Programming Lab 2
Lab Assessment 4
Batch: S4

2019BTECS00058
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i) Suppose in number.txt file some random numbers are stored (-ve/+ve/fractional number). Using JAVA program find how many numbers are –ve, +ve and fractional number.

Program:

NumberType.java

```
import java.io.FileNotFoundException;
import java.io.FileReader;
import java.io.IOException;
import java.util.*;

public class NumberType{
   public static void main(String[] args) throws IOException
   {
      int ch;
```

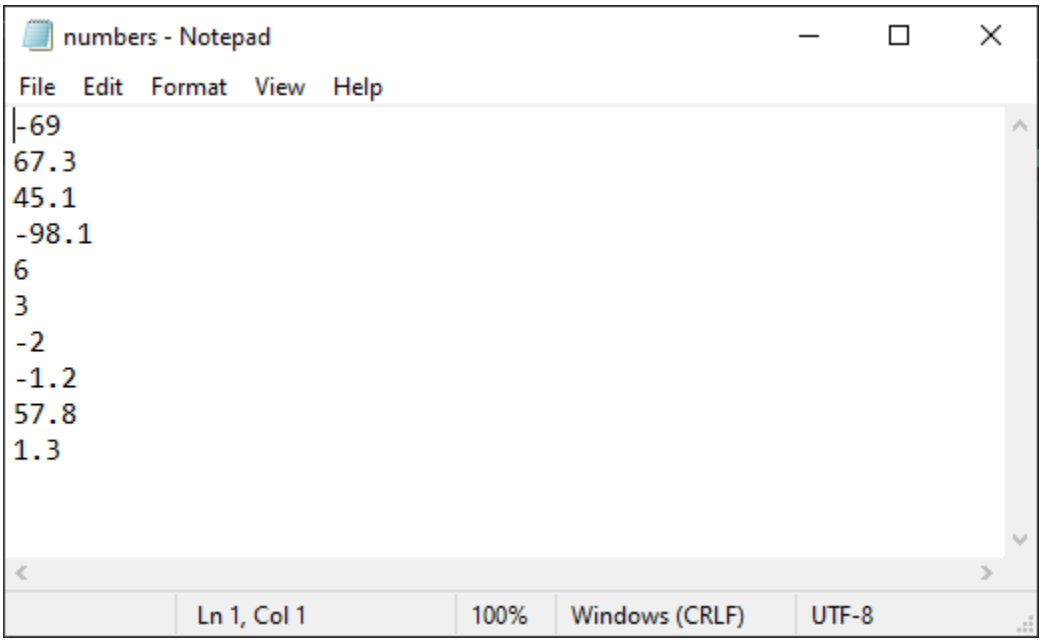
```
FileReader fr=null;
ArrayList<String> al = new ArrayList<String>();

//get the file
try{
   fr = new FileReader("numbers.txt");
}
catch (FileNotFoundException fe){
   System.out.println(fe);
}

//get all numbers
String s = "";
while ((ch=fr.read())!=-1)
{
   char c = (char)ch;
   if(c=='\n')
   {
      al.add(s);
      s = "";
   }
   else
   {
```

