Green University of Bangladesh

Department of Computer Science and Engineering (CSE)

Faculty of Sciences and Engineering

Semester: (Spring, Year:2021), B.Sc. in CSE (Day)

LAB REPORT NO #1

Course Title: Object Oriented Programming Lab

Course Code:CSE-202 Section:DB

Lab Experiment Name: C - Java Syntax Similarity : Array, Conditionals, Loops

Student Details

Name	ID
MD. ABU TAIEF SIDDIQUE	211902037

Lab Date : 14-02-2022

Submission Date : 17-02-2022

Course Teacher's Name : Dr. Muhammad Aminur Rahaman

Lab Report Status

Marks: …… **Signature:.....**

Comments:..... **Date:.....**

1. **TITLE:**
    - Implement checking of odd and even number
    - Implement summation of factorial odd number series

2. **OBJECTIVES:**
    - To implement such java program that would be able to check if a number is even or odd
    - To implement such java program that would be able to calculate summation of factorial odd number series

3. **PROCEDURE:**

Problem 1:

Step 1: Start.
Step 2: Declare a variable to store the number Int NUM.
Step 3: Read Num.
Step 4: Check whether the number is divisible by 2 or not.
Step 5: If the number is divisible by 2, then the entered number is even.
Step 6: If the entered number is not divisible by 2, then the entered number is odd.
Step 7: End.

Problem 2:

Step 1: Start.
Step 2: Declare Result =0, Sum = 0, X, Pw, Fact = 1, Power, Temp.
Step 3: Write “Enter the value of base:”
Step 4: Read X.
Step 5: Write “Enter the value of power:”
Step 6: Read Pw.
Step 7: if (pw%2==0)
for(int I=2 to I<=Pw and I=I+2)
power = Math.pow(X, I)
temp = I
fact =1
for(int J=1 to J<=Temp-1 and J++)
Fact = Fact*(J)
Result = Power / Fact
Sum = Sum + Result
Write "The Sum of the series is: ”
Go to Step 10.
Step 8: else
Write “Wrong Input! Please Enter an Even Number”
Go to Step 10.
Step 10: Exit.

4. IMPLEMENTATION:

Problem 1:

```
package javaapplication18;

import java.util.Scanner;

public class JavaApplication18 {

    public static void main(String[] args) {
        int num;

        Scanner input = new Scanner(System.in);

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

        num = input.nextInt();

        if (num % 2 == 0) {
            System.out.print("The Number is even");
        } else {
            System.out.print("The Number is odd");
        }

    }

}
```

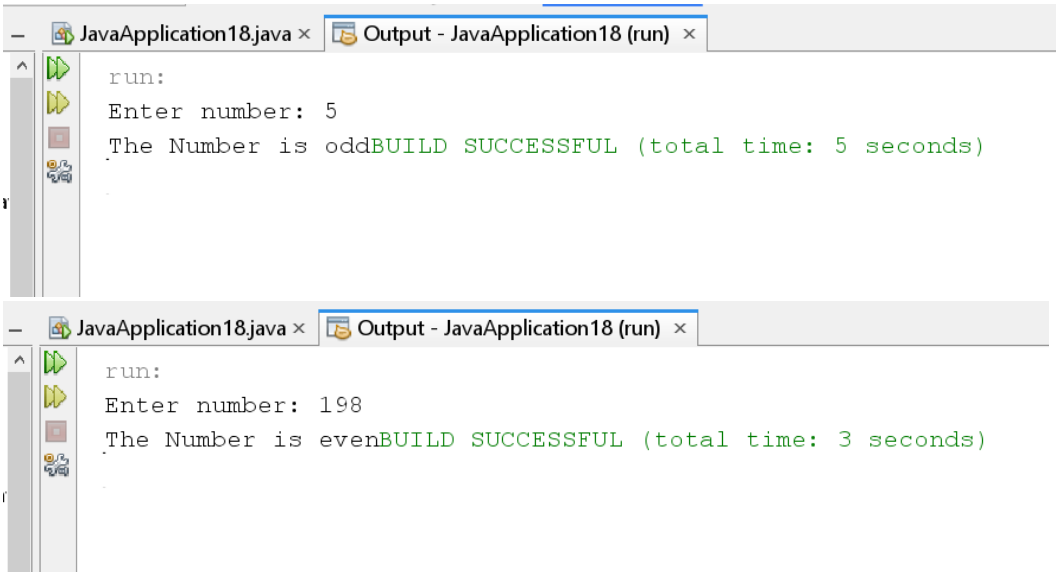
Problem 2:

```
package javaapplication19;

import java.util.Scanner;

public class JavaApplication19 {

    public static void main(String[] args) {
        Scanner in = new Scanner(System.in);
        double result = 0, sum = 0, x, p, i, j, fact = 1, power, temp;
        System.out.print("Enter the value of base: ");
```

