Exp1/\* Title: Write some simple programs in Java such as

i) To find factorial of number.

ii) To display first 50 prime numbers.

iii) To find sum and average of N numbers. \*/

/\* i) To find factorial of number\*/

public class Factorial

{

public static void main (String args[])

{

System.out.println("Enter your name:");

System.out.println("Enter your roll no:");

int i, fact=1;

int number=5;

for( i=1; i<=number; i++)

{

fact=fact\*i;

}

System.out.println("Factorial of "+number+" is:"+fact);

}

}

/\* Sample output:

Factorial of 5 is:120

\*/

/\* ii. To display first 10 prime numbers. \*/

public class Prime

{

public static void main( String[] args)

{

System.out.println("Enter your name:");

System.out.println("Enter your roll no:");

int i=0;

int n=0;

System.out.println("Prime numbers from 1 to 10 are:");

for(i=1; i<=10; i++)

{

int cnt=0;

for(n=i; n>=1; n--)

{

if(i%n==0)

{

cnt=cnt+1;

}

}

if (cnt==2)

{

System.out.print(i+"\t");

}

}

}

}

/\* Sample output:

Prime numbers from 1 to 10 are:

2 3 5 7

\*/

/\*To find sum and average of N numbers.\*/

public class sum

{

public static void main(String[] args)

{

System.out.println("Enter your name:");

System.out.println("Enter your roll no:");

int i;

int sum=0;

double avg;

int count=0;

int a[]={10,20,30,40};

for(i=0;i<a.length;i++)

{

sum=sum+a[i];

count++;

}

avg=sum/count;

System.out.println("Sum of number is :"+sum);

System.out.println("Avg of number is :"+avg);

}

}

/\* Sample output:

Sum of number is : 100

Avg of number is : 25.0

\*/

Experiment: 2 \*/

/\*Title:Write a program in Java to implement a Calculator with simple

arithmetic operations such as add, subtract, multiply, divide, factorial

etc. using switch case and other simple java statements.

The objective of this assignment is to learn Constants, Variables, and Data Types,

Operators and Expressions, Decision making statements in Java.\*/

import java.util.Scanner;

public class Calculator

{

public static void main(String[] args)

{

System.out.println("Enter your name:");

System.out.println("Enter your roll no:");

Scanner in = new Scanner(System.in);

int choice;

int no1, no2, result;

do

{

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

System.out.println("2.Subtract");

System.out.println("3.Multiply");

System.out.println("4.Divide");

System.out.println("5.Factorial");

System.out.println("6.Exit");

System.out.println("Enter your choice:");

choice = in.nextInt();

switch(choice)

{

case 1 :

System.out.println("Enter First Number");

no1 = in.nextInt();

System.out.println("Enter Second Number");

no2 = in.nextInt();

result = no1+no2;

System.out.println("Addition : " + result );

break;

case 2 :

System.out.println("Enter First Number");

no1 = in.nextInt();

System.out.println("Enter Second Number");

no2 = in.nextInt();

result = no1-no2;

System.out.println("Subtraction : " + result );

break;

case 3 :

System.out.println("Enter First Number");

no1 = in.nextInt();

System.out.println("Enter Second Number");

no2 = in.nextInt();

result = no1\*no2;

System.out.println("Multiplication : " + result );

break;

case 4 :

System.out.println("Enter First Number");

no1 = in.nextInt();

System.out.println("Enter Second Number");

no2 = in.nextInt();

result = no1/no2;

System.out.println("Division : " + result );

break;

case 5 :

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

no1 = in.nextInt();

result = 1;

for(int i =1; i <= no1;++i)

{

result \*=i;

}

System.out.println("Factorial of " + no1 + " is "+result);

break;

case 6 :

System.out.println("Terminating");

break;

default :

System.out.println("Wrong Choice");

break;

}

}while ( choice != 6);

}

}

/\* Sample output:

1.Add

2.Subtract

3.Multiply

4.Divide

5.Factorial

6.Exit

Enter your choice:

4

Enter First Number

10

Enter Second Number

5

Division : 2

1.Add

2.Subtract

3.Multiply

4.Divide

5.Factorial

6.Exit

Enter your choice:

\*/

/\*Lab Experiment: 3 \*/

/**\*Title:** Write a program in Java with class Rectangle with the data fields width, length, area and color. The length,width and area are of double type and color is of string type. The methods are get\_length(), get\_width(),get\_colour() and find\_area(). Create two objects of Rectangle and compare their area and color. If the area and color both are the same for the objects then display “Matching Rectangles”, otherwise display “ Non-matching Rectangle”. \*/

import java.io.\*;

import java.util.\*;

class Rect

{

double width,length,area;

String color;

Scanner sc=new Scanner(System.in);

Rect()

{

System.out.print("Enter the length: ");

length=sc.nextDouble();

System.out.print("Enter the width: ");

width=sc.nextDouble();

System.out.print("Enter the color: ");

color=sc.next();

area=length\*width;

System.out.println("Area of Rectangle: "+area);

}

}

public class RectmatchDemo

{

public static void main(String arg[])

{

System.out.println("Enter your name:");

System.out.println("Enter your roll no:");

System.out.println("First Rectangle: ");

Rect r1=new Rect();

System.out.println("Second Rectangle: ");

Rect r2=new Rect();

if(r1.area==r2.area && r1.color.equals(r2.color))

System.out.println("Matching Rectangle ");

else

System.out.println("Non Matching Rectangle ");

}

}

/\* Sample output:

First Rectangle:

Enter the length: 10

Enter the width: 5

Enter the color: red

Area of Rectangle: 50.0

Second Rectangle:

Enter the length: 10

Enter the width: 5

Enter the color: red

Area of Rectangle: 50.0

Matching Rectangle

\*/

/\*Lab Experiment: 4 \*/

/\*Title: Write a program in JAVA to demonstrate the method and constructor overloading \*/

class Rectangle

{

private int length;

private int breadth;

public Rectangle(int side)

{

length = side;

breadth = side;

}

public Rectangle(int l, int b)

{

length = l;

breadth = b;

}

public int getArea()

{

return length \* breadth;

}

}

public class Test

{

public static void main(String[] args)

{

System.out.println("Enter your name:");

System.out.println("Enter your roll no:");

Rectangle rect = new Rectangle(5, 10);

Rectangle sq = new Rectangle(8);

System.out.println(rect.getArea());

System.out.println(sq.getArea());

}

}

/\* Sample output:

50

64 \*/

/\*Lab Experiment: 5 \*/

/\*Title: Write Programs in Java to sort i) List of integers ii) List of names.

The objective of this assignment is to learn Arrays and Strings in

Java.\*/

/\* i)Program to Sort List of integers in Java \*/

import java.io.\*;

import java.util.Scanner;

public class SortInt

{

public static void main(String args[])

{

System.out.println("Enter your name:");

System.out.println("Enter your roll no:");

int n,i,j,temp;

Scanner input= new Scanner(System.in);

System.out.println("Enter number of elements:");

n= input.nextInt();

int array[]= new int[n];

System.out.println("Enter integer numbers:");

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

array[i]=input.nextInt();

for(i=0; i<(n-1);i++)

{

for(j=0;j<n-i-1; j++)

{

if(array[j]> array[j+1])

{

temp=array[j];

array[j]=array[j+1];

array[j+1]=temp;

}

}

}

System.out.println("Sorted list....");

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

System.out.println(" "+array[i]);

}

}

/\* Sample Output:

Enter number of elements:

4

Enter integer numbers

3

1

5

7

Sorted list....

1

3

5

7

\*/

/\*Lab Experiment: 6 \*/

/\*Title: Write a program in Java to create a player class.