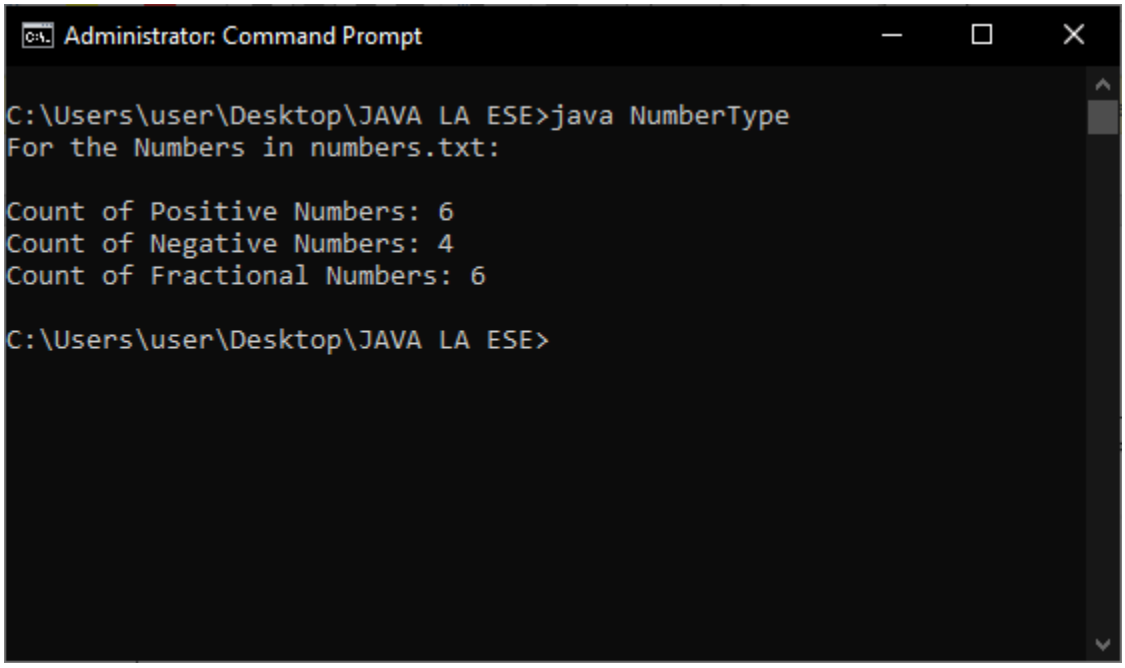
```
        s += c;
    }
}

//final number of the file
al.add(s);
s="";

fr.close();

//parse all numbers and get required count
int count_positive=0, count_negative=0, count_fraction=0;
for(String st: al)
{
    Double thatNum = Double.parseDouble(st);
    if(thatNum < 0)
    {
        count_negative++;
    }
    else
    {
        //we assume 0 to be positive
        count_positive++;
```

```
        }


        if(thatNum%1 != 0)
        {
            count_fraction++;
        }
    }


    //printing output
    System.out.println("For the Numbers in numbers.txt:\n");
    System.out.println("Count of Positive Numbers:
"+String.valueOf(count_positive));
    System.out.println("Count of Negative Numbers:
"+String.valueOf(count_negative));
    System.out.println("Count of Fractional Numbers:
"+String.valueOf(count_fraction));
  }
}
```

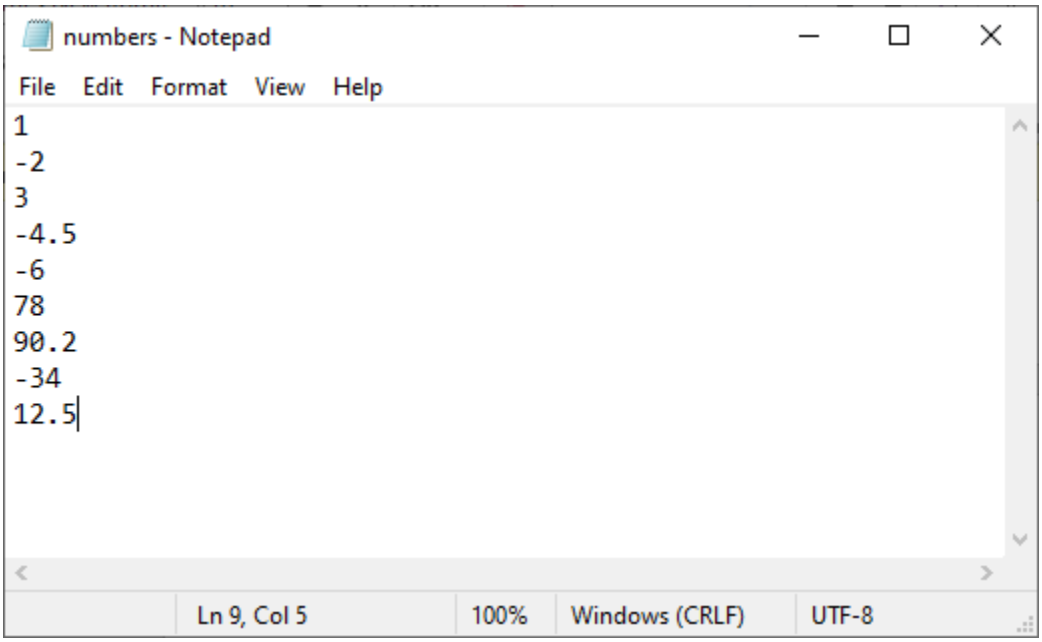
Output:

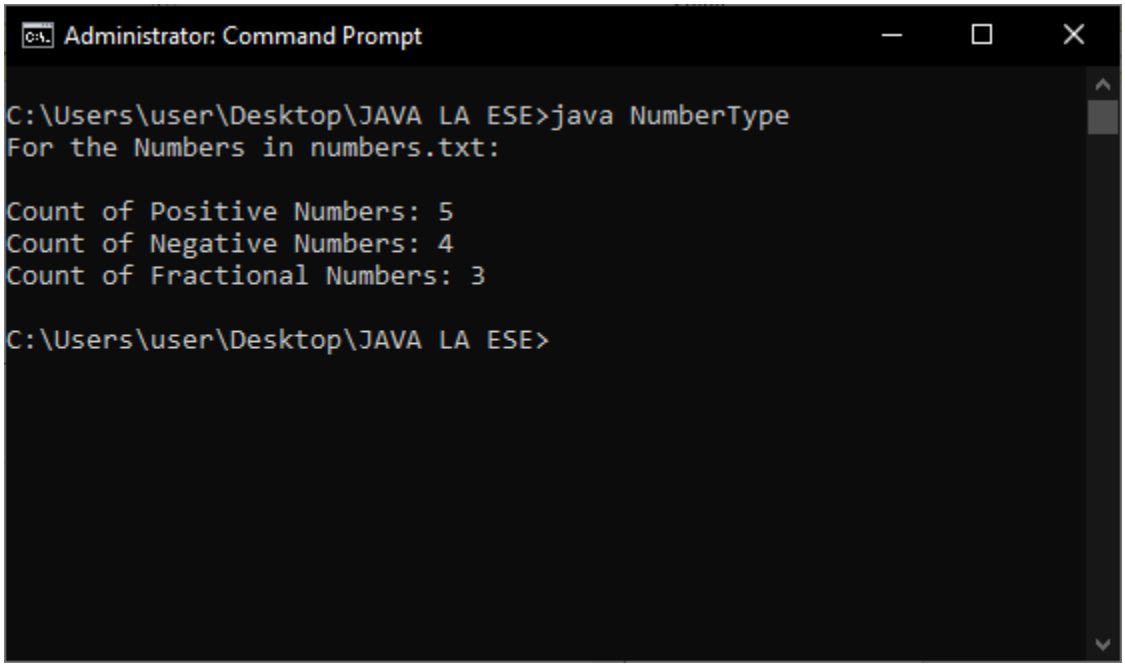
Test 1:


numbers - Notepad
File Edit Format View Help
-69
67.3
45.1
-98.1
6
3
-2
-1.2
57.8
1.3
Ln 1, Col 1
100%
Windows (CRLF)
UTF-8

