



s.getdeposit();

{

else if ($x = 2$)

{

s.displaybalance();

{

else if ($x = 3$)

{

s.issuecheck();

{

else if ($x = 4$)

{

D:\akash>java AccountMain
Enter the type of account you want (C/S) :

C
Enter the name of the customer : akash

Enter the account number of the customer : 4569

Enter the balance of the customer : 1000000000

Enter the minimum balance : 5000000

Enter 0 for exit :

Enter 1 for deposit :

Enter 2 for balance enquiry :

Enter 3 to apply for cheque :

Enter 4 for withdrawl :

1
Enter the amount to be deposited : 100

Enter 0 for exit :

Enter 1 for deposit :

Enter 2 for balance enquiry :

Enter 3 to apply for cheque :

Enter 4 for withdrawl :

2
The balance is : 1.00000001E10

Enter 0 for exit :

Enter 1 for deposit :

Enter 2 for balance enquiry :

Enter 3 to apply for cheque :

Enter 4 for withdrawl :

3
Enter the amount of the check : 25

The balance is : 1.000000075E10

Enter 0 for exit :

Enter 1 for deposit :

Enter 2 for balance enquiry :

Enter 3 to apply for cheque :

Enter 4 for withdrawl :

Lab 6

Create a package CIE which has two classes- Student and Internals. The class Personal has members like usn, name, sem. The class Internals has an array that stores the internal marks scored in five courses of the current semester of the student. Create another package SEE which has the class External which is a derived class of Student. This class has an array that stores the SEE marks scored in five courses of the current semester of the student. Import the two packages in a file that declares the final marks of n students in all five courses.

Week 9Total_marks.java

student class !!

package cie;

import java.util;

public class student

{

 public string usn;

 public string name;

 public int sem;

 public void student details()

{

Scanner s = new Scanner(system.in);

system.out.println ("Enter usn of student:");

usn = s.next();

system.out.println ("Enter Name of student:");

name = s.next();

system.out.println ("Enter Semester of student:");

sem = s.nextInt();

}

y

Internals class!

package cie;



```
import java.util;
public class Internals
{
    public int i;
    public int internalmarks[];
    public void internals()
    {
        Scanner s=new Scanner(System.in);
        internalmarks = new int[5];
        System.out.println ("Enter marks of obtained by student in Internals
                            in 5 subjects ");
        for(i=0; i<5; i++)
        {
            System.out.println ("Enter Internal marks of student in subjects
                                "+(i+1)+":");
            for(i=0; i<5; i++)
            {
                System.out.println ("Enter Internal marks of student in subjects
                                "+(i+1)+":");
                internalmarks [i]=s.nextInt();
            }
        }
    }
}
```

External class !

package sec;



```
import cie.*;
import java.util;
public class External extends cie.students
{
```

```
    public int i;
    public int external[];
    public void externals()
```

```
Scanner S = new Scanner(System.in);
external = new int[5];
System.out.println("Enter marks of obtained by students in 5
subjects");
```

```
for(i=0 ; i<5 ; i++)
```

```
System.out.println("Enter marks of students in subjects "+(i+1)
:");
```

```
external[i] = S.nextInt();
```

```
}
```

```
}
```

```
}
```

Driver class !!

```
import cie.*;
import Scanner;
import java.util;
int n = s.nextInt();
```

```
cie.students s[] = new cie.student[n];
```

```
cie.internals c[] = new cie.Internals[n];
```

```
see.Externals e[] = new see.Externals[n];
```

```
System.out.println("Enter Details of students");
```

```
for(int i=0; i<n; i++)
```

{

```
s[i] = new cie.student();
```

```
c[i] = new cie.Internals();
```

```
e[i] = new see.Externals();
```

```
s[i].studentDetails();
```

```
c[i].internals();
```

```
e[i].externals();
```

}

```
for (int i=0; i<n; i++)
```

{

```
for (int j=0; j<5; j++)
```

{

```
total[j] = c[i].internalMarks[j] + e[i].external [j];
```

}

```
System.out.println("Total marks for student "+(i+1)+" in each  
subjects are: ");
```

```
for (int i=0; i<n; i++)
```

{

```
System.out.println("Total marks in subjects "+(j+1)+" for student  
"+(i+1)+" is "+total[j]);
```