Inherit the classes Cricket\_player, Football\_player and Hockey\_player from player class.

The objective of this assignment is to learn the concepts of inheritance in Java.\*/

import java.util.Scanner;

class player

{

String name;

player(String n)

{ name=n;}

void show()

{

System.out.println("Name:" + name);

}

}

class Cricket\_player extends player

{

String role;

Cricket\_player(String nm, String r)

{

super(nm);

role=r;

}

void display()

{

System.out.println("\n\n\t Cricket Player");

show();

System.out.println("\n Role:" + role);

}

}

class Football\_player extends player

{

String role;

Football\_player(String nm, String r)

{

super(nm);

role=r;

}

void display()

{

System.out.println("\n\n\t Football Player");

show();

System.out.println("\n Role:" + role);

}

}

class Hockey\_player extends player

{

String role;

Hockey\_player(String nm, String r)

{

super(nm);

role=r;

}

void display()

{

System.out.println("\n\n\t Hockey Player");

show();

System.out.println("\n Role:" + role);

}

}

public class PlayerDemo

{

public static void main(String []args)

{

System.out.println("Enter your name:");

System.out.println("Enter your roll no:");

Cricket\_player obj1= new Cricket\_player("AAA", "Batsman");

Football\_player obj2= new Football\_player("BBB", "GoalKeeper");

Hockey\_player obj3= new Hockey\_player("CCC", "Capton");

obj1.display();

obj2.display();

obj3.display();

}

}

/\* Conclusion: In this experiment, we learned about how to implement

inheritance in Java\*/

/\*Sample Output:

Cricket Player

Name:AAA

Role:Batsman

Football Player

Name:BBB

Role:GoalKeeper

Hockey Player

Name:CCC

Role:Capton

\*

/\*Lab Experiment: 7 \*/

/\*Title:Write a Java program which implements interface \*/

/\*Java Program calculating marks of a student using multiple inheritance, implemented through interface\*/

import java.util.Scanner;

class student

{

int rollNo;

void getNumber(int n)

{

rollNo=n;

}

void putNumber()

{

System.out.println("Roll No is: "+ rollNo);

}

}

class test extends student

{

int Insem, Endsem;

void getMarks(int m1, int m2)

{

Insem=m1; Endsem=m2;

}

void putMarks()

{

System.out.println("Marks obtained:");

System.out.println("Part 1 INSEM marks = "+Insem);

System.out.println("Part 2 ENDSEM marks = "+Endsem);

}

}

//Interface sports

interface Sports

{

int Sportswt=5;

void putWt();

}

class results extends test implements Sports

{

int total;

@Override

public void putWt()

{

System.out.println("Sports weight = "+ Sportswt);

}

void display()

{

total=Insem+Endsem+Sportswt;

if(total>100)

total=100;

putNumber();

putMarks();

putWt();

System.out.println("Total score = "+ total);

}

}

public class InterfaceDemo {

public static void main(String args[])

{

System.out.println("Enter your name:");

System.out.println("Enter your roll no:");

Scanner input= new Scanner(System.in);

results r1=new results();

System.out.println(" Enter the student's roll number:");

int rollno=input.nextInt();

r1.getNumber(rollno);

System.out.println(" Enter the student's INSEM Marks out of 30:");

int inMarks=input.nextInt();

System.out.println(" Enter the student's ENDSEM Marks out of 70:");

int endMarks=input.nextInt();

r1.getMarks(inMarks,endMarks);

r1.display();

}

}

/\* Sample Output:

Enter the student's roll number:

1

Enter the student's INSEM Marks out of 30:

20

Enter the student's ENDSEM Marks out of 70:

55

Roll No is: 1

Marks obtained:

Part 1 INSEM marks = 20

Part 2 ENDSEM marks = 55

Sports weight = 5

Total score = 80

\*/

/\*Lab Experiment: 8 \*/

/\*Title:Write a program to create multiple threads and demonstrate

how two threads communicate with each other. \*/

// Create a second thread by extending Thread class

class NewThread extends Thread

{

NewThread()