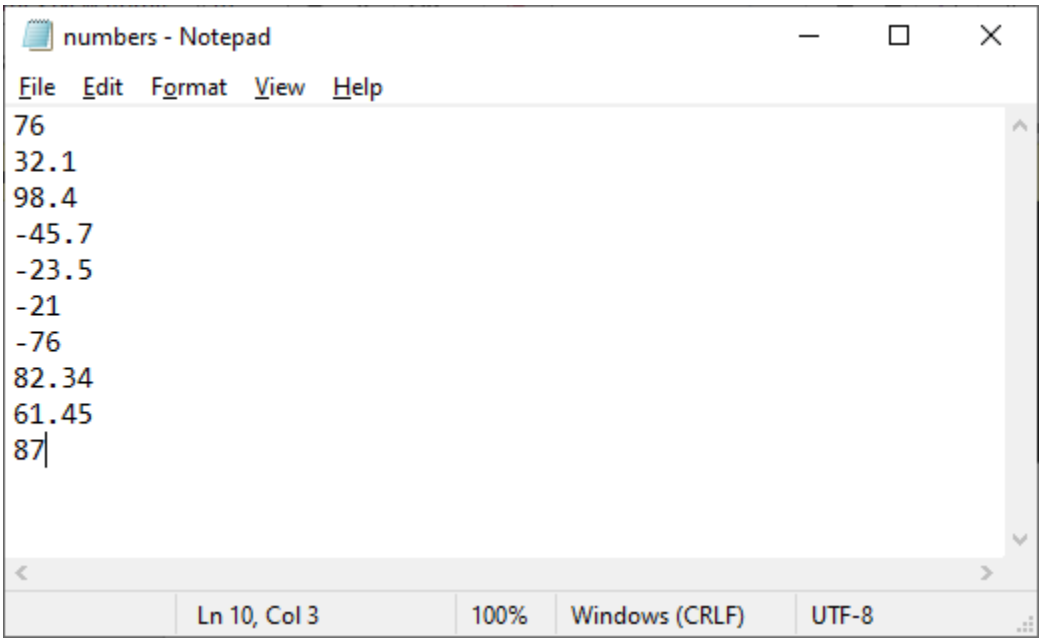

Administrator: Command Prompt
C:\Users\user\Desktop\JAVA LA ESE>java NumberType
For the Numbers in numbers.txt:
Count of Positive Numbers: 6
Count of Negative Numbers: 4
Count of Fractional Numbers: 6
C:\Users\user\Desktop\JAVA LA ESE>

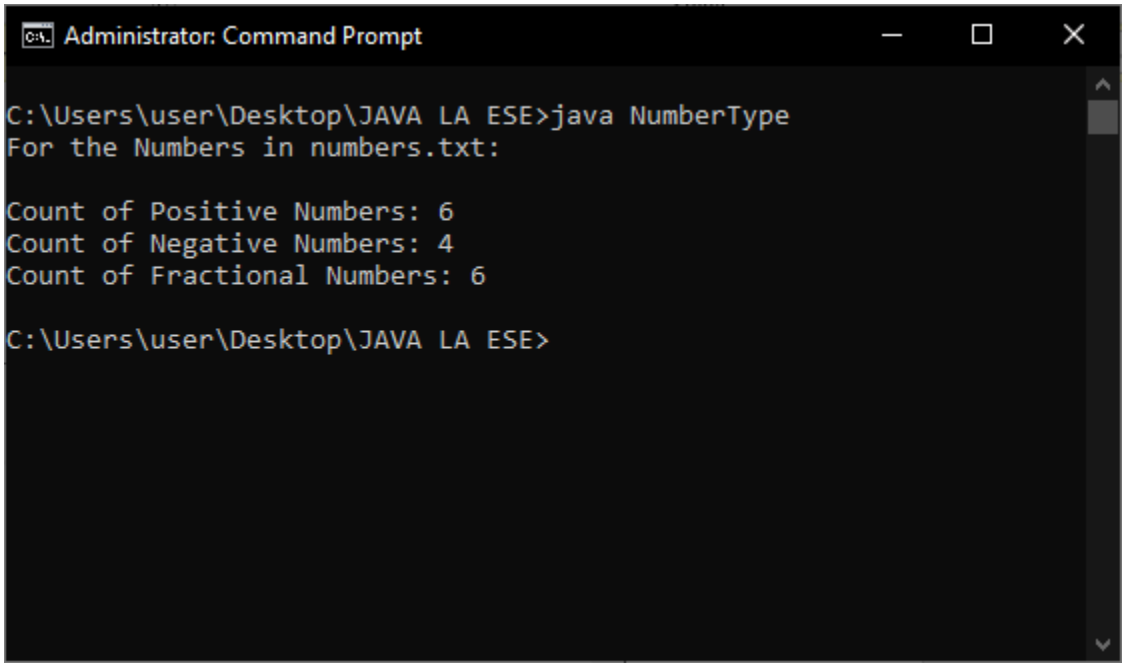
Test 2:


numbers - Notepad
File Edit Format View Help
1
-2
3
-4.5
-6
78
90.2
-34
12.5
Ln 9, Col 5
100%
Windows (CRLF)
UTF-8


Administrator: Command Prompt
C:\Users\user\Desktop\JAVA LA ESE>java NumberType
For the Numbers in numbers.txt:
Count of Positive Numbers: 5
Count of Negative Numbers: 4
Count of Fractional Numbers: 3
C:\Users\user\Desktop\JAVA LA ESE>

Test 3:


numbers - Notepad
File Edit Format View Help
76
32.1
98.4
-45.7
-23.5
-21
-76
82.34
61.45
87
Ln 10, Col 3
100%
Windows (CRLF)
UTF-8


Administrator: Command Prompt
C:\Users\user\Desktop\JAVA LA ESE>java NumberType
For the Numbers in numbers.txt:
Count of Positive Numbers: 6
Count of Negative Numbers: 4
Count of Fractional Numbers: 6
C:\Users\user\Desktop\JAVA LA ESE>

ii) Design a java class to represent a bank account. Include the following members: Data Members- Name of the depositor, account number, type of account and balance in account. Methods - to assign initial values, to deposit an amount, to withdraw an amount after checking balance and to display account details.

