Edwing quadratic equation is import java util. Scanner import Java lang. Math ; dass Solve Qual { float 11, 42, 0,6,0; Solve Quad (Hoat x, Hoat y, Hoat 2) f a=x, 6=4; c=z; 3 void distinct 0 ; 11 = (-6+ (float) Math. sqx (6*6-4*a*c))/2*a; 12= (-60 (float) Math. 27+ (6* 6 - 4*a"))/2*a 3 1/ roturn type of sgrt is double void same () { $\chi 1 = -6/(2*a)$ 81 = (float) mate, sight (4"0"(-6"6)/(2"a), 12 = -14 x1: System. out. printly (" Poots: " (-6/(2+a)) 11 + "1) = (n" + (-6/(2*a)) + 42+ "E" class anadeg & public static void main (3tring 5x [7) f. float a, b, c; Scanner 3 = new Scanner (System, in); system out pointly (" Enter the coefficients: a /3. next Floater; 6 = 3. next Float (); c = s. next. Float (); Some anad si = new some and (a, a, c), float d = 6 % - 4 at c;

(1 (1-0))		
of (d>0) E. ol. distinct ();		Ent
System. out. prontlact." Roots: \" I sterly " \"		
51.72);		
3		
elsa if (dea)		
· st. complex ()		
else f.		
31, same ();		
3 ystem. out. printly (" Poots's \" + stext +		
"\n"+ sl. r2);	-	
3		
3		8/
. 3		
Output:		
Enter the weffrients:		
-2		
Roots:		
1.0		
1.0		
the second second second second second		
Enter the coefficients:		
- 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1		
a district of the color of the color		
2 9 Poots:	101	
-0.6 + (1.32287562)		
-0.5 + (-1.322 × 756 2)	Te service	

Enter the confficient Roots . [

```
import java.util.Scanner;
import java.lang.Math;
class SolveQuad{
    float r1,r2,a,b,c;
    SolveQuad(float x,float y,float z){
        a=x;b=y;c=z;
    void distinct(){
        r1=(-b+(float)Math.sqrt(b*b-4*a*c))/2*a;
        r2=(-b-(float)Math.sqrt(b*b-4*a*c))/2*a;
    void same(){
        r1=-b/(2*a);
        r2=r1;
    void complex(){
        r1=(float)Math.sqrt(4*a*c-b*b)/(2*a);
        r2=-1*r1;
        System.out.println("Roots : \n"+(-b/(2*a))+r1+"i"+"\n"+(-b/(2*a))
b/(2*a))+r2+"i");
class Quadeq{
    public static void main(String sx[]){
        float a,b,c;
        Scanner s=new Scanner(System.in);
        System.out.println("Enter the coefficients of ax^2+bx+c");
        a=s.nextFloat();
        b=s.nextFloat();
        c=s.nextFloat();
        SolveQuad s1=new SolveQuad(a,b,c);
        float d=b*b-4*a*c;
        if(d>0){
            s1.distinct();
            System.out.println("Roots :\n"+s1.r1+"\n"+s1.r2);
        else if(d<0)
            s1.complex();
        else{
            s1.same();
            System.out.println("Roots :\n"+s1.r1+"\n"+s1.r2);
```

0) Perclop a gara program to create of class stude nt with members usn, name, an array credits and an array marks. Include mother to accept and display details and a method to calculate supt of a student -) import java will scanner; class student & string usu, name; Int credits [] = {4,4,4,3,3,2,1,13; int marks[] = new rut [8]; double sapa; void accordet () & Beanner 3 = New Glanvær (System . In); System. out . println ("Enter your name and usn "); this name = s. nextline (); this. usn = 3. next(); System. out. printfu (" Enter your marks in 8 subjects.!"); for (Tut 1=0; T<8; (++) marko[1] = sinext Int (); void - 5-GPA cal () { test sum = 0; for (Ful 1 = 0 ; [8 ; [++) {. If (marks[i] == 100) Sum + = Credito (1) (marks (1)/10); sum + = credito (i) * (int) (marks (i)/1) 3gpa = (double) sum /22;

