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.

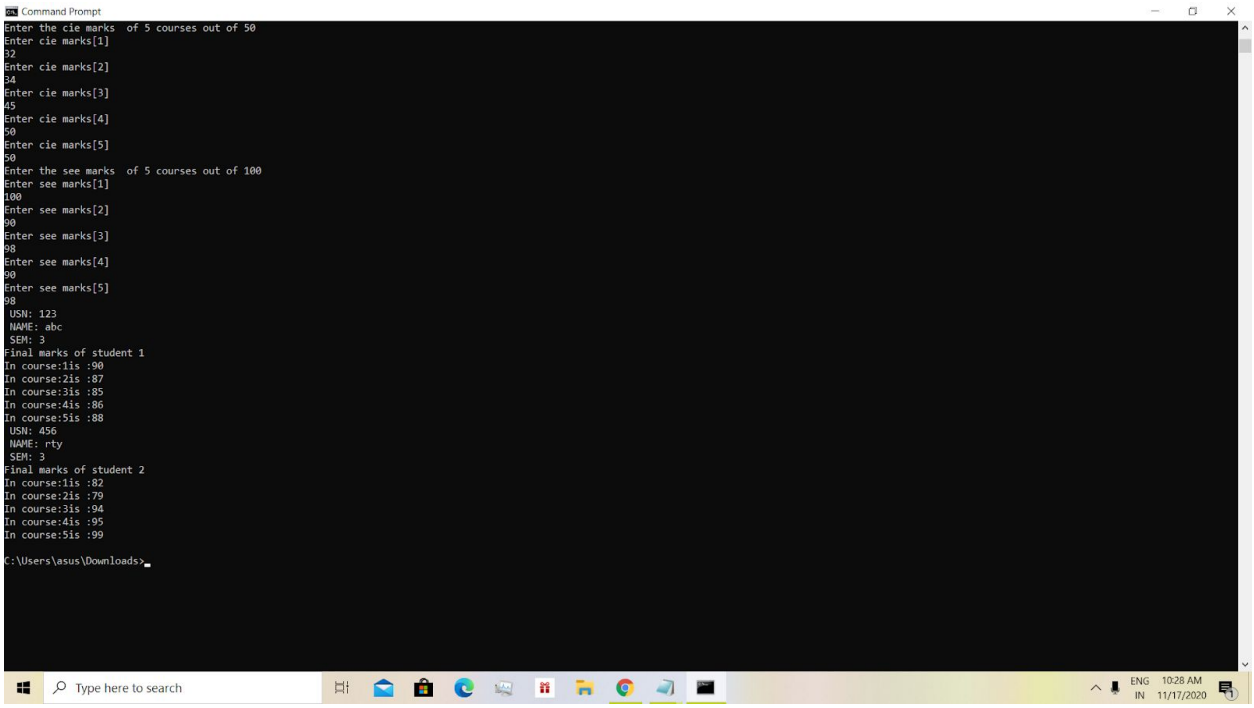
week 9
lab program 6

```
Package CIE;
import java.util.Scanner;

class Student
{
public String usn;
Public String name;
public int sem;

Public void accept()
{
Scanner A = new Scanner(System.in);
System.out.println("Enter USN");
System.out.println("Enter name");
System.out.println("Enter sem");
usn = A.next();
name = A.next();
sem = A.nextInt();

}
public void display()
{
System.out.println("USN :"+usn);
System.out.println("Name :"+name);
System.out.println("SEM :"+sem);
}

}

Public class Internals
{
    public double [Amarks[];
    Int i;
```

```
public void iaccept()
{
  Scanner I = new Scanner(System.in);
  CieMarks = new double[6];
  System.out.println("Enter the cie marks of 5
courses out of 50");
    for(i=0;i<6;i++)
  {
  System.out.println("Enter Cie marks["+i+"]");
  CieMarks[i] = I.nextDouble();
}
}
}
```

```
package SEE;

public class External extends Student
{
  public double SeeMarks[];
   int i;

Public void Eaccept()
  {
  Scanner E = new Scanner(System.in);
  SeeMarks = new double[6];
  System.out.println("Enter the See marks of 5
courses out of 100");
  for(i=0;i<6;i++)
  {
   System.out.println("Enter See marks["+i+"]
```

```
import CIE.*;
import SEE.*;
import java.util.Scanner;

class FinalMarks
    {
        public static void main (String ss[])
    {
     Scanner sc = new Scanner (System.in);
    System.out.println("Enter the number of students");
    int n = sc.nextInt();
      CIE.Student[] cs = new CIE.Student[n];
      CIE.Internals[] ci = new CIE.Internals[n];
      SEE.External[] se = new SEE.External[n];
}
cs[j] = new CIE.Student();
cs[i].accept();
ci[j] = new CIE.Internals();
ci[j].Iaccept();
se[j] = new SEE.External();
se[j].Eaccept();
}
for(int j=0;j<n;j++)
{
cs[j].display();
System.out.println("Final marks of student"+(j+1));
for(int i=0; i<5; i++)
{
int FS = (int ((ci[j].cieMarks[i]+se[j].seeMarks[i])/2);

System.out.println("In course:"+(i+1)+" is:"
                    +(FS));
```