Program:

BankAccount.java

```
public class BankAccount {


   // data members
   String depositorName, accountType;
   long accountNumber, balance;


   //we can use the constructor to assign initial values
   BankAccount(String depositorName, String accountType, long accountNumber, long balance)
   {
      this.depositorName = depositorName;
      this.accountType = accountType;
      this.accountNumber = accountNumber;
      this.balance = balance;
   }
```

```
Boolean depositAmount(long amount)
{
   this.balance += amount;
   return true;
}

Boolean withdrawAmount(long amount)
{
   if(this.balance >= amount)
   {
      this.balance -= amount;
      return true;
   }
   return false;
}

long currentBalance()
{
   return this.balance;
}

void accountDetails()
{
   System.out.println("\nYour Account Details:");
```

```
        System.out.println("Name of Depositor: "+this.depositorName);
        System.out.println("Account Type: "+this.accountType);
        System.out.println("Account Number:
"+String.valueOf(this.accountNumber));
        System.out.println("Current Balance: "+String.valueOf(this.balance));
    }
}
```

BankDesk.java

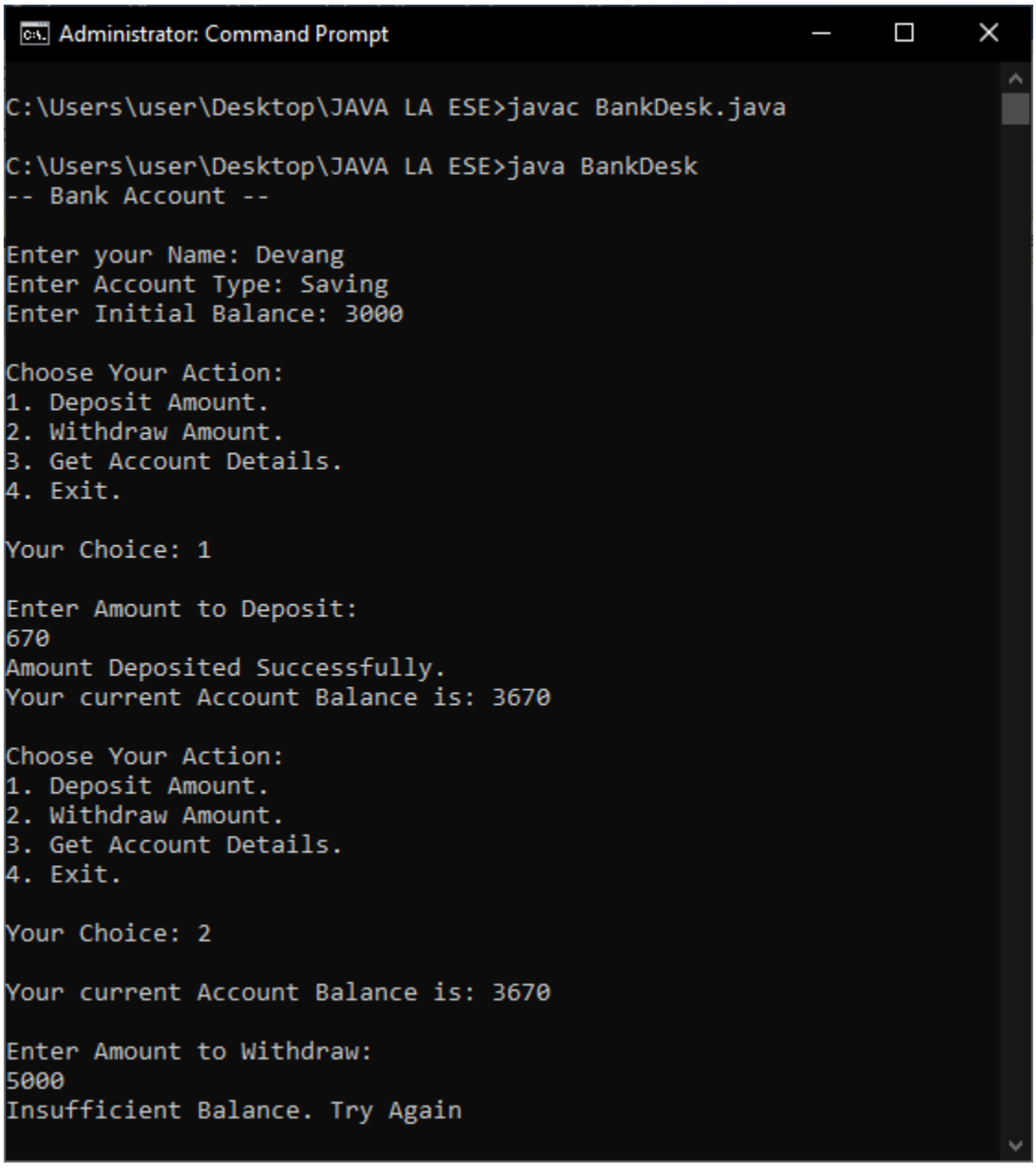
```
import java.util.*;
import java.io.*;

public class BankDesk {

    static int getRandomNumber(int min, int max) {
        return (int) ((Math.random() * (max - min)) + min);
    }

    static void makeChoice(BankAccount ba)
    {
        Scanner sc = new Scanner(System.in);

        System.out.println("\nChoose Your Action:");
        System.out.println("1. Deposit Amount.");
        System.out.println("2. Withdraw Amount.");
        System.out.println("3. Get Account Details.");
```

