B.M.S. College of Engineering

(Autonomous College Affiliated to Visvesvaraya Technological University, Belgaum)
Bull Temple Road, Basavanagudi, Bengaluru – 560019

Department of
Computer Science & Engineering (CSE)

Lab Programs Observation Course Title: Object Oriented Java Programming

Course Code: 23CS3PCOOJ

BY

Tamanna Rukhaya(1BM22CS301)

B.M.S. College of Engineering

(Autonomous College Affiliated to Visvesvaraya Technological University, Belgaum)
Bull Temple Road, Basavanagudi, Bengaluru – 560019

Department of
Computer Science & Engineering (CSE)

CERTIFICATE

This is to certify that the report on **"Java Lab Programs"** has been carried out by **Tamanna Rukhaya** bearing USN **1BM22CS301** as a part of AAT for the course **Object Oriented Java Programming** with course code **23CS3PCOOJ**, Computer Science and Engineering from Visvesvaraya Technological University, Belgaum during the year 2023–24. It is certified that all corrections/suggestions indicated for Internal Assessments have been incorporated in the report.

Tamanna Rukhaya

1BM22CS301

Shravya AR

Assistant Professor

Department of CSE

BMSCE, Bengaluru-19

INDEX

OOJP LAB

Name Tamanna Rukhaya Std Sec

Roll No. Subject School/College

School/College Tel. No. Parents Tel. No.

Sl. No.	Date	Title	Page No.	Teacher Sign / Remarks
1	8/12/23	LAB-1	1	
2	22/12/23	LAB-2	2	
3	12/1/24	LAB-3	3	
4	19/1/24	LAB-4	4	
5	16/2/24	LAB-5	5	26/2/24.

LAB-1

Date __/__/__
Page _____

Addition

i/p

```
Class subhaya
{
Public static void main (String a[])
{
int c=2, b=3;
int Sum;
Sum = c+b;
System.out.print(Sum);
}
}
```

o/p 5

Subtraction

i/p

```
Class subhaya
{
Public static void main (String a[])
{
int c=5, b=2;
int Sub;
Sub = c-b;
System.Out.Print(Sub);
}
}
```

o/p 3

Multiplication

i/p

```
Class subhaya
{
Public static void main (String a[])
{
int c=5 , b=2;
int mul;
mul = c*b;
```

```
System.out.print(mul);
}
}
```

O/P 10

Division

```
i/p  class subhaya
{
Public static void main(String a[])
{
int c=20, b=2;
int div;
div = c/b;
System.out.print(div);
}
}
```

O/P 10

Printing HELLO

```
i/p  class subhaya
{
Public static void main(string a[])
{
System.out.print("HELLO");
}
}
```

O/P HELLO

Fibonacci Series

Date __/__/__
Page _____

```
i/p  class subhaya
     {
     public static void main (String a[])
     {
       int x=0, y=1;
       int nent = x+y;
     System.out.print (x+" "+y);
     for (int i=1;i<=10; i++)
       {
           x=y;
           y=nent;
           nent = x+y;
       System.out.print (nent);
       }
     }
     }
```

o/p 0 1 2 3 5 8 13 21 34 55 89 144

8/12/23

LAB-2

Date / /
Page

i/p →
```
class Overload{
void print(int n){
int Sum=0;
for(int i=1; i<=n; i++){
Sum=Sum+i;
}
System.out.print("Sum of "+n+" natural
number is "+Sum);
For(int i=n; i<=n; i++){
int flag=0;
For(int j=2; j<=i/2; j++){
If(i%j==0){
flag=1;
break;
}
}
If(flag==0)
System.out.print(i);
}
}
}
class OverloadDemo{
Public static void main(String[] args){
Overload O=new Overload();
O.print(5);
O.print(7,13);
}
}
```

o/p →
```
Sum of 5 natural number is 15
Prime numbers in the range are
7
11
13
```

