LAB ASSESSMENT – 1
16BEC0433
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Assume that a bank maintains two kinds of accounts for customers, one called as savings account and the other as 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 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 necessary member functions in order to achieve the following tasks :

CODE:

```
/*=================================================================*/
//@Class Account
import java.util.Scanner;


public class Account {

    protected Scanner scan;
    protected String customerName;
    protected String accountType;
    protected int accountNumber;
    protected double balance;
    protected double interestRate, serviceCharge, minimum;

    public void openAccount(String accountType, double minimum,
double serviceCharge, double interestRate) {

        this.minimum = minimum;
        this.serviceCharge = serviceCharge;
        this.interestRate = interestRate;
        this.accountType = accountType;

        scan = new Scanner(System.in);

        System.out.print("\nEnter customer name : ");
        this.customerName = scan.nextLine();
```

```
        System.out.print("Enter account number : ");
        this.accountNumber = scan.nextInt();

        System.out.print("Enter opening balance : ");
        this.balance = scan.nextDouble();

        System.out.println("Account created!!\n");

    }

    public int getAccountNumber() {
        return accountNumber;
    }

    public void withdraw() {

        scan = new Scanner(System.in);

        System.out.print("\nEnter amount to withdraw : ");
        double withdrawAmount = scan.nextDouble();

        if (balance > withdrawAmount) {
            balance -= withdrawAmount;
            System.out.println("Rs. " + withdrawAmount + "
withdrawal from your account\n"
                    + "Your current balance : " + balance);

            if (balance < minimum) {
                System.out.println("Information : Your current
balance is less than minimum balance amount (Rs. " + minimum + ")");
            }
        } else {
            System.out.println("Sorry you don't have sufficient
balance!!");
        }

    }

    public void deposit() {

        scan = new Scanner(System.in);

        System.out.print("\nEnter amount to be deposite : ");
        this.balance += scan.nextDouble();

        System.out.println("\nAmount deposited!!");

    }
```

```
    public void display() {

        scan = new Scanner(System.in);

        System.out.println("Customer name : " + customerName);
        System.out.println("Account type : " + accountType);
        System.out.println("Account number : " + accountNumber);
        System.out.println("Balance : " + balance);

    }
}
/*=============================================================*/
//@ Class Cur_acct
import java.util.Scanner;


public class Cur_acct extends Account {

    public void issueCheque() {
        scan = new Scanner(System.in);
        System.out.print("\nEnter amount : ");
        double amount = scan.nextDouble();

        System.out.println("Cheque issued for Rs. " + amount);
    }

    public void checkBal() {

        scan = new Scanner(System.in);

        if (balance < minimum) {
            balance -= serviceCharge;
            System.out.println("Your current balance is less than
minimum balance amount (Rs. " + minimum + ")"
                    + " your account is discharged by Rs. " +
serviceCharge);
        } else {
            System.out.println("Everything is good!!");
        }

    }

}
/*=============================================================*/
//@Class Sav_acct
import java.util.Scanner;
```

```
public class Sav_acct extends Account {

    public void interest() {
        double interest = (balance * interestRate) / 12;
        System.out.println("Calculated interest : " + interest);

        scan = new Scanner(System.in);
        System.out.print("Do you want to update balance [y/n] : ");

        if (scan.nextLine().toLowerCase().equals("y")) {
            balance += interest;
            System.out.println("Interest of Rs. " + interest + " is
added to your account!!");
            System.out.println("Your current balance : " + balance);
        }

    }
}
/*=============================================================*/
//@Class Main
import java.util.ArrayList;
import java.util.Scanner;


public class Main {

    public static Account searchAccount(ArrayList<Account> accounts)
{
        Scanner scan = new Scanner(System.in);
        System.out.print("Enter account number : ");
        int accountNumber = scan.nextInt();
        for (Account tmpAccount : accounts) {
            if (tmpAccount.getAccountNumber() == accountNumber) {
                return tmpAccount;
            }
        }

        return null;
    }
    @SuppressWarnings("resource")
     public static void main(String[] args) {

        ArrayList<Account> accounts = new ArrayList<Account>();
        Scanner scan;

        double interestRate = 0.15,
```

```
                serviceCharge = 100,
                minimum = 500;

        while (true) {

            scan = new Scanner(System.in);

            System.out.println("Open account [1]");
            System.out.println("Deposite [2]");
            System.out.println("Withdraw [3]");
            System.out.println("Interest [4]");
            System.out.println("Issue cheque [5]");
            System.out.println("Check for minimum balance [6]");
            System.out.println("Display account [7]");
            System.out.println("Exit [8]");
            System.out.print(">> ");

            int option = scan.nextInt();

            scan = new Scanner(System.in);
            switch (option) {

                case 1:
                    System.out.print("\nEnter account type [sav /
cur] : ");
                    String accountType = scan.nextLine();
                    Account account = accountType.equals("sav") ?
new Sav_acct() : new Cur_acct();
                    account.openAccount(accountType, minimum,
serviceCharge, interestRate);
                    accounts.add(account);
                    break;

                case 2:
                    Account search = Main.searchAccount(accounts);

                    if (search == null) {
                        System.out.println("Sorry account not
found!!");
                    } else {
                        search.deposit();
                    }
                    break;

                case 3:
                    search = Main.searchAccount(accounts);

                    if (search == null) {
```

```
                        System.out.println("Sorry account not
found!!");
                    } else {
                        search.withdraw();
                    }
                    break;

                case 4:
                    search = Main.searchAccount(accounts);

                    if (search == null) {
                        System.out.println("Sorry account not
found!!");
                    } else if (search instanceof Sav_acct) {
                        ((Sav_acct) search).interest();
                    } else {
                        System.out.println("Account type is not
valid!!");
                    }
                    break;

                case 5:
                    search = Main.searchAccount(accounts);
                    if (search == null) {
                        System.out.println("Sorry account not
found!!");
                    } else if (search instanceof Cur_acct) {
                        ((Cur_acct) search).issueCheque();
                    } else {
                        System.out.println("Account type is not
valid!!");
                    }
                    break;

                case 6:
                    search = Main.searchAccount(accounts);

                    if (search == null) {
                        System.out.println("Sorry account not
found!!");
                    } else if (search instanceof Cur_acct) {
                        ((Cur_acct) search).checkBal();
                    } else {
                        System.out.println("Account type is not
valid!!");
                    }
                    break;

                case 7:
```

