B.M.S. COLLEGE OF ENGINEERING
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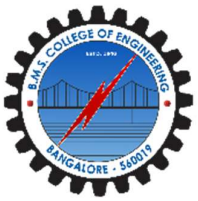

LAB REPORT

On

Object Oriented Java Programming

(23CS3PCOOJ)

Submitted By :

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1BM22CS027

In partial fulfilment of

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In

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LAB-1

Sample Programs

1) a)Print an integer entered by user

```
import java.util.Scanner;

public class HelloWorld{

public static void main(String args[]){

System.out.println("Akanksha Singa");

System.out.println("1BM22CS027");

System.out.println("enter a number:");

Scanner reader = new Scanner(System.in);

int number = reader.nextInt();

System.out.println("You entered :" +number);}

}
```

```
C:\Users\bmsce>CD C:\Users\bmsce\Desktop\1bm22cs027

C:\Users\bmsce\Desktop\1bm22cs027>javac HelloWorld.java

C:\Users\bmsce\Desktop\1bm22cs027>java HelloWorld
Akanksha Singa
1BM22CS027
Enter a number: -2
You entered: -2
```

b)Check whether a number is even or odd

```
import java.util.Scanner;

public class JavaExample{

public static void main(String args[]){

System.out.println("Akanksha Singa");

System.out.println("1BM22CS027");

int num;

System.out.println("Enter an Integer number");

Scanner input = new Scanner(System.in);

num = input.nextInt();

if(num%2==0){

System.out.println(num+"is even number");

}

else{

System.out.println(num+"is odd number");

}
```

}}

```
C:\Users\bmsce\Desktop\1bm22cs027>javac JavaExample.java

C:\Users\bmsce\Desktop\1bm22cs027>java JavaExample
Akanksha Singa
1BM22CS027
Enter an Integer: 5
5is an odd number
```

c)Print right star pattern

```
public class JavaExample {

public static void main(String args[]){

System.out.println("Akanksha Singa");

System.out.println("1BM22CS027");

int row, column ;

for(row=0;row<8;row++){

for(column=0;column<rows;column++){

System.out.println("*");}}}}
```

```
C:\Users\bmsce\Desktop\1bm22cs027>javac Triangle.java

C:\Users\bmsce\Desktop\1bm22cs027>java Triangle
Akanksha Singa
1BM22CS027
*
**
***
****
*****
******
*******
********
```

d)Find quotient and remainder

```
public class JavaExample{

public static void main(String args[]){

System.out.println("Akanksha Singa");

System.out.println("1BM22CS027");

int num1=15,num2=2;

int Quotient =num1/num2;

int remainder=num1%num2;

System.out.println("Qutoient is" +Quotient);

System.out.println("Remainder is" +remainder);}}
```

```
C:\Users\bmsce\Desktop\1bm22cs027>javac QandR.java

C:\Users\bmsce\Desktop\1bm22cs027>java QandR
Akanksha Singa
1BM22CS027
Quotient is : 7
Remainder is: 1
```

e)Multiply two numbers

```
public class demo{

public static void main(String args[]){

System.out.println("Akanksha Singa");

System.out.println("1BM22CS027");

Scanner scan = new Scanner(System.in);

System.out.println("Enter first number");

int num1=scan.nextInt();

System.out.println("Enter second number");

int num2=scan.nextInt();

scan.close();

int product=num1*num2;

System.out.println(num1+" x "+num2+" = "+product);}}
```

```
C:\Users\bmsce\Desktop\1bm22cs027>javac Multiply.java

C:\Users\bmsce\Desktop\1bm22cs027>java Multiply
Akanksha Singa
1BM22CS027
Enter first number: 5
Enter second number: 2
5 x 2 = 10
```

f)Swap two numbers using temporary variable

```
public class swapnumbers{

public static void main(String args[]){

System.out.println("Akanksha Singa");

System.out.println("1BM22CS027");

float first =1.20f,second=2.45f;

System.out.println("—Before Swap—");

System.out.println("First number"+first);

System.out.println("Second number"+second);

Float temp=first;

first=second;
```

```
second=temp;

System.out.println("—After Swap—");

System.out.println("First number"+first);

System.out.println("Second number"+second);}}
```

```
C:\Users\bmsce\Desktop\1bm22cs027>javac Swap.java

C:\Users\bmsce\Desktop\1bm22cs027>java Swap
Akanksha Singa
1BM22CS027
--Before Swap--
First number= 1.2
Second number= 2.45
--After Swap--
First number= 2.45
Second number= 1.2
```