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

week 7 (IV)
24/11/2020

1. write a program to demonstrate generics with multiple object parameters.

```
class GENERICSC<F, S>
{
  F object1;
  S object2;

GENERICSC(F o1, S o2)
{
  object1 = o1;
  object2 = o2;
}
void printName()
{
 System.out.println("Type of object1 is "
+ object1.getclass().getName());
System.out.println("Type of object2 is "
+ object2.getclass().getName());
}
  F getob1()
{
 return object1;
}
 S getob2()
 {
   return object2;
 }
}
 public class DGenerics
{ GENERICSC<Float, String> G1 = new
   GENERICSC<Float, String>(10f, "CGPA");
   G1.printname();
```

```
System.out.println("The number given to
object 1 is" +FL);
String ST = G1.getOb2();
System.out.println("The name given to object
2 is" +ST);
}
}
```

```
Command Prompt
C:\Users\asus\Downloads>javac DGenerics.java

C:\Users\asus\Downloads>java DGenerics
Type of  object 1 is java.lang.Float
Type of  object 2 is java.lang.String
The number given  to object 1 is10.0
The detail given  to object 2 isCGPA

C:\Users\asus\Downloads>
```

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 inputage=father’s age.

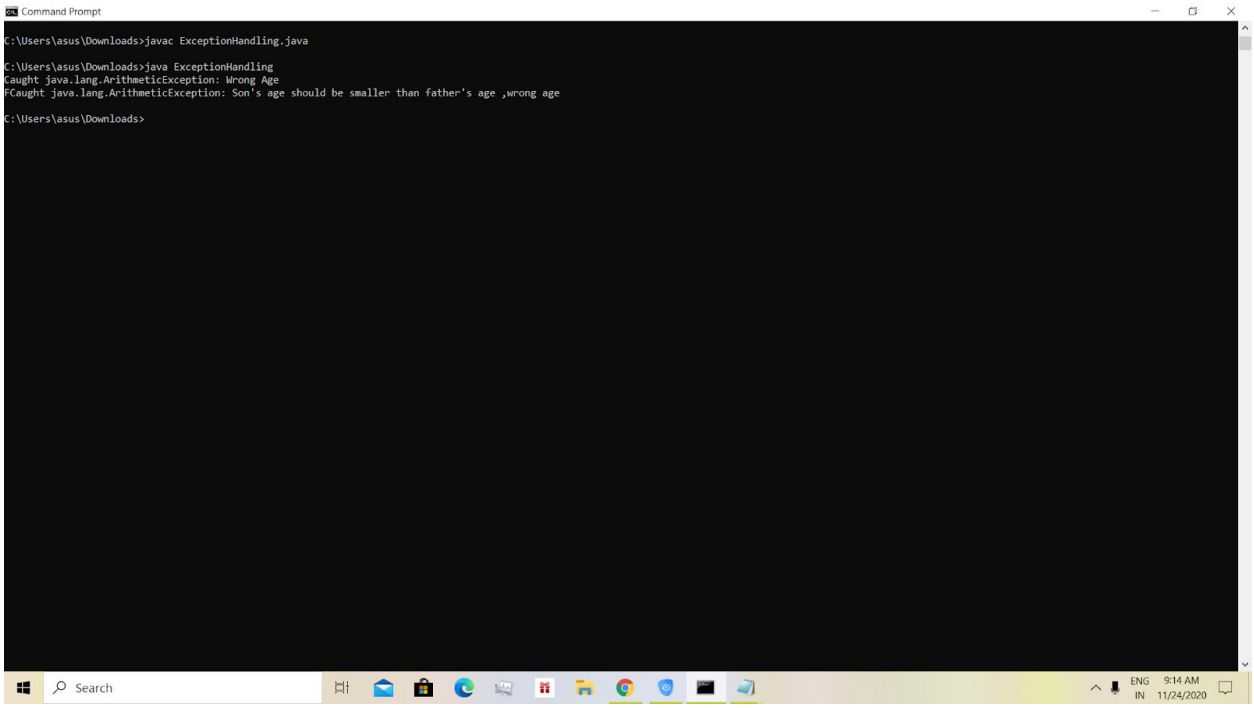
```
System.out.println("The number given to
object 1 is" +FL);
String ST = G1.getOb2();
System.out.println("The name given to object
is" +ST);
}
}
```

