Program 1

import java.io.\*;

class GFG {static int Series(int n) {

int i;int sums = 0;for (i = 1; i <= n; i++)

sums += 1 / (i \* i);return sums;}

public static void main(String[] args) {

int n = 3;int res = Series(n);

System.out.println(res);}}

Program 2

import java.io.\*;

class GFG {public int factorial(int i) {

if (i == 0)return 1;return i \* factorial(i - 1);

}public static void main(String[] args) {

int n = 4, i, j;GFG g = new GFG();

for (i = 0; i <= n; i++) {for (j = 0; j < n - i; j++) {

System.out.print(" ");}for (j = 0; j <= i; j++) {

System.out.print(" " + (g.factorial(i) /

(g.factorial(j) \* g.factorial(i - j))));}

System.out.println();}}}

Program 3

import java.util.Scanner;class Exercise31 {

public static void main(String[] args) {

Scanner in = new Scanner(System.in);

System.out.print("Input first number: ");

double x = in.nextDouble();

System.out.print("Input second number: ");

double y = in.nextDouble();

System.out.print("Input third number: ");

double z = in.nextDouble();if (x < y && y < z) {

System.out.println("Increasing order");

}else if (x > y && y > z) {

System.out.println("Decreasing order");

}else {

System.out.println("Neither increasing nor decreasing order");

}in.close();}}

Program 4

import java.util.\*;class Complex {

int real, imaginary;Complex() {}

Complex(int tempReal, int tempImaginary) {

real = tempReal;imaginary = tempImaginary;}

Complex addComp(Complex C1, Complex C2) {

Complex temp = new Complex();

temp.real = C1.real + C2.real;

temp.imaginary = C1.imaginary + C2.imaginary;

return temp;}

Complex subtractComp(Complex C1, Complex C2) {

Complex temp = new Complex();

temp.real = C1.real - C2.real;

temp.imaginary = C1.imaginary - C2.imaginary;

return temp;}

void printComplexNumber() {

System.out.println("Complex number: " + real + " + " + imaginary + "i");

}}class GFG {

public static void main(String[] args) {

Complex C1 = new Complex(3, 2);

C1.printComplexNumber();

Complex C2 = new Complex(9, 5);

C2.printComplexNumber();

Complex C3 = new Complex();

C3 = C3.addComp(C1, C2);

System.out.print("Sum of ");

C3.printComplexNumber();

C3 = C3.subtractComp(C1, C2);

System.out.print("Difference of ");

C3.printComplexNumber();}}

Program 5

public class MyTime {

private int hour; private int minute;

public MyTime(int hour, int minute) {

setTime(hour, minute);}

public void setTime(int hour, int minute) {

setHour(hour);setMinute(minute);}

public void setHour(int hour) {

if (hour >= 0 && hour < 24) {this.hour = hour;} else {

throw new IllegalArgumentException("Invalid hour!");

}}public void setMinute(int minute) {

if (minute >= 0 && minute < 60) {

this.minute = minute;} else {

throw new IllegalArgumentException("Invalid minute!");

}}public int getHour() {return hour;}

public int getMinute() {return minute;}

@Override

public String toString() {

return String.format("%02d:%02d", hour, minute);

}public MyTime nextMinute() {

if (minute == 59) {minute = 0;

nextHour();} else {minute++;

}return this;}

public MyTime nextHour() {

if (hour == 23) {hour = 0;} else {

hour++;}return this;}

public static void main(String[] args) {

MyTime time = new MyTime(23, 59);

System.out.println("Current time: " + time);

System.out.println("Next minute: " + time.nextMinute());

System.out.println("Next hour: " + time.nextHour());}}

Program 6

import java.util.Scanner;class Account {

public String acc\_name;public double acc\_no;

public int acc\_type;public double balance;

public void getData(String name, double no

, int type, double bal) {acc\_name = name;acc\_no =

no;acc\_type = type;balance = bal;}}

class Savings extends Account {public

void deposit(double amt) {balance += amt;

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

public void withdraw(double amt) {if (amt > balance) {

System.out.println("Insufficient balance.");} else

{balance -= amt;System.out.println("Balance

after withdrawal: " + balance);}}public void interest

(int time, int no) {double rate = 0.06;double intr =

balance \* Math.pow(1 + rate / no, time \* no) - balance;

System.out.println("Interest calculated: " + intr);

balance += intr;System.out.println("The new

balance is: " + balance);}}class Current extends Account {

public void deposit(double amt) {balance += amt;

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

public void withdraw(double amt) {if (amt > balance) {

System.out.println("Insufficient balance.");} else {

balance -= amt;System.out.println("Balance after

withdrawal: " + balance);check(balance);}}

public void check(double amt) {if (amt < 10000) {

balance -= 500;System.out.println("Penalty applied.

Insufficient balance: " + balance);}}}

class Main {public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

int temp = 1;while (temp == 1) {System.out.println

("Enter name:");String name = sc.next();

System.out.println("Enter acc\_no:");double no =

sc.nextDouble();System.out.println("Enter acc\_

type\n0 for Savings\n1 for Current:");int type = sc.nextInt();

System.out.println("Enter initial balance:");double amt =

sc.nextDouble();if (type == 0) {Savings s = new Savings();

s.getData(name, no, type, amt);System.out.println

("\n1. Deposit\n2. Withdraw\n3. Interest");

int temp3 = sc.nextInt();switch (temp3) {

case 1: System.out.println("Enter Amount:");

double amt1 = sc.nextDouble();

s.deposit(amt1);break;case 2:

System.out.println("Enter Amount:");amt1 =

sc.nextDouble();s.withdraw(amt1);break;

case 3:System.out.println("Enter time period:");

int tp = sc.nextInt();System.out.println("Enter

number of times interest iscompounded per year:");

int nof = sc.nextInt();s.interest(tp, nof);break;

default: System.out.println("Invalid option.");}

} else if (type == 1) {Current c = new Current();

c.getData(name, no, type, amt);

System.out.println("\n1. Deposit\n2. Withdraw");

int temp3 = sc.nextInt();switch (temp3) {case 1:

System.out.println("Enter Amount:");

double amt1 = sc.nextDouble();c.deposit(amt1);

break; case 2:System.out.println("Enter Amount:");

amt1 = sc.nextDouble();c.withdraw(amt1);

break;default:System.out.println("Invalid option.");

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

}System.out.println("To continue, enter 1; to exit,

enter 0:");temp = sc.nextInt();}sc.close();}}