WEEK 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.

Source Code :

```
import java.util.Scanner;

class Account {
     String customerName;
     int accountNumber;
     String accountType;
     double balance;

    public Account(String customerName, int accountNumber, String accountType) {
        this.customerName = customerName;
        this.accountNumber = accountNumber;
        this.accountType = accountType;
        this.balance = 0.0;
    }

    public void deposit(double amount) {
        if (amount > 0) {
            balance += amount;
            System.out.println("Amount deposited: " + amount);
            System.out.println("Updated balance: " + balance);
        } else {
```

```
            System.out.println("Invalid deposit amount!");
        }
    }

    public void displayBalance() {
        System.out.println("Balance: " + balance);
    }
}

class SavAcct extends Account {
    private double interestRate;

    public SavAcct(String customerName, int accountNumber, double interestRate) {
        super(customerName, accountNumber, "Savings");
        this.interestRate = interestRate;
    }

    public void computeAndDepositInterest() {
        double interest = balance * (interestRate / 100);
        balance += interest;
        System.out.println("Interest added: " + interest);
        System.out.println("Updated balance: " + balance);
    }

    public void withdraw(double amount) {
        if (amount <= balance) {
            balance -= amount;
            System.out.println("Amount withdrawn: " + amount);
            System.out.println("Updated balance: " + balance);
        } else {
            System.out.println("Insufficient balance!");
        }
    }
}

class CurAcct extends Account {
   double minimumBalance;
    double serviceCharge;

    public CurAcct(String customerName, int accountNumber, double minimumBalance,
double serviceCharge) {
        super(customerName, accountNumber, "Current");
        this.minimumBalance = minimumBalance;
        this.serviceCharge = serviceCharge;
    }
```

```
    public void withdraw(double amount) {
        if (amount <= balance) {
            balance -= amount;
            System.out.println("Amount withdrawn: " + amount);
            if (balance < minimumBalance) {
                imposePenalty();
            }
            System.out.println("Updated balance: " + balance);
        } else {
            System.out.println("Insufficient balance!");
        }
    }

    private void imposePenalty() {
        balance -= serviceCharge;
        System.out.println("Balance fell below minimum. Service charge imposed: "
+ serviceCharge);
    }
}

public class Bank {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        System.out.println("Choose account type:\n1. Savings Account\n2. Current
Account");
        int choice = scanner.nextInt();
        scanner.nextLine();

        System.out.println("Enter customer name: ");
        String name = scanner.nextLine();
        System.out.println("Enter account number: ");
        int accNum = scanner.nextInt();

        if (choice == 1) {
            System.out.println("Enter interest rate for savings account: ");
            double interestRate = scanner.nextDouble();
            SavAcct savAccount = new SavAcct(name, accNum, interestRate);

            System.out.println("Enter amount to deposit: ");
            double deposit = scanner.nextDouble();
            savAccount.deposit(deposit);

            savAccount.computeAndDepositInterest();
            System.out.println("Enter amount to withdraw: ");
```

```
            double withdrawAmount = scanner.nextDouble();
            savAccount.withdraw(withdrawAmount);

        } else if (choice == 2) {
            System.out.println("Enter minimum balance for current account: ");
            double minBalance = scanner.nextDouble();
            System.out.println("Enter service charge for falling below minimum
balance: ");
            double serviceCharge = scanner.nextDouble();
            CurAcct curAccount = new CurAcct(name, accNum, minBalance,
serviceCharge);

            System.out.println("Enter amount to deposit: ");
            double deposit = scanner.nextDouble();
            curAccount.deposit(deposit);

            System.out.println("Enter amount to withdraw: ");
            double withdrawAmount = scanner.nextDouble();
            curAccount.withdraw(withdrawAmount);

        } else {
            System.out.println("Invalid account type selected.");
        }

        scanner.close();
    }
}
```

Output :

```
Choose account type:
1. Savings Account
2. Current Account
1
Enter customer name:
sagar
Enter account number:
1234
Enter interest rate for savings account:
3
Enter amount to deposit:
5000
Amount deposited: 5000.0
Updated balance: 5000.0
Interest added: 150.0
Updated balance: 5150.0
Enter amount to withdraw:
4800
Amount withdrawn: 4800.0
Updated balance: 350.0
```

```
Choose account type:
1. Savings Account
2. Current Account
2
Enter customer name:
chetan
Enter account number:
9876
Enter minimum balance for current account:
1000
Enter service charge for falling below minimum balance:
150
Enter amount to deposit:
6000
Amount deposited: 6000.0
Updated balance: 6000.0
Enter amount to withdraw:
5200
Amount withdrawn: 5200.0
Balance fell below minimum. Service charge imposed: 150.0
Updated balance: 650.0
```

OBSERVATION:

5. Develop a Java program to create a class bank that maintains two kinds of account for its customers, one of them called savings account and the other current account. The saving 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 method in order to achive the following tasks.