WEEK 1

Program 1: Develop a Java program that prints all real solutions to the quadratic equation ax2+bx+c= 0. Read in a, b, c and use the quadratic formula. If the discriminant b2-4ac is negative, display a message stating that there are no real solutions.

```
import java.util.Scanner;


public class QuadraticSolver {


   public static void main(String[] args) {

System.out.println("Akanksha Singa");

System.out.println("1BM22CS027");

      Scanner scanner = new Scanner(System.in);

      System.out.println("Enter the coefficients of the quadratic equation ax^2 + bx + c = 0:");

      System.out.print("Enter a: ");

      double a = scanner.nextDouble();

      System.out.print("Enter b: ");

      double b = scanner.nextDouble();

      System.out.print("Enter c: ");

      double c = scanner.nextDouble();

      double discriminant = b * b - 4 * a * c;

      if (discriminant > 0) {

         double root1 = (-b + Math.sqrt(discriminant)) / (2 * a);

         double root2 = (-b - Math.sqrt(discriminant)) / (2 * a);

         System.out.println("Real Solutions:");

         System.out.println("Root 1: " + root1);
```

```
            System.out.println("Root 2: " + root2);
        } else if (discriminant == 0) {
            double root = -b / (2 * a);
            System.out.println("Real Solution:");
            System.out.println("Root: " + root);
        } else {
            System.out.println("No real solutions exist for the given quadratic equation.");
        }
        scanner.close();
    }
```

```
C:\Users\bmsce\Desktop\1bm22cs027 ooj>javac Quadratic.java

C:\Users\bmsce\Desktop\1bm22cs027 ooj>java Quadratic
AKANKSHA SINGA
1BM22CS027
2
4
2
roots are real and equal
root1= -1.0  root2= -1.0

C:\Users\bmsce\Desktop\1bm22cs027 ooj>javac Quadratic.java

C:\Users\bmsce\Desktop\1bm22cs027 ooj>java Quadratic
AKANKSHA SINGA
1BM22CS027
0
3
5
Invalid inuput

C:\Users\bmsce\Desktop\1bm22cs027 ooj>javac Quadratic.java

C:\Users\bmsce\Desktop\1bm22cs027 ooj>java Quadratic
AKANKSHA SINGA
1BM22CS027
2
5
4
roots are imaginary
root1= -1.25+ i0.6614378277661477  root2= -1.25- i0.6614378277661477

C:\Users\bmsce\Desktop\1bm22cs027 ooj>javac Quadratic.java

C:\Users\bmsce\Desktop\1bm22cs027 ooj>java Quadratic
AKANKSHA SINGA
1BM22CS027
1
3
2
roots are real and distinct
root1= -1.0  root2= -2.0
```

WEEK 2

Program 2: Develop a Java program to create a class Student with members usn, name, an array credits and an array marks. Include methods to accept and display details and a method to calculate SGPA of a student.

```
import java.util.Scanner;

public class Student {

String usn;

String name;

private static int credit[] = {4,4,3,3,3,1,1,1};

int marks[] = new int [8];
```

```
Scanner s = new Scanner(System.in);
public void get_details()
        {
                System.out.println("Enter your USN:");
                usn = s.next();
              System.out.println("Enter your name:");
                name = s.next();
        }
        public void set_marks()
        {
                System.out.println("Enter your marks in order");
                for(int i=0;i<8;++i)
                {
                        marks[i] = s.nextInt();
                }
        }
        public double sgpa()
        {
              double sgpa=0,temp=0;
                for(int i=0;i<8;++i)
                {
                        temp+=credit[i]*((int)(marks[i]/10)+1);
                }
                sgpa= temp/20;
                if(sgpa == 11)
                {
                        return sgpa-1;
                }
                return sgpa;
                }
         public void display()
                {
                        System.out.println("Name: "+name);
                        System.out.println("USN: "+usn);
                        System.out.println("SGPA: "+sgpa());
                }
public static void main(String[] args) {
                        System.out.println(“Akanksha Singa”);
```

```
            System.out.println("1BM22CS027");
                Student s1 = new Student();
                s1.get_details();
                s1.set_marks();
                s1.display();
        }
}
```

```
C:\Users\bmsce\Desktop\1bm22cs027 ooj>cd C:\Users\bmsce\Desktop\1bm22cs027 ooj

C:\Users\bmsce\Desktop\1bm22cs027 ooj>javac Student.java

C:\Users\bmsce\Desktop\1bm22cs027 ooj>java Student
AKANKSHA SINGA
1BM22CS027
Enter your name:
Akanksha
Enter your usn:
1BM22CS027
Enter your marks in same order:
100
95
90
92
89
90
85
93
Name: Akanksha
USN:1BM22CS027
SGPA:9.818181818181818

C:\Users\bmsce\Desktop\1bm22cs027 ooj>
```