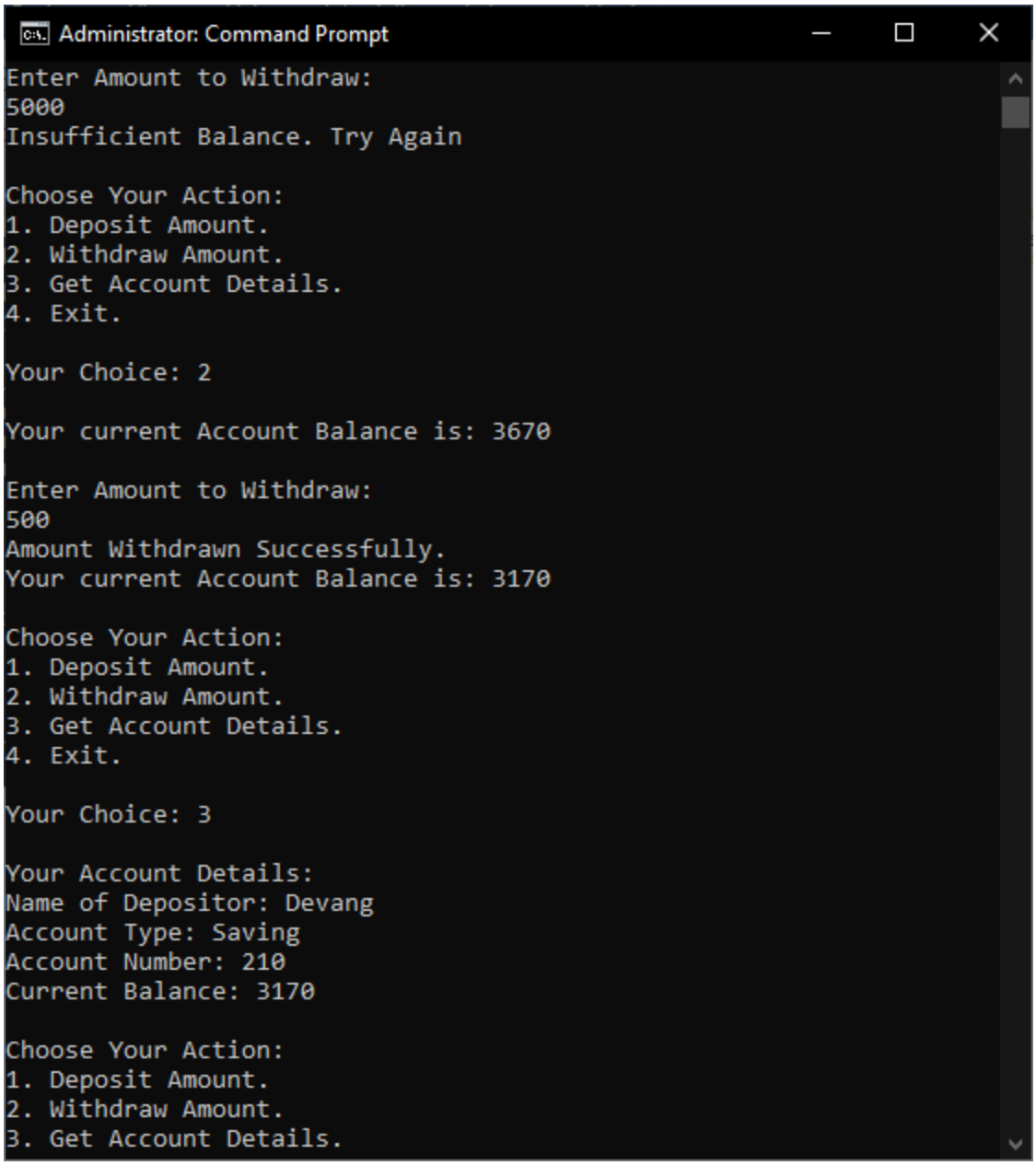
```
        System.out.println("4. Exit.");


        System.out.print("\nYour Choice: ");
        int choice = sc.nextInt();


        if(choice==1)
        {
            System.out.println("\nEnter Amount to Deposit: ");
            long amt = sc.nextLong();
            Boolean resp = ba.depositAmount(amt);
            if(resp == true)
            {
                System.out.println("Amount Deposited Successfully.");
                System.out.println("Your current Account Balance is:
"+String.valueOf(ba.balance));
            }
            makeChoice(ba);
        }
        else if(choice==2)
        {
            System.out.println("\nYour current Account Balance is:
"+String.valueOf(ba.balance));
            System.out.println("\nEnter Amount to Withdraw: ");
            long amt = sc.nextLong();
            Boolean resp = ba.withdrawAmount(amt);
            if(resp == true)
```