	Page 1
ude	3
	Void display () {
hards	Sustem out private (" N - "
od.	System. out printle ("Name: "+ name); System. out printle ("USN; "+ USN);
	System. out. printf ("SGRA: 1.25", 39pa);
	3 , spa);
	-d-
	Class 3 GPA demo E
	public static void main (string sx []) f
	Student 31 = new student ();
	ol. acc-det ();
	51. 5GPA cal ();
	51. display();
	3
10:	3
	Output:
	Enter your name and usu.
LES FIL	Mogareera salit strekar
	13M22C5155.
	Enter your marks in 8 subjects
	92 96
	23 -6
	8a Tuput error (muluded ou.
	33 Jor Wap)
	100:
(10);	97
(10);	96.
350/10/	Name: Mogaraera Bahil Shekar
	USN 2 1BM 2205155
	39 PA : 9.73.
THE RESERVE OF THE PARTY OF THE	

```
import java.util.Scanner;
class Student {
    String usn,name;
    int credits[]={4,4,4,3,3,2,1,1};
    int marks[]=new int[8];
    double sgpa;
    void acc_det(){
        Scanner s=new Scanner(System.in);
        System.out.println("Enter your name and usn");
        this.usn=s.next();
        this.name=s.next();
        System.out.println("Enter your marks in 8 subjects ordered by credits
descending");
        for(int i=0;i<8;i++)</pre>
            marks[i]=s.nextInt();
    void sgpacal(){
        int sum=0;
        for(int i=0;i<8;i++){
            if(marks[i]==100)
                sum+=credits[i]*(marks[i]/10);
            else
                sum+=credits[i]*((int)(marks[i]/10)+1);
        sgpa=(double)sum/22;
    void display(){
        System.out.printf("Student name:"+name+"\nStudent USN:"+usn+"\nSGPA
scored:%.2f",sgpa);
    public String toString() {
        return "\nSgpa:"+sgpa;
    };
class SGPAdemo{
    public static void main(String[] args) {
        Student s1=new Student();
        s1.acc_det();
        s1.sgpacal();
        s1.display();
        System.out.print(s1);
```

Develop a Java program to create a class Book which contains four members; name, author, price, num-pages. Include a a constructor to set the values for the members I relude methods to set and get details of the object. Include a tosting() method that would display the complete details of the Gook . Devetop a " create for n objects. -> import java, util. Bearner; class Book & string name, author; tut price, num-pages; Book (String is, string a, rut p, int this name = n; this author this. price = p; this. num-pages public string to string () { return "Book name: "+ name + "\n -or: "+ author +" In Price: "+ In Number of pages: " + num ; class Book Det E. Extern Brook Kyers. Blanner 5 = new Hanner (System. In) State Book set Of s. next Line (); system out printle (" Fiter Gooknas String n = 3. next I me (); System. out. proutine" Entox author string a = 3. next line ();

System. out. println (" Futor price of Goot") int p = 3, next Int (); System. out. print(ul"Enter no. of pages Book GI = new Book (u, a, p; np); 1 return 61; } public static void main (string sx[]) { Ent n; System. out : print(n(" Futer no of Gooks"); M = 3, next Int (); Book GIJ = new. Book [n]; for (mt =0; (<n; E++). 6617 = set (); System. out. println (" Dotails of out for cout =0; [xn; [++) pr system. out - printle (GCI) Output? Enter number of books Enter - Book Name Enter author name Kerlan Mirera Euler price of the book Futer number of pages

Enter Gook -name Viuland Saga Enter author name Author 1. Enter price of Gook. Enter number of pages. Details of Gooks entered Name: Berserk. Author: Kentaro Mirura. Price: 1000 Number of pages: 200. Name: Vorland saga Author: Author! Price: 10000 Number of pages: 100

```
import java.util.Scanner;
class Book{
   String name, author;
    int price,num_pages;
    Book(String n,String a,int p,int np){
        this.name=n;this.author=a;
        this.price=p;this.num_pages=np;
    public String toString(){
        return "Book name:"+name+"\nAuthor:"+author+"\nPrice:"+price+"\nNumber
of pages:"+num_pages;
public class BookDet {
    static Scanner s=new Scanner(System.in);
    static Book set(){
        s.nextLine();
        System.out.println("Enter book name");
        String n=s.nextLine();
        System.out.println("Enter author name");
        String a=s.nextLine();
        System.out.println("Enter price of book");
        int p=s.nextInt();
        System.out.println("Enter no of pages");
        int np=s.nextInt();
        Book b1=new Book(n,a,p,np);
        return b1;
    public static void main(String sx[]){
        int n;
        System.out.println("Enter no of books");
        n=s.nextInt();
        Book b[]=new Book[n];
        for(int i=0;i<n;i++)</pre>
            b[i]=set();
        System.out.println("Details of books entered");
        for(int i=0;i<n;i++)</pre>
            System.out.println(b[i]);
```