WEEK 3

Program 3: Create a class Book which contains four members: name, author, price, num_pages. Include a constructor to set the values for the members. Include methods to set and get the details of the objects. Include a toString( ) method that could display the complete details of the book. Develop a Java program to create n book objects.

```
import java.util.Scanner;

class Books{

   String name;

   String author;

   int price;

   int num_pages;

   public void set(int i){

      Scanner in=new Scanner(System.in);

      System.out.println("Enter details of books "+(i+1)+" in name,author,price,num_pages order");

      name=in.next();
```

```
        author=in.next();
        price=in.nextInt();
        num_pages=in.nextInt();
    }
    public String toString() {
        return "Details of Book " + (i+1)+"\n"+
                "Name: " + name + "\n" +
                "Author: " + author + "\n" +
                "Price: " + price + "\n" +
                "No of pages: " + num_pages;
    }
}
class D {
    public static void main(String[] args) {
System.out.println(“Akanksha Singa”);
System.out.println(“1BM22CS027”);
        int n;
        Scanner in=new Scanner(System.in);
        System.out.println("Enter number of books");
        n=in.nextInt();
        Books b[]=new Books[n];
        for(int i=0;i<n;i++){
            b[i]=new Books();
            b[i].set(i);
        }
        System.out.println();
        for(int i=0;i<n;i++){
            System.out.println(b[i].toString());
        }
    }
```

}

```
C:\Users\bmsce>cd C:\Users\bmsce\Desktop\1bm22cs027 ooj

C:\Users\bmsce\Desktop\1bm22cs027 ooj>javac Book.java

C:\Users\bmsce\Desktop\1bm22cs027 ooj>java Book
AKANKSHA SINGA
1BM22CS027
Enter no.of of books:
3
enter book name:
abc
enter author name:
def
enter price:
200
enter no. of pages:
100
enter book name:
xyz
enter author name:
uvw
enter price:
100
enter no. of pages:
50
enter book name:
fgh
enter author name:
hij
enter price:
300
enter no. of pages:
500
details of book:  name:abcauthor: defprice:200.0num_pages:100
details of book:  name:xyzauthor: uvwprice:100.0num_pages:50
details of book:  name:fghauthor: hijprice:300.0num_pages:500
```

Program 4: Develop a Java program to create an abstract class named Shape that contains two integers and an empty method named printArea( ). Provide three classes named Rectangle, Triangle and Circle such that each one of the classes extends the class Shape. Each one of the classes contains only the method printArea( ) that prints the area of the given shape.

```
import java.util.Scanner;


abstract class Shape {
   protected int side1;
   protected int side2;

   public Shape(int side1, int side2) {
      this.side1 = side1;
      this.side2 = side2;
```

```
    }
    public abstract void printArea();
}

class Rectangle extends Shape {
    public Rectangle(int length, int width) {
        super(length, width);
    }

    public void printArea() {
        int area = side1 * side2;
        System.out.println("Area of Rectangle: " + area);
    }
}
class Triangle extends Shape {
    public Triangle(int base, int height) {
        super(base, height);
    }
   public void printArea() {
        double area = 0.5 * side1 * side2;
        System.out.println("Area of Triangle: " + area);
    }
}

class Circle extends Shape {
    public Circle(int radius) {
        super(radius, radius);
    }

    public void printArea() {
        double area = Math.PI * side1 * side1;
        System.out.println("Area of Circle: " + area);
    }
}

public class Main {
    public static void main(String[] args) {
System.out.println(“Akanksha Singa”);
```

```
System.out.println("1BM22CS027");

        Scanner scanner = new Scanner(System.in);

        System.out.print("Enter length of Rectangle: ");
        int length = scanner.nextInt();
        System.out.print("Enter width of Rectangle: ");
        int width = scanner.nextInt();
        Rectangle rectangle = new Rectangle(length, width);

        System.out.print("Enter base of Triangle: ");
        int base = scanner.nextInt();
        System.out.print("Enter height of Triangle: ");
        int height = scanner.nextInt();
        Triangle triangle = new Triangle(base, height);

        System.out.print("Enter radius of Circle: ");
        int radius = scanner.nextInt();
        Circle circle = new Circle(radius);

        scanner.close();

        rectangle.printArea();
        triangle.printArea();
        circle.printArea();
    }
```

```
C:\Users\bmsce\Desktop\1bm22cs027 ooj>javac Area.java

C:\Users\bmsce\Desktop\1bm22cs027 ooj>java Area
AKANKSHA SINGA
1BM22CS027
area of Rectangle: 200
area of Triangle: 100
area of Circle: 78.5
```

