1a) Java Program to find factorial of number

```
import java.util.*;
class Fact
{
public static void main(String[] args)
{
int fact=1;
Scanner sc= new Scanner (System.in);
System.out.print ("Enter the number: ");
int n=sc.nextInt();
for(int i=1;i<=n;i++)
{
fact=fact*i;
}
System.out.print ("Factorial: "+fact);
}
}
```

1b)Java Program to display first 50 prime numbers

```
public class Prime {
public static void main(String[] args) {
int num = 50, count;
for (int i = 1; i <= num; i++) {
count = 0;
for (int j = 2; j <= i / 2; j++) {
if (i % j == 0) {
count++;
break;
}
}
if (count == 0) {
System.out.println (i);
}
}
}
}
```

1c)Java Program to find sum and average of N numbers

```
public class SumAvg {
public static void main(String[] args) {
int arr[] = {5,6,48,6,78,20,65};
int len = arr.length;
double avg =0;
double sum = 0;
for (int i=0;i<len;i++){
sum += arr[i];
}
avg = sum/len;
System.out.println ("Sum of "+len+" number in "+sum);
System.out.println ("Average is "+avg);
}
}
```

2 Write a program in Java to implement a Calculator with simple arithmetic operations

Java Program:

```
import java.util. Scanner;
```

```
class SimpleCalculator {
public static void main(String[] args) {
char operator;
Double number1, number2, result;
// create an object of Scanner class
Scanner input = new Scanner(System.in);
// ask users to enter operator
System.out.println ("Choose an operator: +, -, *, or /");
operator = input.next().charAt(0);
// ask users to enter numbers
System.out.println ("Enter first number");
number1 = input.nextDouble ();
System.out.println ("Enter second number");
number2 = input.nextDouble ();
switch (operator) {
// performs addition between numbers
case '+':
result = number1 + number2;
System.out.println (number1 + " + " + number2 + " = " + result);
break;
// performs subtraction between numbers
case '-':
result = number1 - number2;
System.out.println (number1 + " - " + number2 + " = " + result);
break;
// performs multiplication between numbers
case '*':
result = number1 * number2;
System.out.println (number1 + " * " + number2 + " = " + result);
break;
// performs division between numbers
case '/':
result = number1 / number2;
System.out.println (number1 + " / " + number2 + " = " + result);
break;
default:
System.out.println ("Invalid operator!");
break;
}
input.close();
}
}
```

3 Write a program in Java with class Rectangle with the data field's width, length, area and colour the length, width and area are of double type and colour 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 colour. If the area and colour both are the same for the
objects then display "Matching Rectangles", otherwise display "Non-matching Rectangle"

Java Program:

```
import java.util.*;
class Rectangle
{
```

```
 double length;
 double width;
 String color;
 double area;
 void get_length(double x)
 {
 length=x;
 }
 void get_width(double y)
 {
 width=y;
 }
 void get_color(String s)
 {
 String color=s;
 }
 double rect_area()
 {
 area= length*width;
 return area;
 }
}
class Rect
{
 public static void main(String[] args) {
 Scanner sc= new Scanner(System.in);
 Rectangle r1= new Rectangle();
 Rectangle r2= new Rectangle();
 System.out.print("Enter the length of the rectangle1: ");
 double x1=sc.nextDouble();
 System.out.print("Enter the length of the rectangle2: ");
 double x2=sc.nextDouble();
 System.out.print("Enter the width of the rectangle1: ");
 double y1=sc.nextDouble();
 System.out.print("Enter the width of the rectangle2: ");
 double y2=sc.nextDouble();
 System.out.println("Enter the color of the rectangle1: ");
 String s1=sc.next();
 System.out.println("Enter the color of the rectangle2: ");
 String s2=sc.next();
 r1.get_length(x1);
 r2.get_length(x2);
 r1.get_width(y1);
 r2.get_width(y2);
 r1.get_color(s1);
 r2.get_color(s2);
 double rect1=r1.rect_area();
 System.out.println("Area of Rectangle1: "+rect1);
 double rect2=r2.rect_area();
 System.out.println("Area of Rectangle2: "+rect2);
 if(rect1==rect2 && s2.equals(s1))
 {
 System.out.println ("Matching Rectangles");
 }
 else
 {
 System.out.println ("Non-Matching Rectangles");
```

```
 }
 }
}
```

4 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

```
public class SortAsc {
public static void main(String[] args) {
//Initialize array
int [] arr = new int [] {5, 2, 8, 7, 1};
int temp = 0;
//Displaying elements of original array
System.out.println("Elements of original array: ");
for (int i = 0; i < arr.length; i++) {
System.out.print(arr[i] + " ");
}
//Sort the array in ascending order
for (int i = 0; i < arr.length; i++) {
for (int j = i+1; j < arr.length; j++) {
if(arr[i] > arr[j]) {
temp = arr[i];
arr[i] = arr[j];
arr[j] = temp;
}

}
}
System.out.println();
//Displaying elements of array after sorting
System.out.println("Elements of array sorted in ascending order: ");
for (int i = 0; i < arr.length; i++) {
System.out.print(arr[i] + " ");
}
}
}
// Java Program to Sort Names in an Alphabetical Order
import java.io.*;
import java.util.*;
class NameSort {
public static void main(String[] args)
{
// storing input in variable
int n = 4;
// create string array called names
String names[]
= { "Rahul", "Ajay", "Gourav", "Riya" };
// inbuilt sort function
Arrays.sort(names);
// print output array
System.out.println(
"The names in alphabetical order are: ");
for (int i = 0; i < n; i++) {
System.out.println(names[i]);
}
}
```

```
}
```