(a) Accept deposite from customer and update the balance.

(b) Display the balance

(c) Compute and deposite interest

(d) Permit withdrawal and update the balance

check for the minimum balance, impose penalty if necessary and update the balance.

```
import java.util.Scanner;
class Account
{
  string cust_name;
  int acc_no;
  string acc_type;
  double balance;

Public Account (string cusname, int account_no, string type
{
  cust_name = cus.name;
  acc_no = account_no;
  acc_type = type_acc;
  balance = 0.0;
}
```

```
Public void deposit( double amount)
{
    if (amount >0)
    {
        balance = balance +account;
        System.out.println ("Amount deposited:" + amount);
        System.out.println (" Updated balance:" + balance);
    }
    else
      System.out.println("Invalid ");
    }
}
Public void displaybalance ()
{
    System.out.println ("Balance" + balance);
}
}
Class Savacct extend Account
{
Private double InterestRate;
Public SavAccount (String Cust_name, int acc_no, double Interestrate)
{
    super (custname, acc_no);
    this.Interestrate = Interestrate;
}
Public void DepositIntrest()
{ double Interest = balance * (InterestRate /100);
  balance = balance + Interest;
  System.out.println (" Interest added:" + Interest);
  System.out.println("updated balance:" + balance);
}
```

```
Public void withdraw ( double amount)
{
  if (amount <= balance)
  {
     balance = balance - amount;
     System.out.println("Amount withdraw: " +amount);
     System.out.println ("updated balance" + balance);
  }
  else
  {
    System.out.println("Insufficient balance");
  }
}
}
```

```
class current
Class Curacct extends Account{
  double minimum balance;
  double servicecharge;

  Public Curacct (String cusname, int acc_no, double minimumbalance,
        double servicecharge)
  {
    super(Customername, acc_no)
    this.servicecharge = service charge;
  }

  Public void withdraw( double amount)
  {
    if (amount <= balance)
    {
      balance <= amount ?
      balance = balance - amount;
      System.out.println(" Amount withdraw" +amount);
      if( balance < minimum balance)
      {
        imposepenalty();
      }
      System.out.println("updated balance" + balance);
    }
    else
      System.out.println(" Insufficient balance");
  }
}
```

```
    Private void imposePenalty()
    {
        balance = balance - service charge;
        System.out.println("Balance is minimum, Service charge imposed" + serviceCh
    }
}

Public class Bank
{
    Public static void main (String [] args)
    {
    Scanner scanner = new Scanner(System.in);
    System.out.println ("choose account type : \n 1. Saving acc \n
                                                  2. current acc");

    int choice = scanner.nextInt();
    scanner.nextLine();
    System.out.println("Enter customer name");
    String name = scanner.nextLine();
    System.out.println("Enter account number");
    int accnum = scanner.nextInt();

    if(choice == 1)
    {
        System.out.println("Enter interest rate for saving acc");
        double interestRate = scanner.nextDouble();
        SavAcct savAccount = new SavAcc (name, accnum, interestRate);

        System.out.println("Enter amount to deposite");
        double deposite = scanner.nextDouble();
        savAccount.deposite(deposite);

        savAccount.computeandDepositeInterest();
        System.out.println("Enter amount to withdraw");
        double withdrawamount = scanner.nextDouble();
        savAcc.withdraw(withdrawAmount);
    }
```

```
else if (choice ==2)
{
    System.out.println("Enter minimum balance for current acc");
    double minbalance = Scanner.nextdouble();
    System.out.println("Enter Service charge");
    double servicecharge = Scanner.nextdouble();
    CurAcct CurAccount = new CurAcct(name, acc.num, minbalance,
                                     servicecharge);

    System.out.println("Enter amount to withdraw");
    double withdrawAmount = Scanner.nextdouble();
    CurAcc withdraw(withdrawAmount);
}
else
{
    System.out.println("Invalid");
}
Scanner.close();
}
}
```

OUTPUT:

```
Choose account type:
1. Savings Account
2. current Account
1
Enter customer name:
ABC
Enter acc-no:
123
Enter interst rate for savings account:
6
Enter amount to deposit:
1000
Amount deposited: 1000
Updated balance: 1000
Interest added: 60
Updated balance: 1060
Enter amount to withdraw:
500
Amount withdraw: 500.0
Updated balance: 560.
```

```
2
Enter cutomer name:
abc
Enter acc-no:
IHS
Enter min. balance for current acc:
1000
Enter service charge for falling
below min balance:
200
Enter amount to deposit:
500
Amount deposited: 500.0
Updated balance: 500.0
Enter amount to withdraw: 100
Balance fell below min.: 200
Updated balance: 200
```