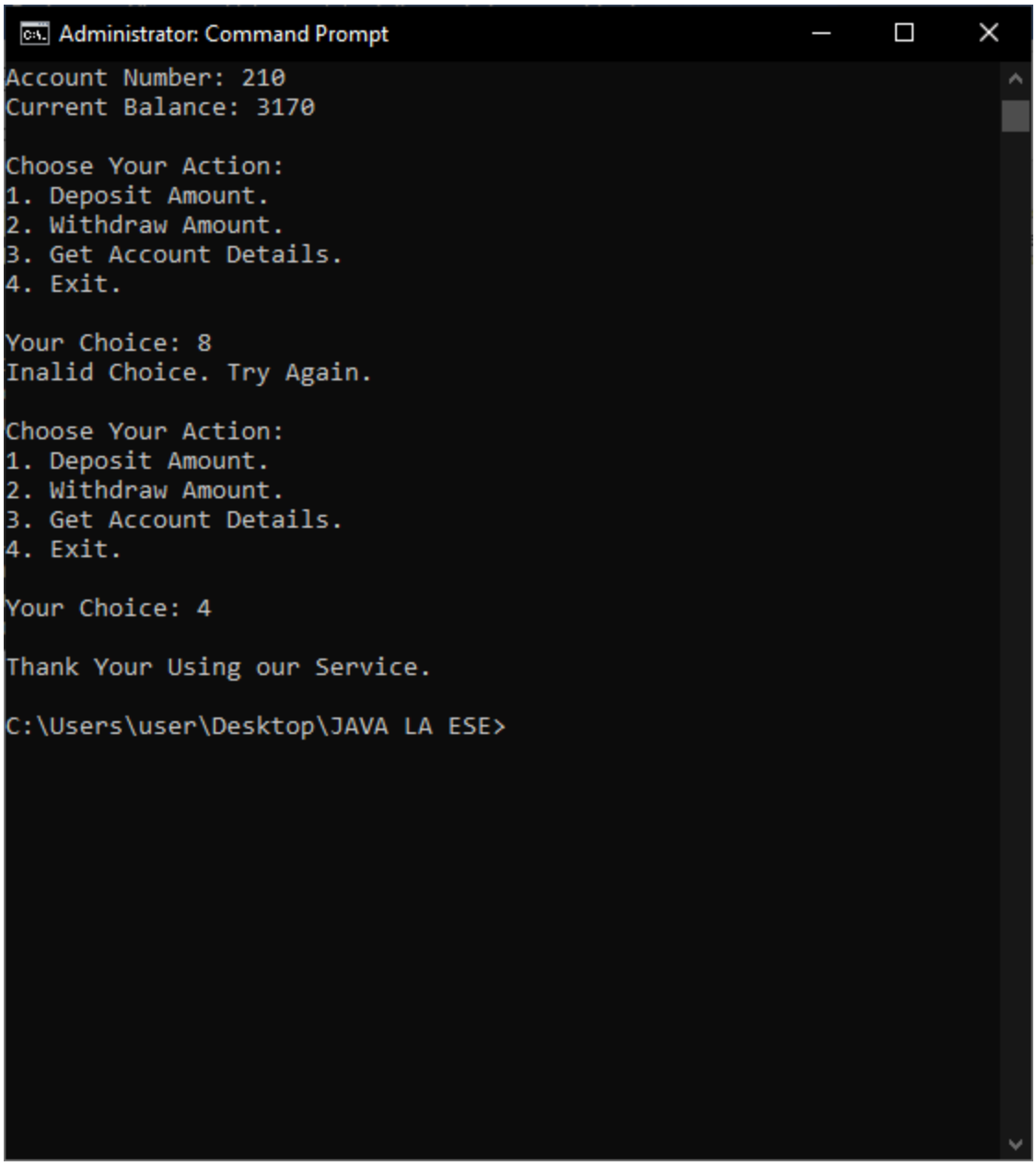
```
        {
            System.out.println("Amount Withdrawn Successfully.");
            System.out.println("Your current Account Balance is:
"+String.valueOf(ba.balance));
        }
        else
        {
            System.out.println("Insufficient Balance. Try Again");
        }
        makeChoice(ba);
    }
    else if(choice==3)
    {
        ba.accountDetails();
        makeChoice(ba);
    }
    else if(choice==4)
    {
        System.out.println("\nThank Your Using our Service.");
        System.exit(1);
    }
    else
    {
        System.out.println("Inalid Choice. Try Again.");
        makeChoice(ba);
    }
```

```
    }

    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);

        System.out.println("-- Bank Account --\n");
        System.out.print("Enter your Name: ");
        String name = sc.nextLine();
        System.out.print("Enter Account Type: ");
        String type = sc.nextLine();
        System.out.print("Enter Initial Balance: ");
        long bal = sc.nextLong();

        //randomly set an account number
        int acntNum = getRandomNumber(200, 1200);

        //object of the bank-account
        BankAccount ba = new BankAccount(name, type, acntNum, bal);

        makeChoice(ba);
    }
}
```