}

WEEK 4

Program 5: Develop a Java program to create a class Bank that maintains two kinds of account for its customers, one called savings account and the other current account. The savings account provides compound interest and withdrawal facilities but no cheque book facility. The current account provides cheque book facility but no interest. Current account holders should also maintain a minimum balance and if the balance falls below this level, a service charge is imposed.

Create a class Account that stores customer name, account number and type of
account. From this derive the classes Cur-acct and Sav-acct to make them more specific to their requirements. Include the necessary methods in order to achieve the following tasks:

a. Accept deposit from customer and update the balance.
b. Display the balance.
c. Compute and deposit interest
d. Permit withdrawal and update the balance

Check for the minimum balance, impose penalty if necessary and update the balance.

```
import java.util.Scanner;

class Account {
   String customerName;
   long accno;
   String accountType;
   double balance;
   public Account(String customerName, long accno, String accountType) {
      this.customerName = customerName;
      this.accno = accno;
      this.accountType = accountType;
      this.balance = 0.0;
   }
   public void displayBalance() {
      System.out.println("Account Number: " + accno);
      System.out.println("Customer Name: " + customerName);
      System.out.println("Account Type: " + accountType);
      System.out.println("Balance: $" + balance);
   }
}
class CurAcct extends Account {
   double minBalance;
   double serviceCharge;
   public CurAcct(String customerName, long accno) {
      super(customerName, accno, "Current");
      this.minBalance = 500.0; // Set minimum balance
      this.serviceCharge = 50.0; // Set service charge
   }
   public void withdraw(double amount) {
      if (balance - amount >= minBalance) {
         balance -= amount;
         System.out.println("Withdrawal successful. Current Balance: $" + balance);
      } else {
```

```
            System.out.println("Insufficient funds. Withdrawal not allowed.");
        }
    }
    public void imposeServiceCharge() {
        if (balance < minBalance) {
            balance -= serviceCharge;
            System.out.println("Service charge imposed. Current Balance: Rs." + balance);
        }
    }
}
class SavAcct extends Account {
    double interestRate;

    public SavAcct(String customerName, long accno) {
        super(customerName, accno, "Savings");
        this.interestRate = 0.05;
    }

    public void depositInterest() {
        double interest = balance * interestRate;
        balance += interest;
        System.out.println("Interest deposited. Current Balance: $" + balance);
    }

    public void compoundInterest(double initialAmount, int term) {
        double compoundInterest = initialAmount * Math.pow((1 + interestRate), term) - initialAmount;
        balance += compoundInterest;
        System.out.println("Compound Interest deposited. Current Balance: Rs." + balance);
    }
}
public class Bank {
    public static void main(String[] args) {
System.out.println(“Akanksha Singa”);
System.out.println(“1BM22CS027”);
        Scanner scanner = new Scanner(System.in);
        System.out.println("Choose account type:");
        System.out.println("1. Current");
        System.out.println("2. Savings");
```

```
        System.out.print("Enter choice (1 or 2): ");
        int choice = scanner.nextInt();
        System.out.print("Enter customer name: ");
        String customerName = scanner.next();
        System.out.print("Enter account number: ");
        long accno = scanner.nextLong();
        if (choice == 1) {
            CurAcct curAccount = new CurAcct(customerName, accno);
            System.out.print("Enter initial balance: $");
            double initialBalance = scanner.nextDouble();
            curAccount.balance = initialBalance;
            System.out.print("Enter withdrawal amount: $");
            double withdrawalAmount = scanner.nextDouble();
            curAccount.withdraw(withdrawalAmount);
            curAccount.imposeServiceCharge();
            curAccount.displayBalance();
        } else if (choice == 2) {
            SavAcct savAccount = new SavAcct(customerName, accno);
            System.out.print("Enter initial balance: $");
            double initialBalance = scanner.nextDouble();
            savAccount.balance = initialBalance;
            System.out.print("Enter withdrawal amount: $");
            double withdrawalAmount = scanner.nextDouble();
            savAccount.balance -= withdrawalAmount;
            System.out.println("Withdrawal successful. Current Balance: $" + savAccount.balance);
            System.out.print("Enter interest rate: ");
            double interestRate = scanner.nextDouble();
            savAccount.interestRate = interestRate;
            savAccount.displayBalance();
            System.out.print("Enter term (in years) for compound interest calculation: ");
            int term = scanner.nextInt();
            savAccount.compoundInterest(initialBalance, term);
            savAccount.displayBalance();
        } else {
            System.out.println("Invalid choice");
        }
    }
```

```
C:\Users\bmsce\Desktop\1bm22cs027 ooj>javac Bank.java

C:\Users\bmsce\Desktop\1bm22cs027 ooj>java Bank
AKANKSHA SINGA
1BM22CS027
Choose account type:
1. Current
2. Savings
Enter choice (1 or 2): 1
Enter customer name: Akanksha
Enter account number: 027027027
Enter initial balance: $800
Enter withdrawal amount: $400
Insufficient funds. Withdrawal not allowed.
Account Number: 27027027
Customer Name: Akanksha
Account Type: Current
Balance: $800.0

C:\Users\bmsce\Desktop\1bm22cs027 ooj>javac Bank.java

C:\Users\bmsce\Desktop\1bm22cs027 ooj>java Bank
AKANKSHA SINGA
1BM22CS027
Choose account type:
1. Current
2. Savings
Enter choice (1 or 2): 1
Enter customer name: Akanksha
Enter account number: 027027027
Enter initial balance: $400
Enter withdrawal amount: $100
Insufficient funds. Withdrawal not allowed.
Service charge imposed. Current Balance: Rs.350.0
Account Number: 27027027
Customer Name: Akanksha
Account Type: Current
Balance: $350.0
```