D) Develop à Java Program to create an abet act class named shape that contains two Integers and an empty method name print Ana () . Provide three classes named Portungle, Triangle and write such that each one of the classes extends shape "Fach me of the classes contains only print Area (). -) most java, util scanner; abstract class shape 5. rut . ce, 6; Shape & mt x, mt y) f abstract float print Ana (); class corde extends shape &. condecontr) & super (Y, Y); float pont Area Of. float ana = efloat 3- 14 x x 6. neturn area; class Rectangle extends shape & · Rectargle (rut x, rut y) { suger (x, y); float print Area (). E fled return att;

class Triangle extends shape f. Triangle (int x , int y) f. Super (x, y); float print Area () 4. float area = (float) 0.5 * a * 6; return area; class Area Calc 5. public static void main (string 3×17) {. Scanner 3= new Scanner (3ystem. In) int x, y; System. out. println (" Enter radius of -conle"); " x = s. next Int (); (rale (= new (rate (x); System. out . println &! Enter the length . rand Greadth of Pertangle "); x = s. next Int (): y = s- next Int Q Prectangle . r = new Rectangle (x/4) System out printle (" Enter the base and height of triangle "); X = s. next Int (); y = 5. next Int (); Triangle to relier Triangle (x,y); System out println (" Area of Triangles" of to growt Anall); System: out, grout in (" Area of Rectarge + r, print Area ()), System out printing "Area of water

+ eigrint Area (3) autout: Enter the radius of write Enter the length & Greadth of Perlangle Enter the Gase and Geight of triangle Area of Torrangle: 50.0 Area of Rectangle: 200.0

```
import java.util.Scanner;
abstract class Shape{
    int a,b;
    Shape(int x,int y){
        a=x;b=y;
    abstract float printArea();
class Circle extends Shape{
    Circle(int r){
        super(r,r);
    float printArea(){
        return (float)3.14*a*b;
class Rectangle extends Shape{
    Rectangle(int x,int y){
        super(x,y);
    float printArea(){
        return a*b;
class Triangle extends Shape{
    Triangle(int x,int y){
        super(x,y);
    float printArea(){
        return (float)0.5*a*b;
class AreaCalc{
    public static void main(String[] args) {
        Scanner s=new Scanner(System.in);
        int x,y;
        System.out.println("Enter radius of circle:");
        x=s.nextInt();
        Circle c=new Circle(x);
        System.out.println("Enter length and breadth of rectangle:");
        x=s.nextInt();
        y=s.nextInt();
        Rectangle r =new Rectangle(x,y);
        System.out.println("Enter base and height of triangle:");
        x=s.nextInt();
        y=s.nextInt();
        Triangle t=new Triangle(x,y);
        System.out.println("Area of circle:"+c.printArea());
```

```
System.out.println("Area of rectangle:"+r.printArea());
System.out.println("Area of triangle:"+t.printArea());
}
```

a write a program that demonstrates handling of expections in inheritance tree. Create a line class "Father" and a derived class son, which extends the Gase class. In father class implen - ut a constructor throwing an age error for negative age. In son class, throw an exception when father's age < son's age. import java util scanner; class Wrong Age extends. Exception 5. Thing message; Wrong Age (strong s) & message = 6; public string tostring () 5. return mersage; class Father & Int age: Father (Int a) f try f age = a; Efcacolf. throw new wrong Age (" Father age cannot be negative. "); catia (Exception e) { system out printly (e)

class son Extends tather & Int sAge: Son (int age 1, int agec) & Super (age 1); try & if (age 2 < 0) · Harow new Wrong Age (" son's age cannot be negative."); if Cage 2 7 age 1) Faron new wrong Age (" Son cannot se dder than Father "); catch (wrong Ago e) + System. out. println (e); public string tostring () 4 return "son's age: "+ sAge; class Father Son & public states void main (string sx[]){ Bearner of = new searner (system.in); System out post (" Enter age of son and Father "); Int al = . SI next Intis; Ent at = 51, next Int (); Son 3 = KEW Son (al, a2); System out . print (" Father 's age: " + 3. age); System out prut (n (3);

