S.Y.B.C.A. Java Programming Practical Assignments

// 1.Program to print Fibonacci series

```
class Fib{
public static void main(String args[])
{
 int n1=0,n2=1,n3,i,count=10;
 System.out.print(n1+" "+n2);          //printing 0 and 1
 for(i=2;i<count;i++)        //loop starts from 2 because 0 and 1 are already printed
 {
  n3=n1+n2;
  System.out.print(" "+n3);
  n1=n2;
  n2=n3;
 }
  }
}
```

o/p 0 1 1 2 3 5 8 13 21 34

// 2. program to print factorial of number

```
import java.util.*;
 class Fact
{
   public static void main(String []args)
   {
     Scanner sc=new Scanner(System.in);
     System.out.println("Enter the number: ");
     int num=sc.nextInt();
     int i=1,fact=1;
     while(i<=num)
     {
        fact=fact*i;
        i++;
     }
     System.out.println("Factorial of the number: "+fact);
   }
}
```
o/p
Enter the number:5
Factorial of the number: 120
Press any key to continue . . .

//3.Program to print Addition of 2 numbers using command line argument

```java
import java.util.Scanner;
public class Add
{
    public static void main(String[] args){

        int num1, num2, sum;
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter First Number: ");
        num1 = sc.nextInt();

        System.out.println("Enter Second Number: ");
        num2 = sc.nextInt();

        sc.close();
        sum = num1 + num2;
        System.out.println("Sum of these numbers: "+sum);
    }
}
```
Output:
Enter First Number:
20
Enter Second Number:
30
Sum of these numbers: 50
Press any key to continue . . .

//4. program to print student info using array

```java
class array
{
    public static void main(String arg[])
    {
        String names[] = { "Rajesh", "Suresh", "Ramesh", "Kamlesh", "Vignesh" };
        int marks[] = { 45, 78, 83, 77, 93 };
        char sections[] = { 'A', 'B', 'A', 'A', 'B' };
        for(int i = 0; i < names.length; i++)
        {
            System.out.println( names[i] + " in section " + sections[i] + " got " + marks[i] + " marks." );
        }
    }
}
```
o/p Rajesh in section A got 45 marks.
Suresh in section B got 78 marks.
Ramesh in section A got 83 marks.
Kamlesh in section A got 77 marks.
Vignesh in section B got 93 marks.

// 5. Program of package

```
package mypack;
public class Simple1{
 public static void main(String args[]){
 int a=20,b=30;
   System.out.println("Welcome to package");
   System.out.println("addition = "+c);
   }
   }
```

// 6.1 program of default constructor

```
class NoteBook
{
    NoteBook()
  {
    System.out.println("Default constructor");
  }
  public void mymethod()
  {
    System.out.println("Void method of the class");
  }
  public static void main(String args[]){

        NoteBook obj = new NoteBook();
        obj.mymethod();
  }
}
```

o/p
Default constructor
Void method of the class

// 6.2 program of parametrised constructor

```java
class Student {
String name;
int rollNumber;
double marks;
Student(String name, int rollNumber, double marks)
{
this.name = name;
this.rollNumber = rollNumber;
this.marks = marks;
}
public void displayDetails()
{
System.out.println("Name: " + name);
System.out.println("Roll Number: " + rollNumber);
System.out.println("Marks: " + marks);
}
}
 class Main1
{
public static void main(String[] args)
{
Student student = new Student("John", 101, 95.5);
student.displayDetails();
}
}
```

o/p
Name: John
Roll Number: 101
Marks: 95.5

// 7 program in Java to demonstrate various operations on string functions
// 7.1 program of string functions length() & concat()

```java
class main
{
 public static void main(String[] args)
 {

 String greet = "Hello! World";
 System.out.println("String: " + greet);

 int length = greet.length();
 System.out.println(" Length of string ");
 System.out.println("Length: " + length);
 System.out.println();

 String first = "Java ";
 String second = "Programming";
```

```
System.out.println(" Concatenation of string ");
System.out.println("First String="+first+"Second String="+second);
String joinedString = first.concat(second);
System.out.println("Concatenated  String: " + joinedString);


 }
}
```

String: Hello! World
 Length of string
Length: 12

 Concatenation of string
First String=Java Second String=Programming
Concatenated String: Java Programming
Press any key to continue . . .