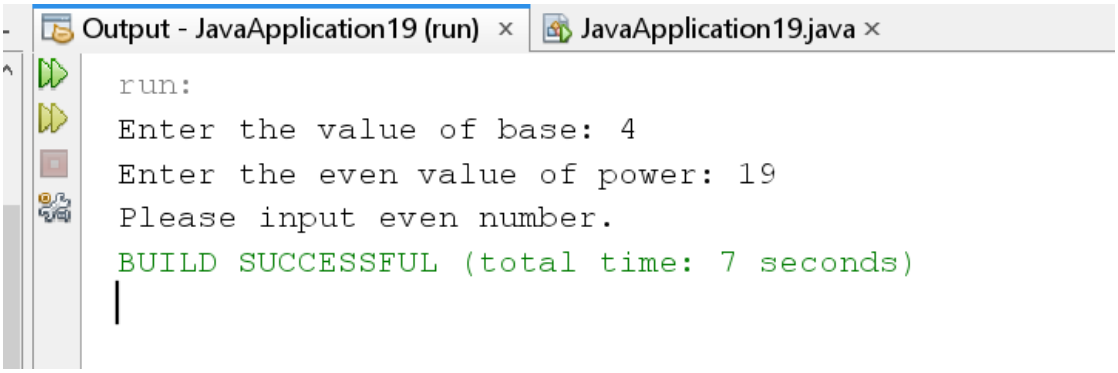
```
            x = in.nextInt();
            System.out.print("Enter the even value of power: ");
            p = in.nextInt();

            if (p % 2 == 0) {
               for (i = 2; i <= p; i = i + 2) {
                  power = Math.pow(x, i);
                  temp = i;
                  fact = 1;
                  for (j = 1; j <= temp - 1; j++) {
                     fact = fact * (j);
                  }
                  result = power / fact;
                  sum = sum + result;
               }
               System.out.print("Sum: " + sum);
            } else {
               System.out.println("Please input even number.");
            }

         }

      }
```

5. **TEST RESULT:**

Problem 1:



Problem 2:



6. ANALYSIS AND DISCUSSION:

1: The program is running well and showing the correct result.
2: I have written all the algorithms in a easily understable way sequentially. So writing this programs had become easy.
3: The problem was not tough but it was very time consuming. Writing algorithm of that problem was slightly complicated.
4: Objectives of all the problems are successfully achieved.

Green University of Bangladesh

Department of Computer Science and Engineering (CSE)

Faculty of Sciences and Engineering

Semester: (Spring, Year:2021), B.Sc. in CSE (Day)

LAB REPORT NO #2

Course Title: Object Oriented Programming Lab

Course Code:CSE-202 Section:DB

Lab Experiment Name: Class, Objects, Object Arrays, Constructors,Methods

Student Details

Name	ID
MD. ABU TAIEF SIDDIQUE	211902037

Lab Date : 28-02-2022

Submission Date : 06-03-2022

Course Teacher's Name : Dr. Muhammad Aminur Rahaman

Lab Report Status

Marks: …… **Signature:.....**

Comments:..... **Date:.....**

1. **TITLE:**

- To gather knowledge of Class, Objects, Object Arrays, Constructors, Methods.
- To implement the constructor, array and methods.

2. **OBJECTIVES:**

- To implement such java program that would be able to calculate area of a triangle, rectangle and circle using switch case statement.

3. **PROCEDURE:**

- Start
- Create an object of the Scanner class to take input from the user.
- Declare some variables to store the number.
- Take choice from user
- If initialize the Rectangle area
- Ask the user to initialize the length and weight
- Calculat length * weight
- If initialize the Triangle Area
- Ask the user to initialize the height,base
- Calculat half*height*base
- If initialize the Circle Area
- Ask the user to initialize the radius
- Calculat PI * radius* radius

- Display the output.
- Stop.

4. **IMPLEMENTATION:**

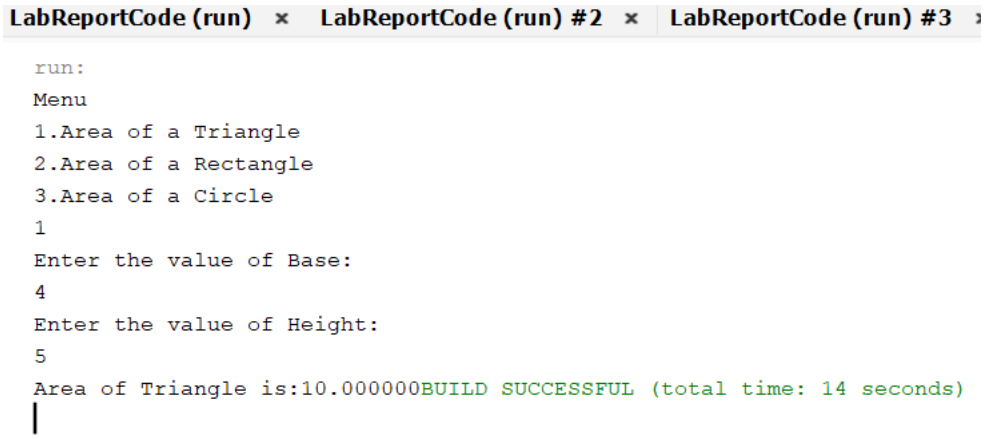
```
//MAIN METHOD
package labreportcode;

import java.util.Scanner;

public class LabReport2 {
public static void main(String[] args) {
System.out.println("Menu");
System.out.println("1.Area of a Triangle");
System.out.println("2.Area of a Rectangle");
System.out.println("3.Area of a Circle");
Scanner ss=new Scanner(System.in);
int ch=ss.nextInt();
switch(ch)
{
case 1:
{
System.out.println("Enter the value of Base:");
float base;
base=ss.nextInt();
System.out.println("Enter the value of Height:");
float height;
height=ss.nextInt();
Report2Class rr=new Report2Class(base,height);
break;
}
case 2:
{
System.out.println("Enter the value of Height:");
int heightt=ss.nextInt();
System.out.println("Enter value of Breadth:");
int breadthh=ss.nextInt();
Report2Class AOR=new Report2Class(heightt,breadthh);
break;
}
case 3:
{
System.out.println("Enter the value of Radius:");
float radius=ss.nextInt();
Report2Class AOC=new Report2Class(radius);
```

```
}
}
}

}
//REPORT2CLASS

package labreportcode;

public class Report2Class {
Report2Class(float b,float h)
{
float AOtT=(b*h)/2;
System.out.printf("Area of Triangle is:%f",AOtT);
}
Report2Class(int h,int b)
{
int AOR=h*b;
System.out.println("Area of Rectangle is:"+AOR);
}
Report2Class(float r)
{
float pi=(float)3.1416;
float AOC=pi*r*r;
System.out.println("Area of Circle is:"+AOC);
}
}
```