Output: 1) Enter. the age of Fother & son son' Father's age cannot be negative. son to son's age cannot be negative Father's age 1-20 son's age ? -19 2) Enter the age of Father 6 son Father's age cannot be negative son cannot be older than father Father's age 1-20 son's age: 1,

```
import java.util.Scanner;
class WrongAge extends Exception{
    String message;
    WrongAge(String s){
        message=s;
    public String toString(){
        return message;
class Father{
    int age;
    Father(int a){
        try{
            age=a;
            if(a<0){
                throw new WrongAge("Father's age cannot be negative.");
        catch(Exception e){
            System.out.println(e);
class Son extends Father{
    int sAge;
    Son(int age1,int age2){
        super(age1);
        try{
            sAge=age2;
            if(age2<0)
                throw new WrongAge("Son's age cannot be negative.");
            if(age2>age1)
                throw new WrongAge("Son cannot be older than father.");
        catch(WrongAge e){
            System.out.println(e);
    public String toString(){
        return "Son's age:"+sAge;
    }
class FatherSon{
    public static void main(String sx[]){
        Scanner s1=new Scanner(System.in);
        System.out.println("Enter the age of Father and son");
```

```
int a1=s1.nextInt();
int a2=s1.nextInt();
Son s=new Son(a1,a2);
System.out.println("Father's age:"+s.age);
System.out.println(s);
}
```

D) create a package UE which has two days students and internals. The days stude has members like usu, name and some. class internal has an away that stones the internal marks. sword in 5 subjects Create another parkage SEE which has the external class derived from student. This class has an array that stores the SEE marks. Import the two parkages in a file that delares final marks of n students in all package CIE; public class student & quester string usn, name; public out sem; puller Student (Strong u, strong M, usn=u; name=n, sem=s; package CIE; public class Internal extends student [public int marks[] = new int [5]; public Internal Estring u, string u, int s, int m[] { super (u, n, s); marks = w; parkage SEF; import (IE. *; public class External extends student &

public Faternal (string u, string u, into juting super(u, u, s); marks=m; import (IE. *) import SEE. *; import Java. util. 3canner; class. X f Internal in: External ex; X (Internal in External ex) { this, meing this ex = ex; class Student Petails { Hatre Teanner of new Teanner (system My State X accelet () E. System. out printle ("Enter Kame & work String n st. next (); Thing we shereter; Tystem out proutle (" Enter semeder"); int so sherest Inter System out protler " Enter UE made " 5 3465 "); Ent miles = new mt (5)for (tot 1 -0; 1×5; (++) & mility = 31 next thto. system. out mould

-Tu 5 su(s "): Ent mass = new mtso7; for (mt =0; 155; 111) m2007 = 51. next Int (). External el= new External (u, u, s, m2); Internal . 11 = new Internal (4,4,3, m1) X X = Now X(1(,e1); return x: public states void morn (string sx(J) { Int n; system. cut. pointlne" Enter no of students"); K= 31. next Into; X stude 7 = new XINJ; for cont (=0; TXN; (++){ System ast. printle (" student " + (++ 1)) studio = accdeto; for (rut 1=0; 1< K; E++) { system out printle (" \u student details System - out-printle (" Name " + studitiz-in system. act. positia ("con:"+ studge]. on. usu system. out . printle (" FM:" + studies. in System out println (" (IF marks"). for cord j-0; 5 x 5; 5++.) System. out printf ("-1. d. t" studie? in marke 1775; System, out proton (" In SEE marks"); for cont 7=0; 5<5; 1++) System. out printf ""1.dit", stud Fil. ex marks [7]);

Parkage structure Dobals. > CTCIE ___ -> student class > Internal class 175EE PEGGE > External dass Output: Enter no of students student 1 Enter name and usn C\$155 Enter somester. Enter UE marks on 5 subjects 37 38 39 40 29 Enter SEE marks in 5 subjects 91 92 93 94 95 student 2 Exter name and usu Mekul (3153 Futer senceter Futer UF marks on 5 subjects 40 40 40 40 40 Euler SEE marks on 5 subjects