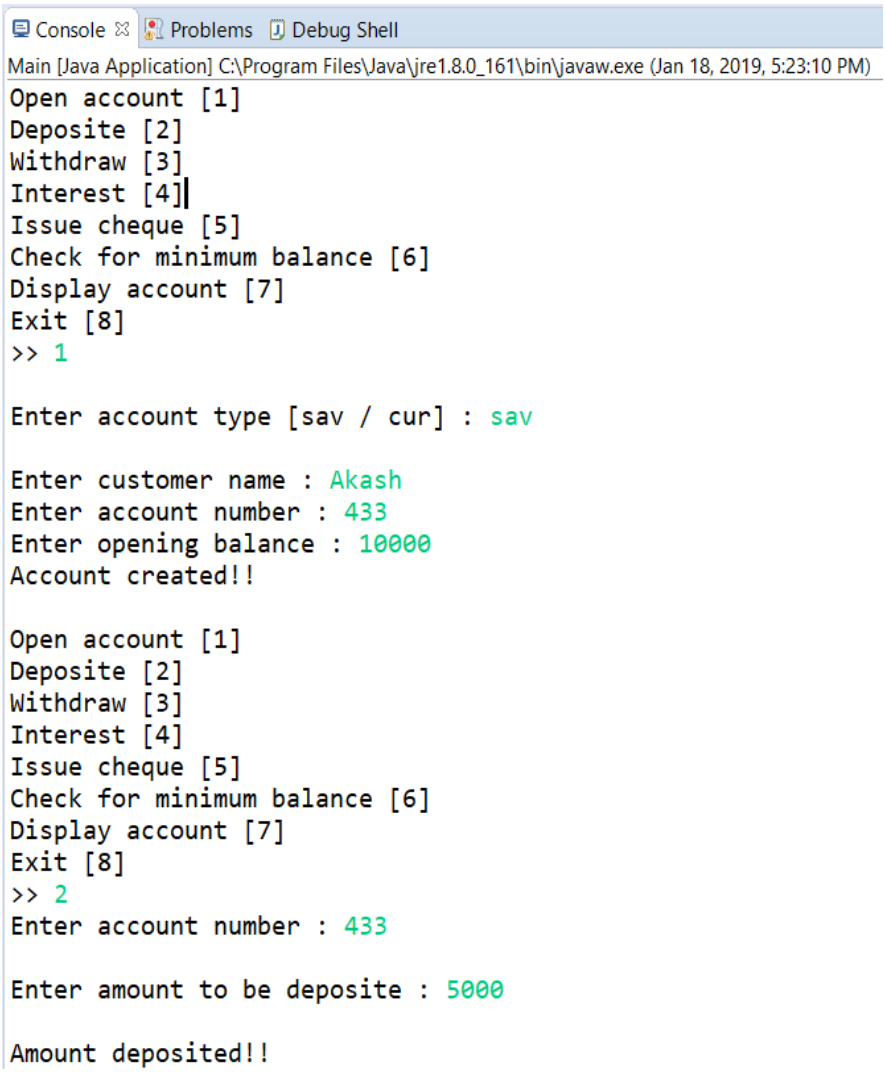
```
                    search = Main.searchAccount(accounts);

                    if (search == null) {
                        System.out.println("Sorry account not
found!!");
                    } else {
                        search.display();
                    }
                    break;

                case 8:
                    System.exit(0);

            }
        }
    }
}
/*=================================================================*/
```