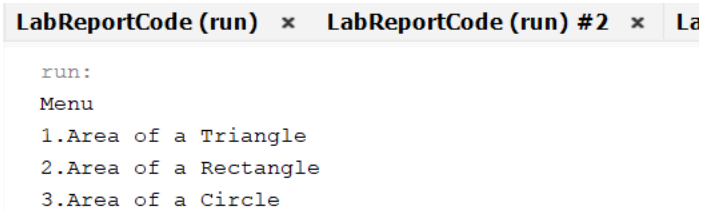
5. TEST RESULT:

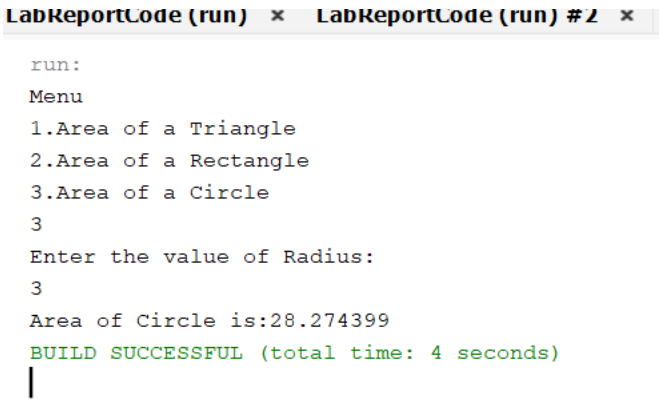
- **Problem 1:**

6.



7.





8. ANALYSIS AND DISCUSSION:

- 1: The program is running well and showing the correct result.
- 2: I have written all the algorithms in a easily understable way sequentially.
- So writing this programs had become easy.
- 3: The problem was not tough but it was very time consuming. Writing algorithm of that problem was slightly complicated.
- 4: Objectives of the problem IS successfully achieved.

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Faculty of Sciences and Engineering

Semester: (Spring, Year:2021), B.Sc. in CSE (Day)

LAB REPORT NO #3

Course Title: Object Oriented Programming Lab

Course Code:CSE-202 Section:DB

Lab Experiment Name: Package, String, File

Student Details

Name	ID
MD. ABU TAIEF SIDDIQUE	211902037

Lab Date : 07-03-2022

Submission Date : 22-03-2022

Course Teacher's Name : Dr. Muhammad Aminur Rahaman

Lab Report Status

Marks: …… **Signature:.....**

Comments:..... **Date:.....**

1.TITLE:

- 2 files contains 2 matrix, read from them and provide the matrix multiplication in the 3rd file.

2.OBJECTIVES:

- To implement such java program that would be able to multiplicate two matrixes and assign them into a third matrix, while handling file.

3.PROCEDURE:

Pseudocode:

```
Pseudocode for Matrix Multiplication{
  for i=0 to arow-1 do
  |
  |  for j=0 to bcol-1 do
  |  |
  |  |  sum = 0
  |  |
  |  |  for k=0 to arow-1 do
  |  |  |
  |  |  |  sum = sum + matrixA[i][k] + matrixB[k][j]
  |  |  |
  |  |  |  matrix[i][j] = sum
  |  |
  |     }
```

4. **IMPLEMENTATION:**

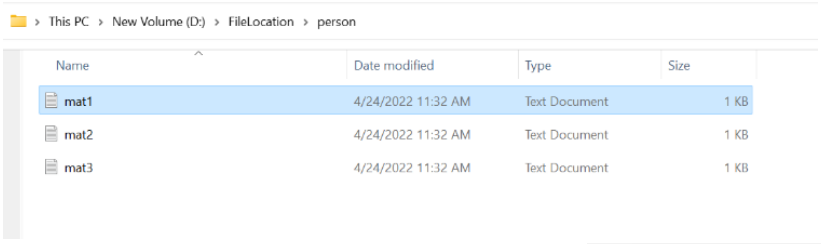
```
//

import java.io.File;
import java.util.Formatter;
import java.util.Scanner;

public class LabReport {

   public static void main(String[] args) {
      java.io.File dir = new java.io.File("D:\\FileLocation\\person");
      dir.mkdir();
      File file1 = new File("D:\\FileLocation\\person\\mat1.txt");
      File file2 = new File("D:/FileLocation/person/mat2.txt");
      File file3 = new File("D:/FileLocation/person/mat3.txt");
      try {
         file1.createNewFile();
         file2.createNewFile();
         file3.createNewFile();
         System.out.println("Files Are CREATED");
      } catch (Exception e) {
         System.out.println(e);
      }
      Scanner in = new Scanner(System.in);
      int i, j, k, m1, n1, m2, n2;
      int[][] matrix1 = new int[10][10];
      int[][] matrix2 = new int[10][10];
      int[][] mult = new int[10][10];
      Scanner input = new Scanner(System.in);
      System.out.print("Enter number of rows of matrix 1 : ");
      m1 = in.nextInt();
      System.out.print("Enter number of columns of matrix 1 : ");
      n1 = in.nextInt();
      try {
         Formatter formatter = new Formatter("D:/FileLocation/person/mat1.txt");

         System.out.println();

         for (i = 0; i < m1; i++) {
```