//7.2 Program to check strings are equals are not using equals()& equalsIgnoreCase()
```
class stprg
{
 public static void main(String[] args)
 {
 String first = "java programming";
 String second = "java programming";
 String third = "python programming";
 System.out.println("first string="+first+"  "+"Second String="+second);
 // compare first and second strings
 boolean result1 = first.equals(second);
 System.out.println("Strings first and second are equal:= " + result1);
 System.out.println("first string="+first+"  "+"Third String="+third);
 // compare first and third strings
 boolean result2 = first.equals(third);
 System.out.println("Strings first and third are equal: =" + result2);

System.out.println();
 String str1 = "Computer";
 String str2 = "Computer";
 String str3 = "COMPUTER";
 System.out.println("String1= "+str1+"  "+"string2="+str2);
 System.out.println ("string1 and string2 are equal"+"  "+str1.equalsIgnoreCase(str2));
 System.out.println("String1= "+str1+"  "+"string3="+str3);
System.out.println ("string1 and string3 are equal"+"  " +str1.equalsIgnoreCase (str3));
 }
}
```
first string=java programming
 Second String=java programming

Strings first and second are equal:= true
first string=java programming Third String=python programming
Strings first and third are equal: =false

String1= Computer string2=Computer
string1 and string2 are equal true
String1= Computer string3=COMPUTER
string1 and string3 are equal true

//7.3 Program of Character Extraction function charAt()

```
public class ch {
  public static void main(String[] args) {
    String myStr = "Computer Department";
    char result = myStr.charAt(5);
    System.out.println("Character at position 5 is "+result);
  }
}
```
Character at position 5 is t
Press any key to continue . . .

// 7.4 Program to compare two strings
```
public class strcmp {
 public static void main(String[] args) {
 String myStr1 = "Hello";
 String myStr2 = "Hello";
 int r= (myStr1.compareTo(myStr2));
 // Returns 0 because they are equal
 if(r==0)
 {
        System.out.println("Strings are equal");
 }
 else
 {
        System.out.println("Strings are not equal");
 }
 }
}
```
o/p
Strings are equal
Press any key to continue . . .

//8. a program in Java to demonstrate wrapper classes

// 8.1 Convert Primitive Type to Wrapper Objects

```
class wr{
 public static void main(String[] args) {
// create primitive types
 int a = 5;
 double b = 5.65;
 //converts into wrapper objects
 Integer aObj = Integer.valueOf(a);
 Double bObj = Double.valueOf(b);
 if(aObj instanceof Integer) {
 System.out.println("An object of Integer is created.");
 }
 if(bObj instanceof Double) {
 System.out.println ("An object of Double is created.");
 }
 }
}
```

o/p An object of Integer is created.

An object of Double is created.

Press any key to continue . . .

//8.2Converting Wrapper Objects into Primitive Types

```
class wr1{
 public static void main(String[] args)
 {
// creates objects of wrapper class
 Integer aObj = Integer.valueOf(23);
 Double bObj = Double.valueOf(5.55);
 // converts into primitive types
 int a = aObj.intValue();
 double b = bObj.doubleValue();
 System.out.println("The value of a: " + a);
 System.out.println("The value of b: " + b);
 }
}
```

The value of a: 23

The value of b: 5.55

Press any key to continue . . .

//9. program in Java to implement inheritance
// 9.1program of Single Inheritance

```java
import java.io.*;
import java.lang.*;
import java.util.*;

class Shape
{
  public void display() {
    System.out.println("Inside display");
  }
}
class Rectangle extends Shape {
  public void area() {
    System.out.println("Inside area");
  }
}
public class Tester {
  public static void main(String[] arguments) {
    Rectangle rect = new Rectangle();
    rect.display();
    rect.area();
  }
}
```

o/p Inside display
Inside area

//9.2Multilevel Inheritance in Java
```java
import java.io.*;
import java.lang.*;
import java.util.*;

class A {
  public void printa()
  {
    System.out.println("A is grand parent class");
  }
}
class B extends A {
  public void printb()
  {
    System.out.println("B is parent class");
      }
}
class C extends B {
```

```java
      public void printc()
      {
        System.out.println("C is child class");
      }
}

public class Main
{
    public static void main(String[] args)
    {
      C g = new C();
       g.printa();
       g.printb();
       g.printc();
    }
}
```
o/p A is grand parent class
B is parent class
C is child class
Press any key to continue . . .

// 9.3program of Hierarchical inheritance
```java
class A {
    public void printA() { System.out.println("Class A"); }
}

class B extends A {
    public void printB() { System.out.println("Class B"); }
}

class C extends A {
    public void printC() { System.out.println("Class C"); }
}

class D extends A {
    public void printD() { System.out.println("Class D"); }
}

// Driver Class
public class test {
    public static void main(String[] args)
    {
      B objB = new B();
      objB.printA();
      objB.printB();

      C objC = new C();
      objC.printA();
      objC.printC();
```

```
        D objD = new D();
        objD.printA();
        objD.printD();
    }}
```

o/p
Class A
Class B
Class A
Class C
Class A
Class D
Press any key to continue . . .