Week 8 (IV)
24/11/2020

① write a program that demonstrate handling of exceptions in inheritance tree. create a base class called "Father" and derived class called "Son" which extends base class. In Father class, implement a constructor which takes the age and throws the exception WrongAge() when the input age<0, In Son class implement a constructor that takes both father and son's age and throws an exception if son's age is >= father's age.

```
Class Father
{
 Static void acceptName (int InputAge)
  throws ArithmeticException
 {
  try
   {
   if (InputAge < 0)
   throw new ArithmeticException ("wrong
    Age ());
  }
```

```
catch (ArithmeticException e)
{
System.out.println("caught Exception "+e);
}
}
}
class Son extends Father
{
static void checkFage(int S-Age, int F-Age)
throws ArithmaticException
{
try{
if (S-Age >= F-Age)
throw new ArithmaticException("Son cannot be
elder than father");
System.out.println("The son's age is "+S-
Age + "The fathers age is "+F-Age);
}
catch (ArithmaticException e){
System.out.println("F caught"+e);
}
}
}
public class ExceptionHandling{
public static void main (String args[]){
Father.acceptName F= (-10);
Son.checkFage (30, 20);
}
}
```

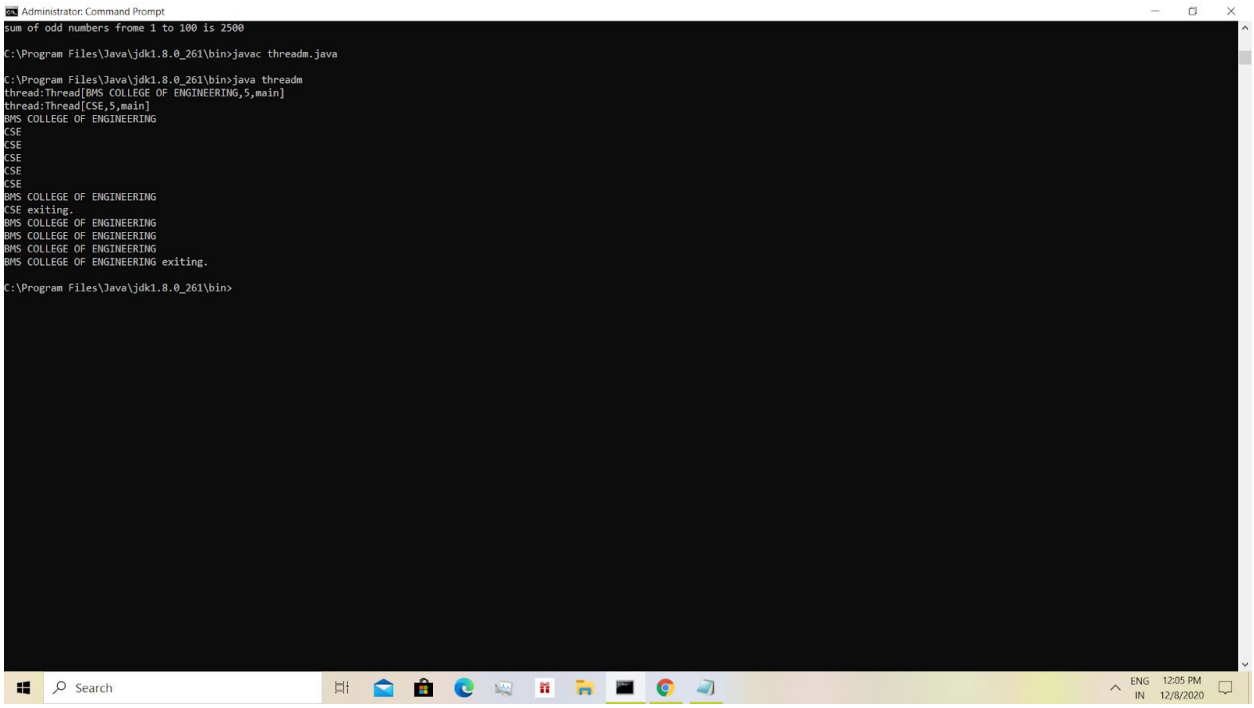


9 . Write a program which creates two threads, one thread displaying “BMS College of Engineering” once every ten seconds and another displaying “CSE” once every two seconds.

write a p which creates two threads one thread displaying "BMS College of Engineering" once every ten seconds and another displaying "CSE" one every two seconds

```
class NewThread implements Runnable {
    String name;
    Thread t;
    int time;
    NewThread(String threadname, int time){
    name = threadname;
    this.time = time;
    t = new thread (this, name);
    System.out.println("thread:" +t);
    t.start();
    }
    public void run(){
    try {
      for (int i = 5; i > 0; i--) {
      System.out.println(name);
      Thread.sleep(time);
    }
    }
      catch (InterruptedException e){
      System.out.println(name + "Interrupted");
      }
      System.out.println(name + "exiting");
    }
}
public class threadDemo {
```

```
        NewThread t1 = new NewThread ("BMS COLLEGE OF
                        ENGINEERING", 10000);
        NewThread t2 = new NewThread ("CSE", 2000);
    }
}
```



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 NumberFormatException. If Num2 were Zero, the program would throw an Arithmetic Exception Display the exception in a message dialog box.