Output:


Administrator: Command Prompt
C:\Users\user\Desktop\JAVA LA ESE>javac BankDesk.java
C:\Users\user\Desktop\JAVA LA ESE>java BankDesk
-- Bank Account --
Enter your Name: Devang
Enter Account Type: Saving
Enter Initial Balance: 3000
Choose Your Action:
1. Deposit Amount.
2. Withdraw Amount.
3. Get Account Details.
4. Exit.
Your Choice: 1
Enter Amount to Deposit:
670
Amount Deposited Successfully.
Your current Account Balance is: 3670
Choose Your Action:
1. Deposit Amount.
2. Withdraw Amount.
3. Get Account Details.
4. Exit.
Your Choice: 2
Your current Account Balance is: 3670
Enter Amount to Withdraw:
5000
Insufficient Balance. Try Again


Administrator: Command Prompt
Enter Amount to Withdraw:
5000
Insufficient Balance. Try Again
Choose Your Action:
1. Deposit Amount.
2. Withdraw Amount.
3. Get Account Details.
4. Exit.
Your Choice: 2
Your current Account Balance is: 3670
Enter Amount to Withdraw:
500
Amount Withdrawn Successfully.
Your current Account Balance is: 3170
Choose Your Action:
1. Deposit Amount.
2. Withdraw Amount.
3. Get Account Details.
4. Exit.
Your Choice: 3
Your Account Details:
Name of Depositor: Devang
Account Type: Saving
Account Number: 210
Current Balance: 3170
Choose Your Action:
1. Deposit Amount.
2. Withdraw Amount.
3. Get Account Details.



Drive Link for the Source Code Files: [Here]