//9.4 program of multiple inheritance
```
import java.lang.*;
import java.io.*;
interface Exam
{
        void percent_cal();
}
class Student
{
        String name;
        int roll_no,mark1,mark2;
        Student(String n, int r, int m1, int m2)
        {
                name=n;
                roll_no=r;
                mark1=m1;
                mark2=m2;
        }
        void display()
        {
                System.out.println ("Name of Student: "+name);
                System.out.println ("Roll No. of Student: "+roll_no);
                System.out.println ("Marks of Subject 1: "+mark1);
                System.out.println ("Marks of Subject 2: "+mark2);
        }
}
class Result extends Student implements Exam
{
        Result(String n, int r, int m1, int m2)
        {
                super(n,r,m1,m2);
        }
        public void percent_cal()
        {
                int total=(mark1+mark2);
                float percent=total*100/200;
```

```
                System.out.println ("Percentage: "+percent+"%");
        }
        void display()
        {
                super.display();
        }
}
class Multiple
{
        public static void main(String args[])
        {
                Result R = new Result("anil",12,93,84);
                R.display();
                R.percent_cal();
        }
}
```

o/p
Name of Student: anil
Roll No. of Student: 12
Marks of Subject 1: 93
Marks of Subject 2: 84
Percentage: 88.0%
Press any key to continue . . .

//9.5 program of hybrid inheritance

```
import java.lang.*;
import java.io.*;
class GrandFather
{
public void showG()
{
System.out.println("He is grandfather.");
}
}
//inherits GrandFather properties
class Father extends GrandFather
{
public void showF()
{
System.out.println("He is father.");
}
}
//inherits Father properties
class Son extends Father
{
public void showS()
{
System.out.println("He is son.");
}
}
//inherits Father properties
public class Daughter extends Father
```

```
{
public void showD()
{
System.out.println("She is daughter.");
}
public static void main(String args[])
{
Son obj = new Son();
obj.showS();  // Accessing Son class method
obj.showF();  // Accessing Father class method
obj.showG();  // Accessing GrandFather class method
Daughter obj2 = new Daughter();
obj2.showD();  // Accessing Daughter class method
obj2.showF();    // Accessing Father class method
obj2.showG();   // Accessing GrandFather class method
}
}
```

o/p He is son.
He is father.
He is grandfather.
She is daughter.
He is father.
He is grandfather.
Press any key to continue . . .

10. Write a program in Java to demonstrate exception handling.

```
class main {
  public static void main(String[] args) {
    try {
      // code that generates exception
      int divideByZero = 5 / 0;
    }
    catch (ArithmeticException e) {
      System.out.println("ArithmeticException => " + e.getMessage());
    }
    Finally{  System.out.println("This is the finally block");

  } } }
```

o/p ArithmeticException => / by zero

This is the finally block

//12. program in java to demonstrate different events

//12.1 Key event

```java
import java.awt.*;
import java.awt.event.*;
public class Key extends Frame implements KeyListener {
 Label l;
   TextArea area;

   Key() {
       // creating the label
     l = new Label();

     l.setBounds (20, 50, 100, 20);

     area = new TextArea();

     area.setBounds (20, 80, 300, 300);

     area.addKeyListener(this);

     add(l);
add(area);
     setSize (400, 400);
     setLayout (null);
     setVisible (true);
   }
   public void keyPressed (KeyEvent e) {
     l.setText ("Key Pressed");
   }
   public void keyReleased (KeyEvent e) {
     l.setText ("Key Released");
   }
   public void keyTyped (KeyEvent e) {
     l.setText ("Key Typed");
   }
   public static void main(String[] args) {
     new Key();
   }
}
```
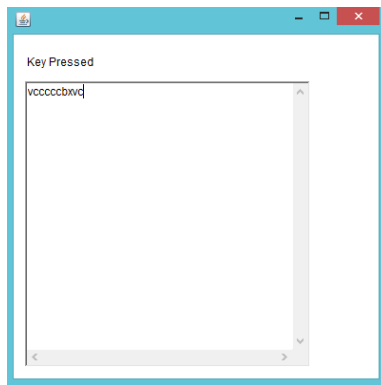
//12.2 mouse event

```java
import java.awt.*;
import java.awt.event.*;
public class Mouse extends Frame implements MouseListener{
   Label l;
   Mouse(){
      addMouseListener(this);

      l=new Label();
      l.setBounds(20,50,100,20);
      add(l);
      setSize(300,300);
      setLayout(null);
      setVisible(true);
   }
   public void mouseClicked(MouseEvent e) {
      l.setText("Mouse Clicked");
   }
   public void mouseEntered(MouseEvent e) {
      l.setText("Mouse Entered");
   }
   public void mouseExited(MouseEvent e) {
      l.setText("Mouse Exited");
   }
   public void mousePressed(MouseEvent e) {
      l.setText("Mouse Pressed");
   }
   public void mouseReleased(MouseEvent e) {
      l.setText("Mouse Released");
   }
public static void main(String[] args) {
   new Mouse();
}
}
```

```
        }
```

Mouse Entered