17/12/2020

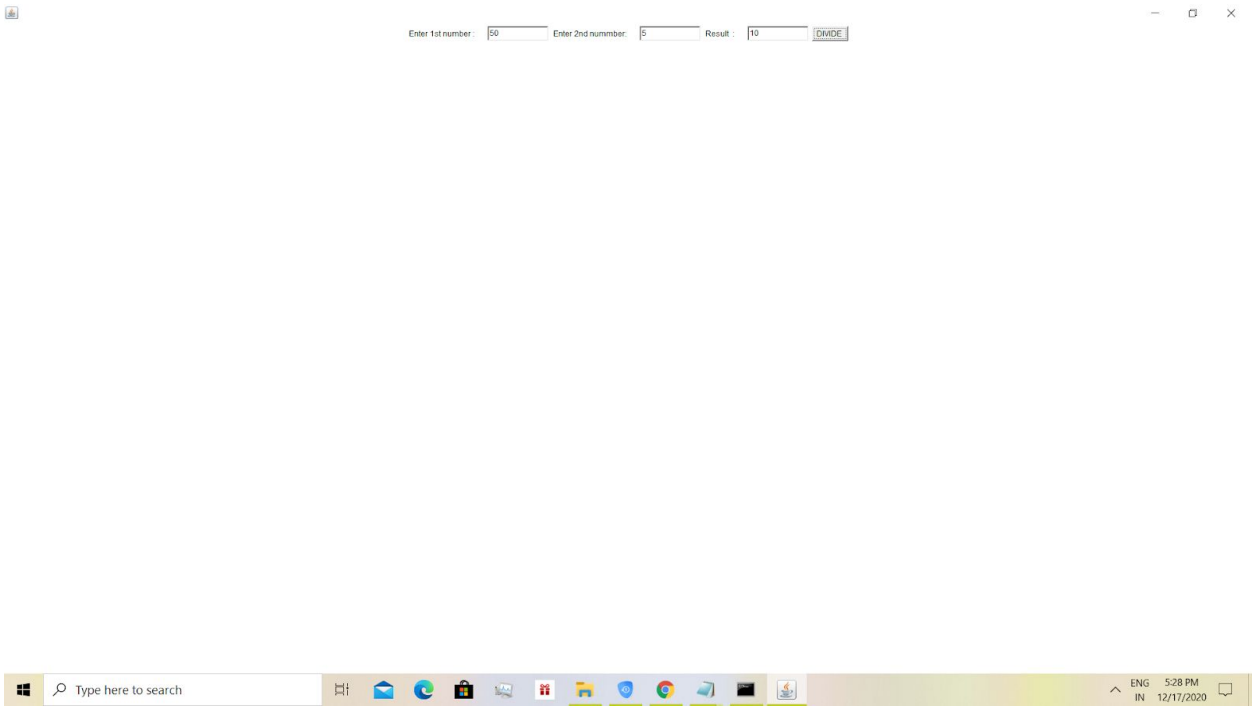
DOMS Page No. Date / /

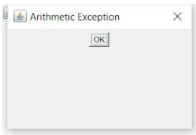
week 12
Lab program

```
import java.awt.*;
import java.awt.event.*;

Public class Divisions extends Frame implements
ActionListener
{
    Dialog d;
    TextField Num1, Num2, result;
    Button Divide;
    Public Divisions()
    {
        SetLayout(new FlowLayout());
        SetSize(500,500);
        Num1 = new TextField(10);
        Num2 = new TextField(10);
        result = new TextField(10);
        Divide = new Button("DIVIDE");
        add(new Label("Enter 1st number:"));
        add(Num1);
        add(new Label("Enter 2nd number:"));
        add(Num2);
        add(new Label("Result:"));
        add(result);
        add(Divide);
        Divide.addActionListener(this);
        SetVisible(true);
        addWindowListener(new MyWindowAdapter
}
```

```
public void actionPerformed (ActionEvent ae)
{
  if (ae.getSource() == Divide)
  {
    try
    {
      result.setText (Integer.toString ((Integer.parse
Int (Num1.getText())) / (Integer.parseInt(Num2.
getText()))));
    }