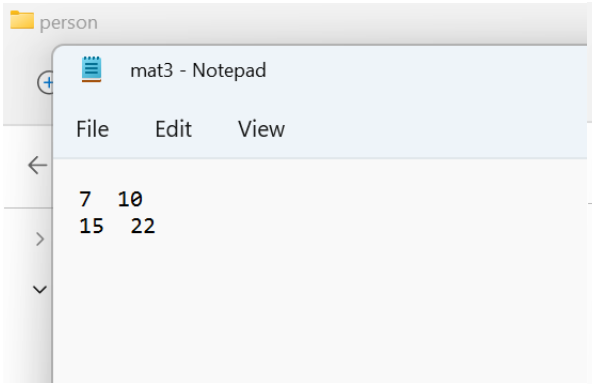
```
            for (j = 0; j < n1; j++) {
                System.out.printf("Enter element of matrix 1[%d][%d]: ", i, j);
                matrix1[i][j] = in.nextInt();
                formatter.format("%d ", matrix1[i][j]);
            }
            formatter.format(" \r\n");
        }
        formatter.close();
    } catch (Exception e) {
        System.out.println(e);
    }
    System.out.println();

    System.out.print("Enter number of rows of matrix 2 : ");
    m2 = in.nextInt();
    System.out.print("Enter number of columns of matrix 2 : ");
    n2 = in.nextInt();

    System.out.println();
    try {
        Formatter formatter = new Formatter("D:/FileLocation/person/mat2.txt");
        //Scanner input = new Scanner(System.in);
        if (m1 == n2) {
            for (i = 0; i < m2; i++) {
                for (j = 0; j < n2; j++) {
                    System.out.printf("Enter element of matrix 2[%d][%d]: ", i, j);
                    matrix2[i][j] = in.nextInt();
                    formatter.format("%d ", matrix2[i][j]);
                }
                formatter.format(" \r\n");
            }
            formatter.close();
        } else {
            System.out.println("Matrix multiplication not possible");
        }

    } catch (Exception e) {
        System.out.println(e);
    }
```

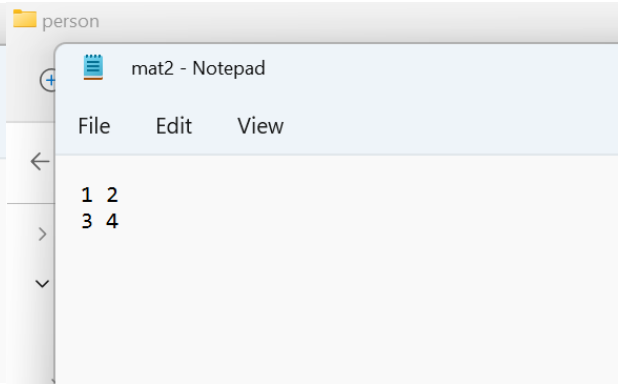
```
        System.out.println();

        System.out.println("\n....Your resultant matrix is....\n\n");

        for (i = 0; i < m1; i++) {
           for (j = 0; j < n2; j++) {
              mult[i][j] = 0;
              for (k = 0; k < m2; k++) {
                 mult[i][j] += matrix1[i][k] * matrix2[k][j];
              }
           }
        }
        try {
           Formatter formatter = new Formatter("D:/FileLocation/person/mat3.txt");
           //Scanner input=new Scanner(System.in);
           for (i = 0; i < m1; i++) {
              for (j = 0; j < n2; j++) {
                 System.out.printf("%d\t", mult[i][j]);
                 formatter.format("%d  ", mult[i][j]);
              }

              System.out.println();
              formatter.format("\r\n");

           }
           formatter.close();
        } catch (Exception e) {
           System.out.println(e);
        }
     }
  }
```

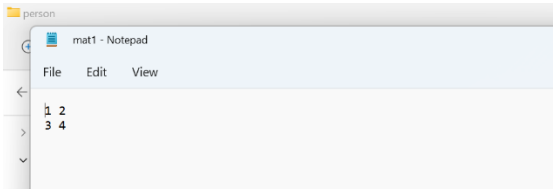
5. TEST RESULT:

```
run:
Files Are CREATED
Enter number of rows of matrix 1 : 2
Enter number of columns of matrix 1 : 2

Enter element of matrix 1[0][0]: 1
Enter element of matrix 1[0][1]: 2
Enter element of matrix 1[1][0]: 3
Enter element of matrix 1[1][1]: 4

Enter number of rows of matrix 2 : 2
Enter number of columns of matrix 2 : 2

Enter element of matrix 2[0][0]: 1
Enter element of matrix 2[0][1]: 2
Enter element of matrix 2[1][0]: 3
Enter element of matrix 2[1][1]: 4


....Your resultant matrix is....


7       10
15      22
BUILD SUCCESSFUL (total time: 18 seconds)
```









6. ANALYSIS AND DISCUSSION:

1: The program is running well and showing the correct result.
2: I have written all the algorithms in a easily understable way sequentially. So writing this programs had become easy.
3: The problem was very tough and also very very time consuming. Writing algorithm of that problem was slightly complicated.
4: Objectives of the problem IS successfully achieved.