{

// Create a new, second thread

super("Demo Thread");

System.out.println("Child thread: " + this);

start(); // Start the thread

}

// This is the entry point for the second thread.

public void run()

{

try

{

for(int i = 2; i > 0; i--)

{

System.out.println("Child Thread: " + i);

Thread.sleep(500);

}

} catch (InterruptedException e)

{

System.out.println("Child interrupted.");

}

System.out.println("Exiting child thread.");

}

}

public class ExtendThread

{

public static void main(String args[])

{

System.out.println("Enter your name:");

System.out.println("Enter your roll no:");

new NewThread(); // create a new thread

try

{

for(int i =2; i > 0; i--)

{

System.out.println("Main Thread: " + i);

Thread.sleep(1000);

}

} catch (InterruptedException e) {

System.out.println("Main thread interrupted.");

}

System.out.println("Main thread exiting.");

}

}

/\*Sample Output:

Child thread: Thread[Demo Thread,5,main]

Main Thread: 2

Child Thread: 2

Child Thread: 1

Main Thread: 1

Exiting child thread.

Main thread exiting.

\*/

/\*Lab Experiment: 9 \*/

/\*Title:Write a java program which use try and catch for exception handling. \*/

// save by TryCatch.java

public class TryCatch

{

public static void main ( String[] args)

{

System.out.println("Enter your name:");

System.out.println("Enter your roll no:");

System.out.println("Try catch example");

int a=20;

double div;

System.out.println("if any ambiguity then keep it in try block");

try

{

div=a/0; //as ambiguity placed in try block

System.out.println("Division is:"+div);

}

catch(ArithmeticException e)

{

System.out.println("Divide by zero error");

}

System.out.println("After catch message next program run as it is");

}

}

/\* Sample Output:

Try catch example

if any ambiguity then keep it in try block

Divide by zero error

After catch message next program run as it is

\*/

/\*Lab Experiment: 10 \*/

/\*Title:Write a Java program to draw oval, rectangle, line , text using graphics class \*/

//Run program in Eclipse software only as it will not run in online editor

//Save program by Displaygraphics.java

import java.awt.\*;

import javax.swing.JPanel;

import javax.swing.JFrame;

public class Displaygraphics extends JPanel

{

public void paint(Graphics g)

{

g.drawOval(150,170,50, 60);

g.drawRect(130,100,70,10);

g.drawLine(10, 10, 40, 40);

g.drawString("Welcome to Java Programming",80,80);

}

public static void main(String[] args)

{

Displaygraphics y=new Displaygraphics();

JFrame obj=new JFrame();

obj.add(y);

obj.setSize(300,300);

obj.setVisible(true);

}

}

/\*Lab Experiment: 11 \*/

/\* Title: Write a java program in which data is read from one file

and should be written in another file line by line. \*/

/\*Create file readfile.txt in any folder containing some text and provide

path of folder to FileReader\*/

/\*Create blank file writefile.txt in any folder and provide

path of folder to Filewriter\*/

/\*After running program, content of readfile will be copied to writefile\*/

import java.io.BufferedReader;

import java.io.BufferedWriter;

import java.io.FileReader;

import java.io.FileWriter;

public class Filehandling

{

public static void main(String[] argv) throws Exception

{

System.out.println("Enter your name:");

System.out.println("Enter your roll no:");

BufferedReader br = new BufferedReader(new FileReader("C:\\Users\\pathfinder2\\Desktop\\FJP\\readfile.txt"));

BufferedWriter bw = new BufferedWriter(new FileWriter("C:\\Users\\pathfinder2\\Desktop\\FJP\\writefile.txt"));

int i;

do {

i = br.read();

if (i != -1)

bw.write((char) i);

} while (i != -1);

br.close();

bw.close();

}

}