}

WEEK 5

Program 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.

```
package CIE;

import java.util.*;
```

```
public class Student
{
   // instance variables - replace the example below with your own
   public int sem;
   public String usn;
   public String name;

   public void accept()
   {
      Scanner scan = new Scanner(System.in);
      System.out.println("Enter U, N, S:\n");
      usn=scan.nextLine();
      name=scan.nextLine();
      sem=scan.nextInt();
   }
}
package CIE;

public class Internals
{
   public int im[]=new int[5];
}
package SEE;
import CIE.Student;
public class External extends Student
{
   // instance variables - replace the example below with your own
   public int sm[]=new int[5];
}
import java.util.*;
import SEE.*;
import CIE.*;
public class FinalMarks
{
   public static void main(String args[])
   {System.out.println("Akanksha Singa");
System.out.println("1BM22CS027");
      int fm[]=new int[5];
```

```
        Scanner sc= new Scanner(System.in);
        System.out.println("Enter n: ");
        int n=sc.nextInt();
        SEE.External st[]=new SEE.External[n];
        CIE.Internals s[]=new CIE.Internals[n];
        for(int i=0; i<n; i++)
        {
           st[i]=new SEE.External();
           s[i]=new CIE.Internals();
           System.out.println("Enter details "+(i+1));
           st[i].accept();
           for(int j=0; j<5; j++)
           {
             System.out.println("Enter im and sm of sub "+(j+1));
             s[i].im[j]=sc.nextInt();
             st[i].sm[j]=sc.nextInt();
             fm[j]=s[i].im[j]+st[i].sm[j];
           }
           System.out.println("Final marks of "+st[i].name);
           for(int k=0; k<5; k++)
           {
              System.out.println("Course "+(k+1)+" = "+fm[k]);
           }
        }
     }
}
```

```
C:\Users\bmsce\Desktop\1bm22cs027 ooj\week 6>javac -d . FinalMarks.java

C:\Users\bmsce\Desktop\1bm22cs027 ooj\week 6>java FinalMarks
AKANKSHA SINGA
1BM22CS027
enter no. of students:
2
Enter details of 1
enter usn name and sem:
1BM22CS027
AKANKSHA
2
Enter internal and external marks:
49
49
Enter internal and external marks:
50
50
Enter internal and external marks:
48
48
Enter internal and external marks:
47
47
Enter internal and external marks:
46
46
Final marks of AKANKSHA
Course 1=98
Course 2=100
Course 3=96
Course 4=94
Course 5=92
Enter details of 2
enter usn name and sem:
1BM22CS027
akanksha
1
Enter internal and external marks:
50
46
Enter internal and external marks:
49
47
Enter internal and external marks:
48
48
Enter internal and external marks:
47
49
Enter internal and external marks:
50
46
Final marks of akanksha
Course 1=96
Course 2=96
Course 3=96
Course 4=96
Course 5=96
```