7. Summary:

This assignment made us more confident in working with File management in Java

Green University of Bangladesh

Department of Computer Science and Engineering (CSE)

Faculty of Sciences and Engineering

Semester: (Spring, Year:2021), B.Sc. in CSE (Day)

LAB REPORT NO #4

Course Title: Object Oriented Programming Lab

Course Code: CSE-202 Section: DB

Lab Experiment Name: Graphical User Interface: Implementing Simple GUI using AWT and SWING

Student Details

Name		ID
1.	MD. ABU TAIEF SIDDIQUE	211902037

Lab Date : 14 March, 22

Submission Date : 03 April, 22

Course Teacher's Name : Dr. Muhammad Aminur Rahaman

Lab Report Status

Marks: …… **Signature:.....**

Comments:..... **Date:.....**

TITLE:

- Implementation of a Temperature Converter using GUI.
- Implementation of a Mark to Grade Converter using GUI.

OBJECTIVES:

- To create such Java Program that will be able to convert temperature from Celcius to Fahrenheit
- To create such Java Program that will be able to convert mark into grade.

PROCEDURE:

Algorithm:

Step1: Create required TextFields and Buttons.

Step2: Create a JFrame and add those TextFields and Buttons in it.

Step3: Add ActionListener on the Button.

Step4: When Button is pressed read the input from related TextField , Convert it to integer and calculate Fahrenheit value, assign it to another String variable and print it.

Step5: End.

IMPLEMENTATION:

PROBLEM1:

```
package labreport4;
import javax.swing.*;
import java.awt.event.*;
public class LabReport4 implements ActionListener {

   JTextField tf, tf1, tf11, tf22, tf2;
   JButton b1;

   LabReport4() {
      JFrame f = new JFrame();
      tf = new JTextField("CELCIUS TO FAHRENHEIT CONVERTER");
      tf.setBounds(50, 50, 260, 30);
      tf1 = new JTextField();
      tf11 = new JTextField("CELCIUS: ");
      tf11.setBounds(50, 100, 150, 30);
      tf1.setBounds(150, 100, 160, 30);
      tf22 = new JTextField("FAHRENHEIT: ");
      tf22.setBounds(50, 150, 110, 30);
      tf2 = new JTextField();
      tf2.setBounds(150, 150, 160, 30);
```

```
        tf2.setEditable(false);
        b1 = new JButton("CONVERT");
        b1.setBounds(50, 200, 260, 30);
        b1.addActionListener(this);
        f.add(tf);
        f.add(tf1);
        f.add(tf2);
        f.add(b1);
        f.add(tf11);
        f.add(tf22);
        f.setSize(380, 330);
        f.setLayout(null);
        f.setVisible(true);
    }

    @Override
    public void actionPerformed(ActionEvent e) {
        String s1 = tf1.getText();
        int a = Integer.parseInt(s1);
        double b = (a*1.8)+32;
        String bb = String.valueOf(b);
        if (e.getSource() == b1) {
            tf2.setText(bb);
        }
    }

    public static void main(String[] args) {
        new LabReport4();
    }
}
```

PROBLEM2:

```
package labreport4;

import javax.swing.*;
import java.awt.event.*;

public class LabReport4 implements ActionListener {
```

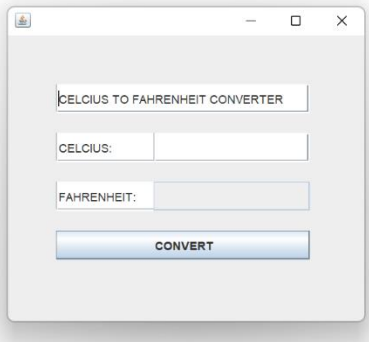
```
JTextField tf, tf1, tf11, tf22, tf2;
JButton b1;

LabReport4() {
   JFrame f = new JFrame();
   tf = new JTextField("MARK T0 GRADE");
   tf.setBounds(50, 50, 260, 30);
   tf1 = new JTextField();
   tf11 = new JTextField("MARK: ");
   tf11.setBounds(50, 100, 150, 30);
   tf1.setBounds(150, 100, 160, 30);
   tf22 = new JTextField("GRADE: ");
   tf22.setBounds(50, 150, 110, 30);
   tf2 = new JTextField();
   tf2.setBounds(150, 150, 160, 30);
   tf2.setEditable(false);
   b1 = new JButton("CONVERT");
   b1.setBounds(50, 200, 260, 30);
   b1.addActionListener(this);
   f.add(tf);
   f.add(tf1);
   f.add(tf2);
   f.add(b1);
   f.add(tf11);
   f.add(tf22);
   f.setSize(380, 330);
   f.setLayout(null);
   f.setVisible(true);
}

@Override
public void actionPerformed(ActionEvent e) {
   String s1 = tf1.getText();
   int a = Integer.parseInt(s1);
   String bb = null ;
   if(a>=80&&a<=100)
      bb="A+";
   else if(a>=75&&a<80)
      bb="A";
   else if(a>=70&&a<75)
```

```
            bb="A-";
        else if(a>=65&&a<70)
            bb="B+";
        else if(a>=60&&a<65)
            bb="B";
        else if(a>=55&&a<60)
            bb="B-";
        else if(a>=50&&a<55)
            bb="C+";
        else if(a>=45&&a<50)
            bb="C";
        else if(a>=40&&a<45)
            bb="D";
       else if(a>=0&&a<40)
              bb="F";
        else
              bb="Invalid Input";
            tf2.setText(bb);
    }

    public static void main(String[] args) {
        new LabReport4();
    }
}
```