{ } { }

```
cie.students s[] = new cie.student[n];
cie.internals c[] = new cie.Internals[n];
see.Externals e[] = new see.Externals[n];
System.out.println("Enter Details of students");
for(int i=0; i<n; i++)
{
    s[i] = new cie.student();
    c[i] = new cie.Internals();
    e[i] = new see.Externals();
    s[i].studentDetails();
    c[i].internals();
    e[i].externals();
}
for (int i=0 ; i<n; i++)
{
    for (int j=0 ; j<5; j++)
    {
        total[j] = c[i].internalMarks[j]+e[i].externalexample[j];
    }
}
System.out.println("Total marks for students "+(i+1)+" in each subjects are : ");
for (int i=0; i<5; i++)
{
    System.out.println('Total marks in subjects '+ (i+1)+ ' for student '+ (i+1) + " is "+total[i]);
}
```

23 Enter External Marks of Student in subject 4 :
24 Enter External Marks of Student in subject 5 :
24 Enter USN of Student :
23425 Enter Name of Student :
Raj Enter Semester of Student :
Enter Marks obtained by Student in Internals in
Enter Internal Marks of Student in subject 1 :
24 Enter Internal Marks of Student in subject 2 :
50 Enter Internal Marks of Student in subject 3 :
23 Enter Internal Marks of Student in subject 4 :
24 Enter Internal Marks of Student in subject 5 :
24



34 / 51



77.4%



Lab 7

7. Write a program to demonstrate generics with multiple object parameters.

I =





Gren.java

```
import java.util.*;
class ThreeGren<T, V, S>
{
```

```
    T ob1;
```

```
    V ob2;
```

```
    S ob3;
```

```
ThreeGren(T ob1, V ob2, S ob3)
```

```
{
```

```
    ob1 = ob1;
```

```
    ob2 = ob2;
```

```
    ob3 = ob3;
```

```
}
```

```
void display void showType()
```

```
{
```

```
System.out.println("Type of T is "+ob1.getClass().getName())
```

```
System.out.println("Type of V is "+ob2.getClass().getName())
```

```
System.out.println("Type of S is "+ob3.getClass().getName())
```

```
}
```

```
T getob1()
```

```
{
```

```
    return ob1;
```

```
}
```

```
V getob2()
```

```
    }  
    return ob2;  
}  
S get ob3()  
{  
    return ob3;  
}  
}  
}  
class Gren  
{  
public static void main (String args[])  
{  
    ThreeGren< Integer, String, Double> tgobj = new ThreeGren<  
        Integer, String, Double>(85, "Grenrics", 0.4);  
    tgobj.showTypes();  
    int v = tgobj.getob1();  
    System.out.println("Value: "+v);  
    String str = tgobj.getob2();  
    System.out.println("Value: "+str);  
    double s = tgobj.getob3();  
    System.out.println("Value"+s);  
}
```

```
D:\akash-jeva>javac Gen.java  
  
D:\akash-jeva>java Gen  
Type of T is java.lang.Integer  
Type of V is java.lang.String  
Type of S is java.lang.Double  
value: 88  
value: Generics  
value: 0.4
```

```
D:\akash-jeva>
```



Lab 8

Write a program that demonstrates handling of exceptions in inheritance tree. Create a base class called "Father" and derived class called "Son" which extends the base class. In Father class, implement a constructor which takes the age and throws the exception Wrong Age() when the input age=father's age.



57.9%



week 10

Age Main . java

```
import java.util;  
class WrongAge extends Exception  
{
```

```
    int f, s;
```

```
    WrongAge (int father age, int sonage )  
{
```

```
        F = father age
```

```
        S = Sonage ;
```

3

3

```
class Father
```

{

```
    int father age;
```

```
    int Sonage ;
```

```
    Father (int f, int s) throws , Wrong age  
{
```

```
        if (f == s)
```

```
            throw new WrongAge (father age , sonage );  
        else
```

{

```
        throw new WrongAge (father age , sonage );
```



else

{

this.fatherage = f;

this.sonage = s;

}

}

}

class Son Extends Father

{

Son (int f, int s) throws WrongAge

{

Super(f, s);

if (s >= f)

throw new WrongAge (father age, son age);

System.out.println ("Valid age");

}

void display()

{

System.out.println ("Father's Age : " + fatherage);

System.out.println ("Son's Age : " + sonage);

}

}

class AgeMain

{

public static void main (String [] args)



{

int f, s;

Scanner s = new Scanner (System.in);