WEEK 6

Program 7: 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 WrongAge( ) when the input age<0. In Son class, implement a constructor that cases both father and son’s age and throws an exception if son’s age is >=father’s age.

```
import java.util.Scanner;
class WrongAge extends Exception {
   public WrongAge(String message) {
      super(message);
   }
}
class Father {
   int fatherAge;
   public Father(int fatherAge) throws WrongAge {
      if (fatherAge < 0) {
         throw new WrongAge("Age cannot be negative");
      }
      this.fatherAge = fatherAge;
   }
}
class Son extends Father {
   int sonAge;
   public Son(int fatherAge, int sonAge) throws WrongAge {
      super(fatherAge);
      if (sonAge >= fatherAge) {
         throw new WrongAge("Son's age must be less than Father's age");
      }
      this.sonAge = sonAge;
   }
}
public class fatherson {
   public static void main(String[] args) {
System.out.println(“Akanksha Singa”);
System.out.println(“1BM22CS027”);
      Scanner sc = new Scanner(System.in);
      System.out.println("Enter father's age and son's age: ");
      int fa=sc.nextInt();
      int sa=sc.nextInt();
```

```
    try {
      Son s = new Son(fa, sa);
      System.out.println("Father's age: " + s.fatherAge);
      System.out.println("Son's age: " + s.sonAge);
    } catch (WrongAge e) {
      System.out.println("Error: " + e.getMessage());
    }
  }
}
```

```
C:\Users\bmsce>cd C:\Users\bmsce\Desktop\1bm22cs027 ooj

C:\Users\bmsce\Desktop\1bm22cs027 ooj>javac fatherson.java

C:\Users\bmsce\Desktop\1bm22cs027 ooj>java fatherson
AKANKSHA SINGA
1BM22CS027
Enter father's age and son's age:
-1
2
Error: Age cannot be negative

C:\Users\bmsce\Desktop\1bm22cs027 ooj>java fatherson
AKANKSHA SINGA
1BM22CS027
Enter father's age and son's age:
20
30
Error: Son's age must be less than Father's age

C:\Users\bmsce\Desktop\1bm22cs027 ooj>java fatherson
AKANKSHA SINGA
1BM22CS027
Enter father's age and son's age:
2
1
Father's age: 2
Son's age: 1
```