5 Write a Program in Java to add two matrices.

```
public class AddMatrices {
 public static void main(String[] args) {
 int rows = 2, columns = 3;
 int[ ][ ] firstMatrix = { {2, 3, 4}, {5, 2, 3} };
 int[ ][ ] secondMatrix = { {-4, 5, 3}, {5, 6, 3} };
 // Adding Two matrices
 int[][] sum = new int[rows][columns];
 for(int i = 0; i < rows; i++) {
 for (int j = 0; j < columns; j++) {
 sum[i][j] = firstMatrix[i][j] + secondMatrix[i][j];
 }
 }
 // Displaying the result
 System.out.println("Sum of two matrices is: ");
 for(int[] row : sum) {
 for (int column : row) {
 System.out.print(column + " ");
 }
 System.out.println();
 }
 }
}
```

6 Write a program in Java to create a player class. Inherit the classes Cricket_player, Football_player and Hockey_player from player class

```
class Player
{
public void Display()
{
System.out.println ("This is Player class");
}
}
class Cricket_Player extends Player
{
public void Display()
{
System.out.println ("My favorite Cricket Player is Sachin Tendulkar");
}
}
class Football_Player extends Player
{
public void Display ()
{
System.out.println ("My favorite Football Player is Ronaldo,
Cristiano");
}
}
class Hockey_Player extends Player
{
public void Display()
{
System.out.println("My favorite Hockey Player is Dhyan Chand");
```

```
}
}
class Main
{
public static void main(String[] args) {
Cricket_Player d1= new Cricket_Player();
d1.Display();
Football_Player d2= new Football_Player();
d2.Display();
Hockey_Player d3= new Hockey_Player();
d3.Display();
}
}
```

7 Write a Java program which imports user defined package and uses members of the classes contained in the package.

```
package MyPackage;
public class Compare {
 int num1, num2;
 Compare(int n, int m) {
 num1 = n;
 num2 = m;
}
public void getmax () {
 if (num1 > num2 ) {
 System.out.println("Maximum value of two numbers is " + num1);
 }
 else {
 System.out.println("Maximum value of two numbers is " + num2);
 }
}
public static void main(String args[]) {
 Compare current[] = new Compare[3];
 current[1] = new Compare(5, 10);
 current[2] = new Compare(123, 120);
 for(int i=1; i < 3 ; i++)
 {
 current[i].getmax();
 }
 }
}
```

Creating a class inside package while importing another package

```
package Edureka;
import MyPackage.Compare;
public class Demo {
 public static void main (String args[]) {
 int n=10, m=10;
 Compare current = new Compare (n, m);
 if (n != m) {
 current.getmax();
 }
 else {
```

```
  System.out.println ("Both the values are same");
  }
}
}
```

8 Write a java program which use try and catch for exception handling.

```
public class SampleMultipleCatchBlock{
public static void main(String args[]){
  try{
  int a[]=new int[5];
  a[5]=30/0;
  }
  catch(ArithmeticException e)
  {System.out.println("task1 is completed");}
  catch(ArrayIndexOutOfBoundsException e)
  {System.out.println("task 2 completed");}
  catch(Exception e)
  {System.out.println("task 3 completed");}
  System.out.println("remaining code");
  }
}
```

9 Write a Java program to draw oval, rectangle, line, text using graphics class.

```
import java.applet.*;
import java.awt.*;
public class GApplet extends Applet
{
public void paint(Graphics g)
{
g.drawLine(20, 20, 500, 20);
g.drawRect(20, 40, 200, 40);
g.fillRect(300, 40, 200, 40);
g.drawRoundRect(20, 100, 200, 40, 10, 10);
g.fillRoundRect(300, 100, 200, 40, 10, 10);
g.setColor(Color.RED);
g.drawOval(20, 160, 200, 100);
g.fillOval(300, 160, 200, 100);
}
```

10 Write a java program in which data is read from one file and should be written in another file line by line.

```
import java.io.*;
class file1 {
```

```
public static void main(String arg[]) {
  File inf = new File("in.txt");
  File outf = new File("out.txt");
FileReader ins = null;
  FileWriter outs = null;
try {
ins = new FileReader(inf);
  outs = new FileWriter(outf);
  int ch;
  while ((ch = ins.read()) != -1) {
  outs.write(ch);
  }
  } catch (IOException e) {
  System.out.println(e);
  System.exit(-1);
  } finally {
  try {
  ins.close();
  outs.close();
  } catch (IOException e) {}
  }
}
}
```