    catch (ArithmaticException ae x)
      {
        Dia d1 = new Dia ("Arithmatic Exception");
        d1 :SetVisible (true);
      }
      catch (NumberFormatException nfe)
      {
        Dia d2 = new Dia ("Number Format Exception",
        d2 = setVisible(true);
      }
    }
  }
public static void main (String args[])
  {
    new Divisions ();
  }
}

class Dia extends Dialog implements ActionListener
{
  Button ok;
  Dia(String str)
```

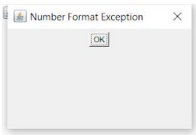
```
OK.addActionListener(this);
}

Public void actionPerformed(ActionEvent ae)
{
  setVisible(true);
  dispose();
}
Class MyWindowAdapter extends WindowAdapter
public void windowClosing(WindowEvent we)
{
System.exit(0);
}
}
}
```


Enter 1st number :
50
Enter 2nd nummber:
5
Result :
10
DIVIDE
Type here to search
ENG
IN
5:28 PM
12/17/2020


Arithmetic Exception
OK


Enter 1st number :
50
Enter 2nd nummber:
0
Result :
10
DIVIDE


Type here to search
ENG
IN
5:29 PM
12/17/2020


Number Format Exception
OK


Enter 1st number :
9.0
Enter 2nd nummber:
9.9
Result :
DIVIDE


Type here to search
ENG
IN
5:30 PM
12/17/2020