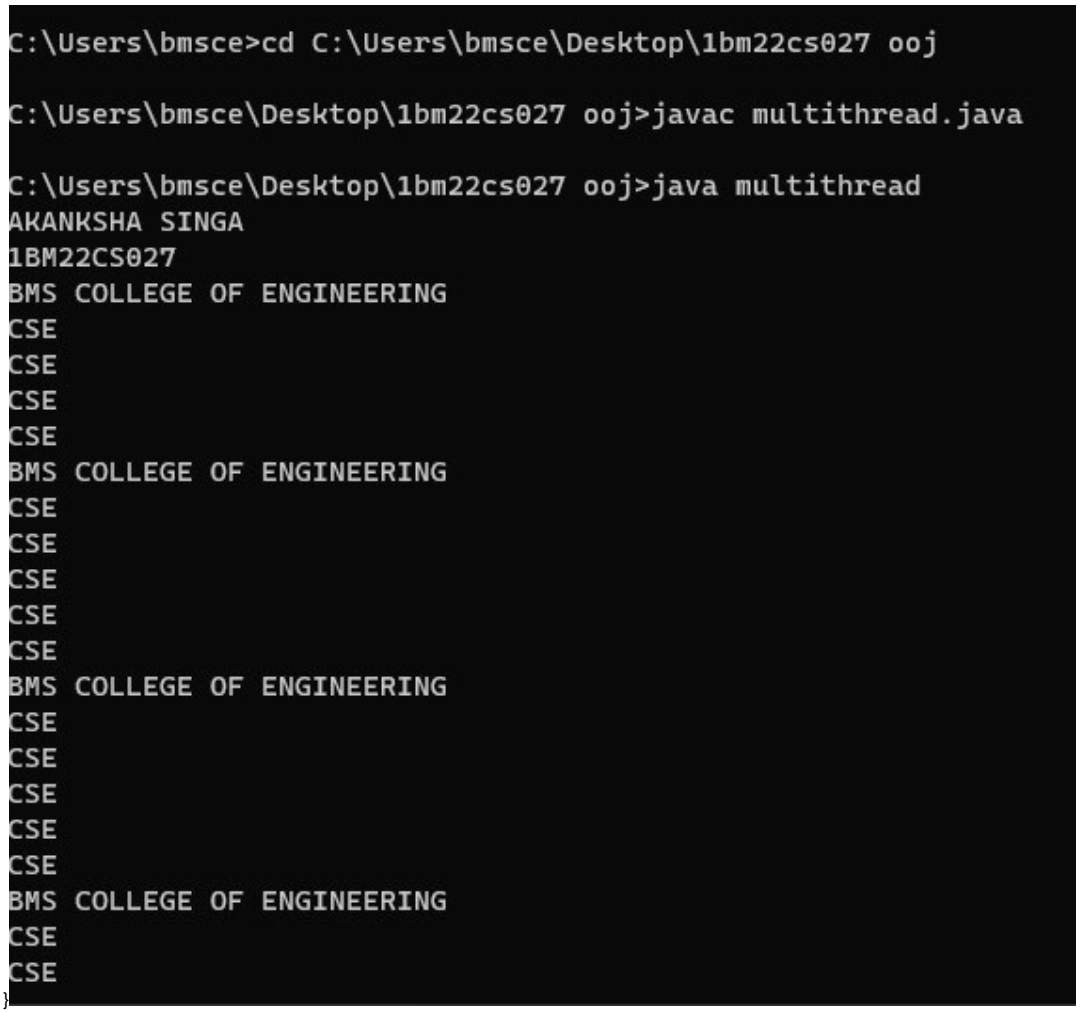
Program 8: Write a program which creates two threads, one thread displaying “BMS College of Engineering” once every ten seconds and another displaying “CSE” once every two seconds.

```
class A extends Thread
{
   int t1,time;
```

```
    A(){
        t1=10000;
        time=21000;
    }
    public void run()
    {
        while(t1<=time)
        {
            System.out.println("BMS COLLEGE OF ENGINEERING");
            try {
                sleep(10000);
            } catch(Exception e) {
                System.out.println("error");
            }
            t1+=10000;
        }}
}
class B extends Thread{
    int t2,time;
    B(){
        time=21000;
        t2=2000;
    }
    public void run()
    {
        while(t2<=time)

        {
            System.out.println("CSE");
            try{
                sleep(2000);
            }
            catch(Exception e)
            {
                System.out.println("error");
            }
            t2+=2000;
        }}
```

```
}
class th
{
   public static void main(String args[])
   { System.out.println("Akanksha Singa");
System.out.println("1BM22CS027");
      A a=new A();
      B b=new B();
      a.start();
      b.start();
   }
```




```
}
```