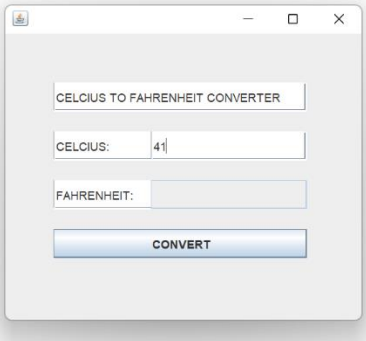
OUTPUT:

PROBLEM1:

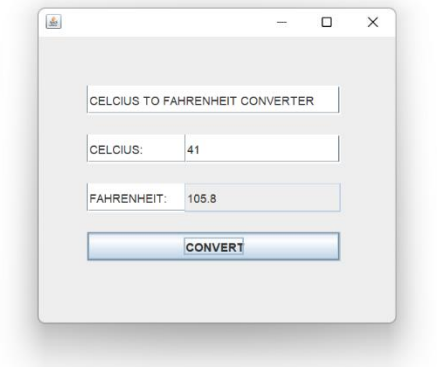
Opening Ui**:**



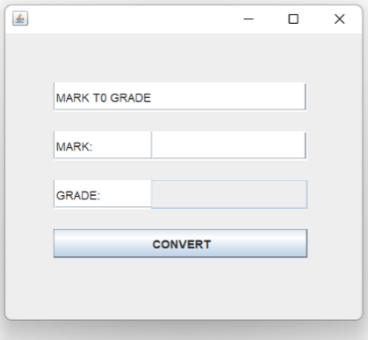
Value Input:

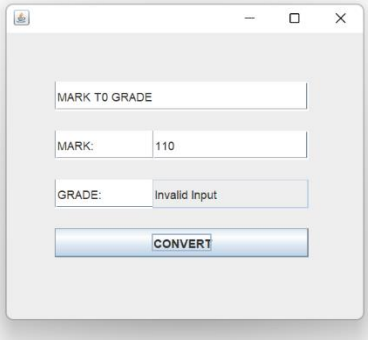


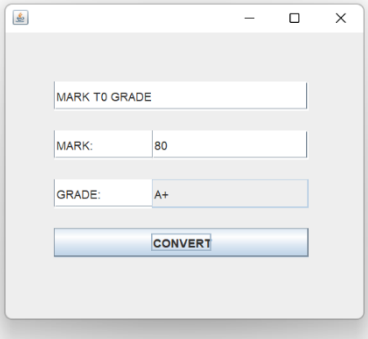
After Pressing CONVERT Button:

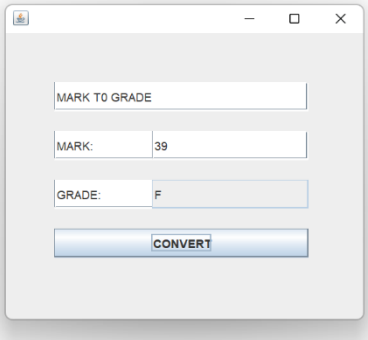

CELCIUS TO FAHRENHEIT CONVERTER
CELCIUS:
41
FAHRENHEIT:
105.8
CONVERT

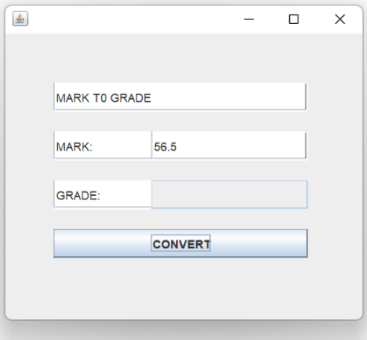
PROBLEM2:


MARK T0 GRADE
MARK:
GRADE:
CONVERT


MARK T0 GRADE
MARK:
110
GRADE:
Invalid Input
CONVERT


MARK T0 GRADE
MARK:
80
GRADE:
A+
CONVERT


MARK T0 GRADE
MARK:
39
GRADE:
F
CONVERT


MARK T0 GRADE
MARK:
56.5
GRADE:
CONVERT

ANALYSIS AND DISCUSSION:

The programs are running well. The objectives are achieved successfully and it is correctly showing outputs even if that is not an integer nuber but in terms of floating value input, the programs misbehave. It doe’n't show any output at that time or hold the previous output. The assignment was not tough, creating those textfields maintaining aesthetics was a bit time consuming. Afterall it feels great to see the program running well with general input.

SUMMARY:

This assignment made us more confident in working with JFrame.

THE END

Green University of Bangladesh

Department of Computer Science and Engineering (CSE)

Faculty of Sciences and Engineering

Semester: (Spring, Year:2021), B.Sc. in CSE (Day)

LAB REPORT NO #5

Course Title: Object Oriented Programming Lab

Course Code: CSE-202 Section: DB

Lab Experiment Name: Inheritance

Student Details

	Name	ID
1.	MD. ABU TAIEF SIDDIQUE	211902037

Lab Date : 28 March,22

Submission Date : 03 April,22

Course Teacher's Name : Dr. Muhammad Aminur Rahaman

Lab Report Status

Marks: …… **Signature:.....**

Comments:..... **Date:.....**

TITLE:

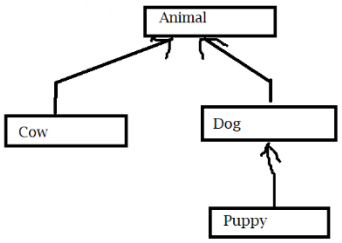
- Inheritance (3 types) where super class will be an abstract class.

