type (1 for Current, 2 for
Savings): ");
       int choice = scanner.nextInt();
       scanner.nextLine(); // consume newline character
       if (choice == 1) {
            return new CurAcct(customerName, accountNumber, balance);
        } else if (choice == 2) {
            return new SavAcct(customerName, accountNumber, balance);
           System.out.println("Invalid choice. Defaulting to Savings
           return new SavAcct(customerName, accountNumber, balance);
   public static void main(String[] args) {
       System.out.println("Welcome to the Bank!");
       Account account = createAccount();
       boolean exit = false;
       while (!exit) {
           System.out.println("\nChoose an operation:");
           System.out.println("1. Deposit");
           System.out.println("2. Withdraw");
            System.out.println("3. Display Balance");
           System.out.println("4. Compute and Deposit Interest (only for
Savings Account)");
           System.out.println("5. Issue Cheque Book (only for Current
Account)");
           System.out.println("6. Exit");
```

```
int option = scanner.nextInt();
            scanner.nextLine(); // consume newline character
            switch (option) {
                    System.out.print("Enter amount to deposit: ");
                    double depositAmount = scanner.nextDouble();
                    account.deposit(depositAmount);
                    System.out.print("Enter amount to withdraw: ");
                    double withdrawAmount = scanner.nextDouble();
                    account.withdraw(withdrawAmount);
                    account.displayBalance();
                        ((SavAcct) account).computeAndDepositInterest();
                        System.out.println("Interest can only be
                    if (account instanceof CurAcct) {
                        ((CurAcct) account).issueChequeBook();
                       System.out.println("Cheque Book can only be issued
for Current Account.");
                    exit = true;
```

Output:

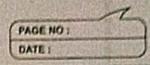
```
Welcome to the Bank!
Enter customer name: sinchana
Enter account number: 19839803
Enter initial balance: 700
Select Account Type (1 for Current, 2 for Savings):
1
Choose an operation:
1. Deposit
2. Withdraw
3. Display Balance
4. Compute and Deposit Interest (only for Savings Account)
5. Issue Cheque Book (only for Current Account)
6. Exit
1
Enter amount to deposit: 800
Deposit Successful. New Balance: 1500.0
```

```
Choose an operation:
1. Deposit
2. Withdraw
3. Display Balance
4. Compute and Deposit Interest (only for Savings Account)
5. Issue Cheque Book (only for Current Account)
6. Exit
Enter amount to withdraw: 450
Withdrawal Successful. New Balance: 1050.0
Choose an operation:
1. Deposit
2. Withdraw
3. Display Balance
4. Compute and Deposit Interest (only for Savings Account)
5. Issue Cheque Book (only for Current Account)
6. Exit
Cheque Book Issued.
Choose an operation:
1. Deposit
2. Withdraw
3. Display Balance
4. Compute and Deposit Interest (only for Savings Account)
5. Issue Cheque Book (only for Current Account)
6. Exit
Thank you for using our bank services.
```

NOTES:

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	methods in order to achieve the following
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U.S.	a) A ccept de positie from customer and
476	0- N- W/C000011
	b) ofsplay the balance c) compute and deposit interest
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11 1200	d) permit withdrawal and update
	the bolava Impose
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	balance



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	System out printin (4 Amount withdraw		
	A amount);		
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PAGE NO : DATE . Enter details for current account customer name! Bob all =6780 Instral deposit: 2000 Amount deposit : 2000.0 balane: 4000,0 Amount withdraun: 1800,0 balance below minimum: service change Imposed: 50.0 balane: 2150.0 treate a package CIE which has a Classy-stud 4 Internals the class student has members !! usn, none, som. the class Internals has as array that stora the Internal make store which has the clase External which is a derived does of student that do doing the Among marks of n student in all 5 comy,