1. Accept deposit from a customer and update the balance.



2. Display the balance

@Updated Balance Display

```
Open account [1]
Deposite [2]
Withdraw [3]
Interest [4]
Issue cheque [5]
Check for minimum balance [6]
Display account [7]
Exit [8]
>> 7
Enter account number : 433
Customer name : Akash
Account type : sav
Account number : 433
Balance : 15000.0
```

3. Compute and deposit interest.

```
Open account [1]
Deposite [2]
Withdraw [3]
Interest [4]
Issue cheque [5]
Check for minimum balance [6]
Display account [7]
Exit [8]
>> 4
Enter account number : 433
Calculated interest : 187.5
Do you want to update balance [y/n] : y
Interest of Rs. 187.5 is added to your account!!
Your current balance : 15187.5
```

4. Permit withdrawal and update the balance.

```
Open account [1]
Deposite [2]
Withdraw [3]
Interest [4]
Issue cheque [5]
Check for minimum balance [6]
Display account [7]
Exit [8]
>> 3
Enter account number : 433

Enter amount to withdraw : 187.5
Rs. 187.5 withdrawal from your account
Your current balance : 15000.0
```

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

//Current Account is created and minimum balance is checked and fine is imposed

```
Open account [1]
Deposite [2]
Withdraw [3]
Interest [4]
Issue cheque [5]
Check for minimum balance [6]
Display account [7]
Exit [8]
>> 1

Enter account type [sav / cur] : cur

Enter customer name : Shyam
Enter account number : 13
Enter opening balance : 120
Account created!!

Open account [1]
Deposite [2]
Withdraw [3]
Interest [4]
Issue cheque [5]
Check for minimum balance [6]
Display account [7]
Exit [8]
>> 6
Enter account number : 13
Your current balance is less than minimum balance amount (Rs. 500.0) your account is discharged by Rs. 100.0
```