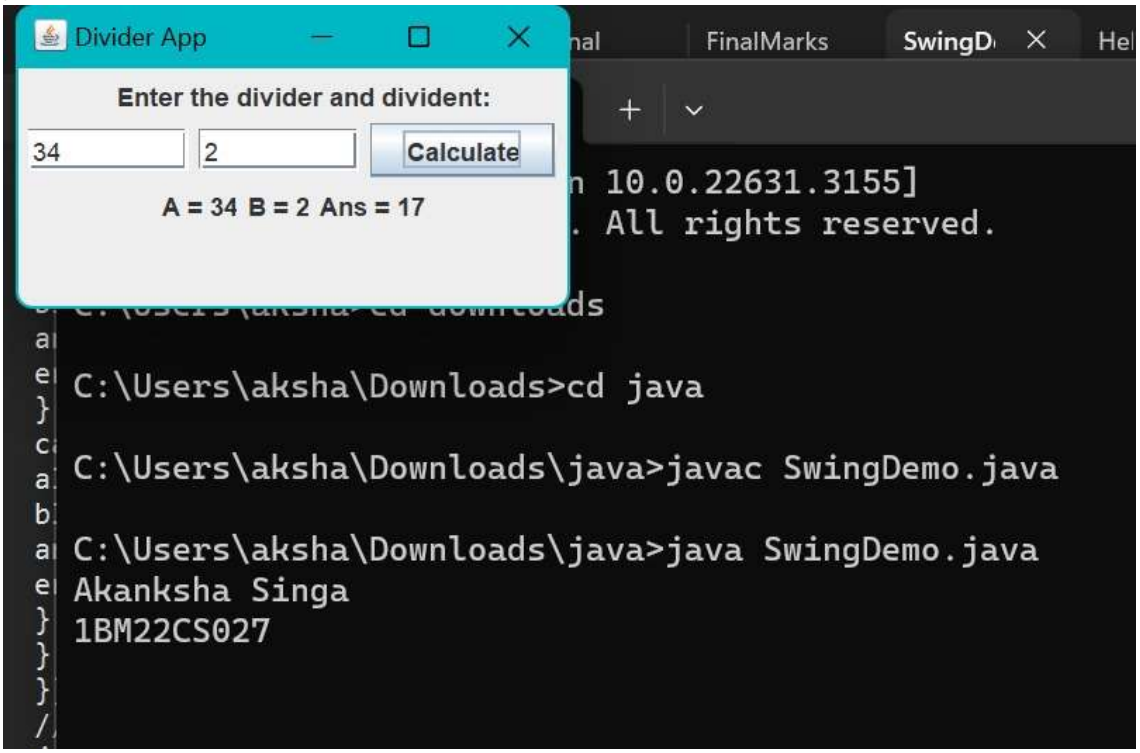
WEEK 7

Program 9: 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.

```
import javax.swing.*;
import java.awt.*;
import java.awt.event.*;
class SwingDemo{
SwingDemo(){
JFrame jfrm = new JFrame("Divider App");
jfrm.setSize(275, 150);
jfrm.setLayout(new FlowLayout());
jfrm.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
JLabel jlab = new JLabel("Enter the divider and divident:");
JTextField ajtf = new JTextField(8);
JTextField bjtf = new JTextField(8);
JButton button = new JButton("Calculate");
JLabel err = new JLabel();
JLabel alab = new JLabel();
JLabel blab = new JLabel();
JLabel anslab = new JLabel();
jfrm.add(err);
jfrm.add(jlab);
jfrm.add(ajtf);
jfrm.add(bjtf);
jfrm.add(button);
jfrm.add(alab);
jfrm.add(blab);
jfrm.add(anslab);
ActionListener l = new ActionListener() {
public void actionPerformed(ActionEvent evt) {
System.out.println("Action event from a text field");
}
};
ajtf.addActionListener(l);
bjtf.addActionListener(l);
button.addActionListener(new ActionListener() {
public void actionPerformed(ActionEvent evt) {
try{
int a = Integer.parseInt(ajtf.getText());
int b = Integer.parseInt(bjtf.getText());
int ans = a/b;
```

```
alab.setText("\nA = " + a);
blab.setText("\nB = " + b);
anslab.setText("\nAns = "+ ans);
}
catch(NumberFormatException e){
alab.setText("");
blab.setText("");
anslab.setText("");
err.setText("Enter Only Integers!");
}
catch(ArithmeticException e){
alab.setText("");
blab.setText("");
anslab.setText("");
err.setText("B should be NON zero!");
}
}
});
jfrm.setVisible(true);
}
public static void main(String args[]){
SwingUtilities.invokeLater(new Runnable(){
public void run(){
new SwingDemo();
}
});
}
```

}


Divider App
Enter the divider and divident:
34
2
Calculate
A = 34 B = 2 Ans = 17
FinalMarks
SwingD
10.0.22631.3155]
All rights reserved.
C:\Users\aksha\Downloads>cd java
C:\Users\aksha\Downloads\java>javac SwingDemo.java
C:\Users\aksha\Downloads\java>java SwingDemo.java
Akanksha Singa
1BM22CS027