OBJECTIVES:

- Understanding to use Inheritance using Java
- Role of constructors
- Implementing certain types of inheritances
- Access modifiers

PROCEDURE:

Algorithm:
Step1: Create four classes.
Step2: Declare Cow and Dog as subclass of Animal class.
Step3: Declare puppy class as subclass of Dog
Step4: Declare necessary variables and methods and use them accordingly
Step5: End.



IMPLEMENTATION:

```
package inheritenceall;
class Animal {

   int leg = 4;
   int head = 1;
   void eat() {
      System.out.println("I eat ");
   }
}
class Cow extends Animal {

}
class Dog extends Animal{
   @Override
   void eat(){
      System.out.println("I eat dog food");
```

```
    }
}
class Puppy extends Dog{

}
public class InheritenceAll {

    public static void main(String[] args) {
        Cow cow1 = new Cow();
        Dog dog1=new Dog();
        Puppy puppy1=new Puppy();
        //Single inheritence
        System.out.println("Cow's Legs: " + cow1.leg);
        //Hiarerchichal Inheritence
        System.out.println("Cow's Head:"+cow1.head+"  Dog's Head:"+dog1.head);
        //Multilevel Inheritence
        System.out.println("Puppy's Legs:"+puppy1.leg);
        puppy1.eat();
        //Hybrid Inheritence
        //The entire program together is an example of Hybrid Inheritence
    }
}
```

OUTPUT:

```
run:
Cow's Legs: 4
Cow's Head:1  Dog's Head:1
Puppy's Legs:4
I eat dog food
BUILD SUCCESSFUL (total time: 0 seconds)
```

ANALYSIS AND DISCUSSION:

The program run well. The objective is achieved successfully and it is correctly showing outputs. Here Dog is a Subclass of Animal class and puppy is a subclass of Dog class. So Puppy inherits all the characteristics of both Dog and Animal class. As Dog class has not overridden the leg count so it remains the same as animal class. Afterall it feels great to see the program running well.

SUMMARY:

This assignment made us more confident in working with Inheritence.

THE END

Green University of Bangladesh

Department of Computer Science and Engineering (CSE)

Faculty of Sciences and Engineering

Semester: (Spring, Year:2021), B.Sc. in CSE (Day)

LAB REPORT NO #6

Course Title: Object Oriented Programming Lab

Course Code: CSE-202 Section: DB

Lab Experiment Name: Package

Student Details

Name		ID
1.	MD. ABU TAIEF SIDDIQUE	211902037

Lab Date : 09 April,22

Submission Date : 17 April,22

Course Teacher's Name : Dr. Muhammad Aminur Rahaman

Lab Report Status

Marks: …… **Signature:.....**

Comments:..... **Date:.....**

TITLE:

- GPA_Calculator

OBJECTIVES:

- To make a "Gpa_calculator" user-defined package that will contain "GpaCalculator" class then import it into the main class with a different package to calculate GPA. Users will provide different marks and your system will calculate GPA based on the marks.
- **PROCEDURE:**

  Algorithm:

  Step1: Create two packages under one package .

  Step2: Declare main method in one package and declare GPACalculator class in the other Package and import that class in the first package.

  Step3: Take input from user in main method.

  Step4: Declare an object of GPACalculator class and send the value of user input into it's mark method, which will return gpa after judging the mark.

  Step5: print that gpa.

  Step6:End.

IMPLEMENTATION:

```
//First package
package labreport;
import Calculation.GPACalculator;
import java.util.Scanner;
/**
 *
 * @author Taief
 */
public class LabReport {

  public static void main(String[] args)
   {
      int m;
      Scanner ss= new Scanner(System.in);
      System.out.println("Enter Mark:");
      m= ss.nextInt();

      GPACalculator s1= new GPACalculator();
      double k=s1.mark(m);
      if(k==1.00)
         System.out.println("The input is not valid");
      else
         System.out.println("Your CGPA: "+k);
   }
```

```
}
//Second package

package Calculation;

/**
 *
 * @author Taief
 */
public class GPACalculator {

    public double mark(int x){

    if(x>=0 && x<=100)
    {
        if(x>=80 && x<=100)
        {
            return 4.00;
        }
        else if(x>=75 && x<80)
        {
          return 3.75;
        }
        else if(x>=70 && x<75)
        {
            return 3.50;
        }
        else if(x>=65 && x<70)
        {
            return 3.25;
        }
        else if(x>=60 && x<65)
        {
            return 3.00;
        }
        else if(x>=55 && x<60)
        {
            return 2.75;
        }
        if(x>=50 && x<55)
```

```
        {
           return 2.50;
        }
        else if(x>=45 && x<50)
        {
           return 2.25;
        }
        else if(x>=40 && x<45)
        {
           return 2.00;
        }
        else if(x>=0 && x<40)
        {
           return 0.00;
        }
    }
    return 1.00;
    }
}
```

OUTPUT:

```
run:
Enter Mark:
110
The input is not valid
BUILD SUCCESSFUL (total time: 3 seconds)
```

```
run:
Enter Mark:
34
Your CGPA: 0.0
BUILD SUCCESSFUL (total time: 3 seconds)
```

```
run:
Enter Mark:
75
Your CGPA: 3.75
BUILD SUCCESSFUL (total time: 13 seconds)
```

ANALYSIS AND DISCUSSION:

The program runs well. The objective is achieved successfully and it is correctly showing outputs. If the inputed mark is not in between of zero and hundred it shows " The input is not valid". Afterall it feels great to see the program running well.