System.out.println("Enter father's age");

f = s.nextInt();

System.out.println("Enter Son's Age: ");

s = s.nextInt();

try

{

Son s1 = new Son(f, s);

s1.display();

}

catch (WrongAge e)

{

System.out.println ("Exception "+e);

{

{

{

D:\Vakask-Java>javac AgeValidation.java

D:\Vakask-Java>java AgeValidation

Enter Father's Age:

47

Enter Son's Age:

20

Valid Age

Father's Age:47

Son's Age:20

D:\Vakask-Java>



Lab 9

Write a program which creates two threads, one thread displaying "BMS College of Engineering" once every ten seconds and another displaying "CSE" once every two se
I





Week 11

Thread Main.java

```
import java.util;  
class Thread M Implements Runnable.
```

{

```
string Name;
```

```
int number;
```

```
Thread t;
```

```
Thread M (string tn, int n)
```

{

```
name = tn;
```

```
number = n;
```

```
t = new Thread (tis, name);
```

```
System.out.println ("Thread : " + t);
```

```
t.start();
```

}

```
public void run()
```

{

```
try {
```

```
if (number == 1)
```

{

```
for (int i=6; i>0; i--) {
```

```
System.out.println (name + i + "1");
```

```
Thread.sleep(10000);
}
}
if (number == 2)
for (int i=6; i>0; i--) {
System.out.println(name + " : " + i);
Thread.sleep(2000);
}
}
catch (InterruptedException e)
{
System.out.println(name + " Interrupted ");
}
System.out.println(name + " Exiting ");
}
class Thread Main
{
public static void main(String [] args)
{
new ThreadM("BMS College of Engineering"), 
new Thread ("CSE");
}
}
```

```
D:\workspace-Java>java ThreadMain
Thread : Thread[B.M.S College of Engineering,S,
Thread : Thread[C.S.E,5,main]
B.M.S College of Engineering: 6
C.S.E: 6
C.S.E: 5
C.S.E: 4
C.S.E: 3
C.S.E: 2
B.M.S College of Engineering: 3
C.S.E: 1
C.S.E Exiting
B.M.S College of Engineering: 4
```

Lab 10

Write a program that creates a user interface to perform integer divisions. The user enters two numbers in the text fields, Num1 and Num2. The division of Num1 and Num2 is displayed in the Result field when the Divide button is clicked. If Num1 or Num2 were not an integer, the program would throw a Number Format Exception. If Num2 were Zero, the program would throw an Arithmetic Exception. Display the exception in a message dialog box.

I





Week 12

```
import java.awt.*;
import java.awt.event.*;
import java.swing.*;
public class Division extends Frame implements ActionListener {
    JTextField n1, n2, res;
    Label l1, l2, lres;
    Button b;
    public division() {
        setLayout(new FlowLayout());
        Label L1 = new Label("Num1", Label.Right);
        Label L2 = new Label("Num2", Label.Right);
        Label Lres = new Label("Result", Label.Right);
        n1 = new JTextField(12);
        n2 = new JTextField(8);
        res = new JTextField(10);
        b = new Button("Divide");
        add(l1);
        add(n1);
        add(l2);
        add(n2);
        add(b);
        add(lres);
        add(res);
    }
}
```



```
b.addActionListener(this);
addWindowListener(new MyWindowAdapter());
}

public void actionPerformed(ActionEvent ae)
{
    if (ae.getSource() == b)
    {
        try {
            int num1 = Integer.parseInt(t1.getText());
            int num2 = Integer.parseInt(t2.getText());
            int num3 = num1 / num2;
            res.setText(String.valueOf(num3));
        }
        catch (NumberFormatException ne) {
            JOptionPane.showMessageDialog(this, ne, "Error", JOptionPane.ERROR_MESSAGE);
        }
        catch (ArithmeticException a) {
            JOptionPane.showMessageDialog(this, a, "Error", JOptionPane.ERROR_MESSAGE);
        }
    }
}
```



Run Debug

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

```
    Division i=new Division();
    i.setSize(new Dimension(400,400));
    i.setTitle("IntegerDivision of Two Numbers");
    i.setVisible(true);
}
```

```
class MyWindowAdapter extends WindowAdapter {
```

```
    public void windowClosing(WindowEvent we)
    {
```

```
        System.exit(0);
    }
}
```

```
}
```

NUM2 |10

DIVIDE

RESULT

5