95 96 97 98 100 Student Detasts Name: Salut USN : (5156 CIE Marks 37 33 39 40 29 SEE Marks 91 92 93 99 95 Student Details Name: Mehul USN: CH163 SEM : 3 CLE marks 40 40 40 40 40 SEE marks 95 96 97 98 100

```
package CIE;
public class Student {
    public String usn,name;
    public int sem;
    public Student(String u,String n,int s){
        usn=u;name=n;sem=s;
    }
}
```

```
package CIE;
public class Internal extends Student{
    public int marks[]=new int[5];
    public Internal(String u,String n,int s,int m[]){
        super(u,n,s);marks=m;
    }
}
```

```
package SEE;
import CIE.*;
public class External extends Student{
    public int marks[]=new int[5];
    public External(String u,String n,int s,int m[]){
        super(u,n,s);marks=m;
    }
}
```

```
import CIE.*;
import SEE.*;
import java.util.Scanner;
class X{
    Internal in;
    External ex;
    X(Internal in,External ex){
        this.in=in;
        this.ex=ex;
    }
class StudentDetails{
    static Scanner s1=new Scanner(System.in);
    static X accdet(){
        System.out.println("Enter your name and usn");
        String n=s1.next();
        String u=s1.next();
        System.out.println("Enter semester");
        int s=s1.nextInt();
        System.out.println("Enter your CIE marks in 5 subs");
        int m1[]=new int[5];
```

```
for(int i=0;i<5;i++){
        m1[i]=s1.nextInt();
    System.out.println("Enter your SEE marks in 5 subs");
    int m2[]=new int[5];
    for(int i=0;i<5;i++){
        m2[i]=s1.nextInt();
    External e1=new External(u,n,s,m2);
    Internal i1=new Internal(u,n,s,m1);
    X = \text{new } X(i1,e1);
    return x;
public static void main(String[] args) {
    int n;
    System.out.println("Enter number of students");
    n=s1.nextInt();
    X stud[]=new X[n];
    for(int i=0;i<n;i++){</pre>
        System.out.println("Student "+(i+1));
        stud[i]=accdet();
    for(int i=0;i<n;i++){</pre>
        System.out.println("\nStudent Details");
        System.out.println("Name:"+stud[i].in.name);
        System.out.println("USN:"+stud[i].in.usn);
        System.out.println("SEM:"+stud[i].in.sem);
        System.out.println("CIE marks");
        for(int j=0;j<5;j++)</pre>
            System.out.printf("%d\t",stud[i].in.marks[j]);
        System.out.println("\nSEE marks");
        for(int j=0;j<5;j++)</pre>
            System.out.printf("%d\t",stud[i].ex.marks[j]);
```

LAB -8 write a program which creates two threads, one thread displaying " Ems college of ingreens ug" our every 10 seconds and another displaying "(st" one every two seconds May). class New Thread implements . Punrable & Thread t; New Thread () 5 + = new Thread (this, "NThread") 3ystam. out. printle ("(T:" + 1)) to start (); public vord num () { system out printle "" Thread strep (2000); catch (Tutomyptud Exception Te) {. System out printled "(SE Harad system out printly ("(st . + (and quilling")) class BMS (SE Thread & public static void man (strong extil ! new New Thread (); try f. for Cont 1=3; 1170, 11-18 system out printle (1 BMs college of Engineering");

Thread . sleep (10000); catch (Interrupted Exception TE) (system out print in (" BMS Thread interrupted "). System out printle (" Bors Thread quitting) autant: (9: Tamped (Hoo, NTared, 5, mary) BMS college of Engineering (SE. CSE Brus. College of Engineering CSE Thread quitting BM's college of Engineering Ems Thread queting

```
class NewThread implements Runnable{
    NewThread(){
        Thread t=new Thread(this, "Newthread");
        System.out.println("CT:"+t);
        t.start();
   public void run(){
        try{
            for(int i=0;i<3;i++){
                System.out.println("CSE");
                Thread.sleep(2000);
        catch(InterruptedException ie){
            System.out.println("CSE thread interrupted");
        System.out.println("CSE thread quitting");
class ThreadDemo{
    public static void main(String sx[]){
        new NewThread();
        try{
            for(int i=0;i<4;i++){
                System.out.println("BMS College Of Engineering");
                Thread.sleep(10000);
        catch(InterruptedException ie){
            System.out.println("BMS thread interrupted");
        System.out.println("BMS thread quitting");
```