SUMMARY:

This assignment made us more confident in working with multiple packages.

THE END

Green University of Bangladesh

Department of Computer Science and Engineering (CSE)

Faculty of Sciences and Engineering

Semester: (Spring, Year:2022), B.Sc. in CSE (Day)

LAB REPORT NO - 08

Course Title: Object Oriented Programming.

Course Code: CSE - 202 **Section:** DB

Student Details

	Name	ID
1.	MD. ABU TAIEF SIDDIQUE	211902037

Lab Date **:** 18 April 2022

Submission Date **:** 23 April 2022

Course Teacher's Name **:** Dr. Muhammad Aminur Rahaman

Lab Report Status

Marks: …… **Signature: .....**

Comments: ..... **Date: .....**

7. **TITLE:**
    - Exception Handling
8. **OBJECTIVES:**

- To Create an exception class named AgeOutOfRangeException extended from the class Exception. This class should contain a constructor which takes the user's age (ex. 40) as parameter. Will print following message when called, "You are older than the requested age (25 years), you are 40!!!".
- To Create an exception class named LowGpaException extended from the class Exception. This class should contain a constructor, with no parameter. The constructor will call the Exception class constructor with the message "Your GPA is not sufficient to apply for this job (2.5)".
- To Create a main class named GPA to prompt the user to enter his/her age and his GPA. The user application for a job will be rejected either if his age is greater than 25 years or his GPA is less than 2.5. You should declare two try-throw-catch blocks; one to handle the AgeOutOfRangeException and the other to handle the LowGpaException. If the user enters acceptable age and GPA, display the message "Your application is accepted and is under study".

9. **PROCEDURE:**

Step-1: Start

Step-2: Create two classes and extends into Exception class.

Step-3: In AgeOutOfRangeException class, Create constructor with parameter and a Show method which will return a message.

Step-4: In LowGpaException class, Create constructor with No parameter and a Display method which will return a message.

Step-5: Create a GPA class and create a main method inside the GPA class.

Step-6: Users take age and gpa input from the system.

Step-7: Declare try-throw-catch block for AgeOutOfRangeException.

Step-7.1: throw new AgeOutOfRangeException(Age) if age is greater than 25 years.

Step-7.2: Catch exception of AgeOutOfRangeException.

Step-8: Declare try-throw-catch block for LowGpaException.

Step-8.1: throw new LowGpaException () if Gpa is smaller than 2.5.

Step-8.2: Catch exception of LowGpaException

Step-9: End.

10. IMPLEMENTATION:

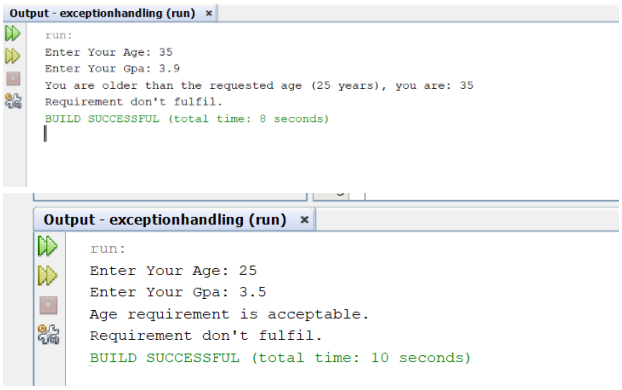
```
package exceptionhandling;
import java.util.Scanner;
public class GPA {
    public static void main(String[] args) {
        Scanner scan =new Scanner(System.in);
        System.out.print("Enter Your Age: ");
        int Age=scan.nextInt();
        System.out.print("Enter Your Gpa: ");
        double Gpa=scan.nextDouble();
        try{
            if(Age>25){
            throw new AgeOutOfRangeException(Age);
           }
            else{
            System.out.println("Age requirement is acceptable.");
                }
   }catch (AgeOutOfRangeException e){
```

```
        System.out.println(e.Show());
    }
    try {
        if(2.5>Gpa){
         throw new LowGpaException();
        }

      else{

         if(Age<25){

     System.out.println("Your application is accepted and is under study.");

         }
         else{
           System.out.println("Requirement don't fulfil.");
}
      }
    }catch (LowGpaException e){

        System.out.println(e.Display());

    }
```

```
    }
}



public class AgeOutOfRangeException extends Exception{

   int Age;
    AgeOutOfRangeException(int Age){
     this.Age=Age;
 }
   public String Show(){

      return "You are older than the requested age (25 years), you are: " +Age;
   }
}
public class LowGpaException extends Exception{

    LowGpaException(){

    }
    public String Display() {
```

```
        return "Your GPA is not sufficient to apply for this job (2.5)";
    }
}
```

11. TEST RESULT:



12. ANALYSIS AND DISCUSSION:

1: The program is running well and showing the correct result.
2: I have written all the algorithms in a easily understable way sequentially. So writing this programs had become easy.
3: The problem was not tough but it was very time consuming. Writing algorithm of that problem was slightly complicated.
4: Objectives of the problem IS successfully achieved.

The End