It? 1) Perelep a Tam Program to create a class Book that maintains two kinds of account one called savings and other unroul savings account provides compound intere and withdrawal faulities but no the Gook failthy. The unreal account pro no releast. Current amount holders the also mambain a minimum balance ol source charge is levied Crede a class Account that stores we name, account number and type of ac From this derive classes - Cur Aut & to make them more specific to their req Turbude necessary methods in action the following tacks a) Accept deposit from waterner & update the a) Display the Galano of compute and deposit ordered of pormit withdrawal & update balance class Account & string cust name; string acc-no; String type: Louble Galance; Account (strong u, strong ac, strong t, sut ball's cust - name - 19 type - t; balance bal, void deposit (out amount) ! balance += amount;

void got ballis System out. proutle ("Name:"+ cust name). System out printly (" Acc no: " + ac " In Type:" " type); system, out pruth ("Balance: " & Galone); vord withdraw (rut amount) H (amount > Galance) system. out printle ("Amount anova else balance -= amount; class Cur aut extends Account & state final out mon bal - 2000. statu frual mt serve-charge = 1000. Cur aut (Storing is, storing ac, strong t, not bulk super (u, a, t, bal); of (Galance < min. Gal) 5 system. out. printle ("Low on Balance service charge terred "); balance - serve - charge; class saw and extends Account (state foral double reterest = 0.00; 30 - aut String u, string al, string t, Tut Gal) & super (k, ac, t, sal);

void add-rute (rut years) { balance = balance * Math. pow (1+ rulerest), years); class Bank Perno E public states void man (string sxx) Sav aut 3 - now save act ("Mohal" " NC163", " Sarrigs", 1000); Gle 3. add - rute (3). 5. get ball; 3. deposit (1000); 5. withdraw (2000) 5. get Gall; Car aut = new curr act (" Many" " KAR 147", "current" (000) c. get bally c. deposit (100000); alt Ciget balls; Output: Name ; Mehul. Your Balance: 1259,712000 Name: Mchul Your Balance: # 250. 712 000 Low on Balance, service charge levied Balance: 0.0 Balance: 100000

```
class Account{
    String cust name;
    String acc no;
    String type;
    double balance;
    Account(String n,String ac,String t,double bal){
        cust_name=n;acc_no=ac;
        type=t;balance=bal;
    void deposit(int amount){
        balance+=amount;
    }
    void get_bal(){
        System.out.println("Name:"+cust_name);
        System.out.println("Acc_no"+acc_no+"\nType"+type);
        System.out.println("Balance:"+balance);
    void withdraw(int amount){
        if(amount>balance)
            System.out.println("Amount unavailable");
        else
            balance-=amount;
    }
class Cur acct extends Account{
    static final int min bal=2000;
    static final int serve_charge=1000;
    Cur_acct(String n,String ac,String t,double bal){
        super(n, ac, t, bal);
        if(balance<min bal){</pre>
            System.out.println("Low on balance, service charge levied");
            balance-=serve charge;
class Sav_acct extends Account{
    static final double interest=0.08;
    Sav_acct(String n,String ac,String t,double bal){
        super(n, ac, t, bal);
    void add_intr(int years){
        balance=balance*Math.pow((1+interest), years);
    }
public class BankDemo {
    public static void main(String[] args) {
        Sav_acct s= new Sav_acct("Mehul","SVC153","Savings", 1000);
        s.add intr(3);
```

```
//balance after adding interest
s.get_bal();
s.deposit(1000);
s.withdraw(2000);
//after deposition and withdrawal
s.get_bal();
//service charge will be levied on creation
Cur_acct c=new Cur_acct("Manoj", "KAR147", "Current", 1000);
//shows 0
c.get_bal();
c.deposit(100000);
c.get_bal();
}
```

2) Write a program that creates as in to perform subseque divisions. The user subers have numbers second & name to fact fields. The questions. is displayed in result field. If wont or summe were not rategers then throw a sunber formed - Exception If he won't were zero, the program would throw an Anthonobi Exception THE message dealy some Emport gavex swing "; import Java aut "; Import Java aut event. " public class Integer pression Of extends I Frame ? private Trout Field munit Field, munit Field, moult Freld; public Integer Prison UICIC set Title ("Integer division"); set 6120 (300, 200); Tet Default close Operations (EXIT ON CLOSE); Travel panel = new JPanell; panel settayout (new and ayout (4, 2)); Trabel - numbrabel = new Trabel ("Num 12) mum Freid = now Frext Freid (); Trabel nums takel = Hew Stakel ("Numsing num2 Field = new IText Fielder; Trabel result habel = new Trabel (" Result ") Death red of Editorico result Field = new Treat Field(); result Field . set Edituble (false); J Button devide Button - new Button Caronia devide Button. add Astron Listener / new Action/ cotener () [public void action Performed "

	Page 0
	ActronEvent e) E.
n.	try. C.
3	That in = Integer parse Int (num! Field.
	get Text();
umz	The in = Integer - parce Int (num 2 Frold.
mat	get Text ());
	If (negret == 0) {
	throw new Arithmetre Exception (
	"(annot pride by zero!");
	3
	That y= num / num;
e f	result Freld set Text (string, value of (r));
	3 · Catch (Number Format Exception ex) ?
	Jophron Pane. show Message Dialog (well,
	"Please Enter valid integers", "Error",
	J. Optron Pane. ERROR_MESSAGE);
	3 catch (Arithmetra Exception ex) {
);	Joptron Pane, show Message Dralog (mill,
	" Cannot Dride by Zero", "Error",
13;	7 Option Pane, ERROR MESSAGE);
1: ")-	3
	- 5
2:7);	3);
10)	panel add (num Label);
-");	panel-add (num! Freld);
	panel, add (num2 Label);
	panel. add (num2 Freld);
rde"/j	panel. add (result take !);
1	panel . add (result Freld);
	panel. add (dride Button);
	add cpanel;

· sets ocation Pelatre To (null); ort Visible (True); public. state void main (stong 57 args) {
Swing Chilitres. Invoke Later (new
Runnable () {.

public. void nuics {.

new Integer Division () ;

```
import javax.swing.*;
import java.awt.*;
import java.awt.event.*;
public class IntegerDivisionUI extends JFrame {
    private JTextField num1Field, num2Field, resultField;
    public IntegerDivisionUI() {
        setTitle("Integer Division");
        setSize(300, 200);
        setDefaultCloseOperation(EXIT_ON_CLOSE);
        JPanel panel = new JPanel();
        panel.setLayout(new GridLayout(4, 2));
        JLabel num1Label = new JLabel(" Num1:");
        num1Field = new JTextField();
        JLabel num2Label = new JLabel(" Num2:");
        num2Field = new JTextField();
        JLabel resultLabel = new JLabel(" Result:");
        resultField = new JTextField();
        resultField.setEditable(false);
        JButton divideButton = new JButton("Divide");
        divideButton.addActionListener(new ActionListener() {
            public void actionPerformed(ActionEvent e) {
                try {
                    int num1 = Integer.parseInt(num1Field.getText());
                    int num2 = Integer.parseInt(num2Field.getText());
                    if (num2 == 0) {
                        throw new ArithmeticException("Cannot divide by
zero!");
                    int result = num1 / num2;
                    resultField.setText(String.valueOf(result));
                } catch (NumberFormatException ex) {
                    JOptionPane.showMessageDialog(null,
"NumberFormatException: Please enter valid integers.", "Error",
JOptionPane.ERROR_MESSAGE);
                } catch (ArithmeticException ex) {
                    JOptionPane.showMessageDialog(null, "ArithmeticException:
Cannot divide by zero.", "Error", JOptionPane.ERROR_MESSAGE);
        });
```

```
new JPanel();
it(new GridLayout(rows:4, cols:2));
                           Integer Division
                                                             X
el = new JLabel(text:"
w JTextField();
el = new JLabel(text:"
                           Num1:
                                                  22
w JTextField();
.abel = new JLabel(text:
                           Num2:
                                                  11
new JTextField();
tEditable(b:false);
                           Result:
Button = new JButton(tex
ddActionListener(new Act
                                   Divide
.d actionPerformed(Action
t num1 = Integer.parseInt(num1Field.getText());
t num2 = Integer.parseInt(num2Field.getText());
 (num2 == 0) {
  throw new ArithmeticException(s:"Cannot divide by zero!");
 v JPanel();
 ew GridLayout(rows:4, cols:2));
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itable(b:false);
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num1 = Integer.parseInt(num1Field.getText());
num2 = Integer.parseInt(num2Field.getText());
num2 == 0) {
                 Integer Division
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eld();
JLabel(te Error
                                                                    ×
eld();
w JLabel
                  NumberFormatException: Please enter valid integers.
Field();
(b:false
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new JButi
istener(new Act
                         Divide
erformed(Action
Integer.parseInt(num1Field.getText());
Integer.parseInt(num2Field.getText());
0) {
```