i/p →

```
Class Grocery {
String C_name;
String C_Ph;
double total;
Grocery (String C_name, String C_Ph){
this.C_name = C_name;
this.C_ph = C_Ph;
}
void Calc(double q_dal, double q_pulses,
    double q_sugar)
{
total = q_dal * 100 + q_pulses * 80 +
        q_sugar * 50;
}
void display()
{
System.out.println("Name "+" "+"Phone
number "+" "+"Total");
System.out.println(C_name + " " +C_ph+
    " " +total);
System.out.println();
}
}
Class GDemo{
Public Static Void main(String[] args){

Grocery g1 = new Grocery ("Rana", "7982566702");
Grocery g2 = new Grocery ("Tanvi", "9958087046");
Grocery g3 = new Grocery ("Tanmaya", "7042771602");
g1.display();
g1.Calc(2,2,1);
g1.display();
```

```
q2.calc(3,5,2);
q2.display();
q3.calc(1,1,0.5);
q3.display();
}
}
```

O/P →

Name	Phone number	Total
Rama	7982566702	410.0
Tanvi	9958087046	800.0
Tamanna	7042771602	205.0

i/p →

```
import java.util.Scanner;
class quad {
int a,b,c;
```

i/p →

```
import java.util.Scanner;
class Quadratic {
    int a,b,c;
    double root1, root2, d;
    Scanner S = new Scanner(System.in);

    void input()
    {
System.out.println("Quadratic Eqn");
System.out.print("Enter a");
        a = S.nextInt();
System.out.print("Enter b");
        b = S.nextInt();
System.out.print("Enter c");
        c = S.nextInt();
}
```

```
void discriminant()
{
    d=(b*b)-(4*a*c);
void calculate roots()
{
if (d>0)
  {
System.out.print ("Roots are real
and unequal");

root1 = (-b + Math.sqrt(d))/(2*a);
root2 = (-b - Math.sqrt(d))/(2*a);
System.out.print("First root is"+root1);
System.out.print("Second root is"+root2);
}
else if (d==0)
{
System.out.print
("Root are equal and equal");
  root1 = (-b + Math.sqrt(d))/(2*a);
  System.out.print("Root"+root1);
}
else
System.out.print("No real solution
root are imaginary");
double real = -b/(2*a);
double imaginary = Math.sqrt(-d)/(2*a);
System.out.print("The eqn has two
Complete roots"+real+"+"+
imaginary+"i and"+real+"-"+
imaginary+"i");}
}
}
```

Date __/__/__
Page

```
class main{
Public static void main (String args[])
  {
Quadratic q = new quadratic();
    q.input();
    q.discriminant();
    q.calculateroots();
  }
}
```

26/2/24

LAB-3 Object Oreinted Java Programming

```
import java.util.Scanner;
class books
{
String name;
String author;
int price;
int numpages;

Books()
{ }

Books(String Name, String author, int price, int numpages)
{
  this.name = name;
  this.author = author;
  this.price = Price;
  this.numpages = numpages;
}

Public String to String()
{
String name, author, price, numpages;
name = "Bookname" + this.name + "\n";
author = "Authorname" + this.author + "\n";
Price = "Price" + this.price + "\n";
numpages = "number of Pages" + this.numpages + "\n";
```

```
return name+ author + price + numpages; }
}

Class main
{
PSVm (String args[])
{
Scanner S= new Scanner(System.in);
int n;
Steing name;
Steing author;
int price;
int numpages;
System.out.println("Enter the number of books:");
 n = s.nextInt();
Books b[];
b = new book[n];
for (int i=0; i<n; i++)
{
System.out.println("Book" + (i+1) + ":");
S.O.P ("Enter the name of book:");
name = S.next();
S.O.P ("Enter author:");
author = S.next();
S.O.P("Enter price:");
price = S.nextInt();
```

```
S.O.P ("Enter no. of Pages:");
numpages = S.nextint();
b[i] = new book (name, author, price, numpages);
}
For(int i=0; i<n; i++)
S.O.P ("Book =" + (i+1) + ":\n" + b[i]);
}
}
```

Output

```
enter number of Books:2
Book 1: enter the name of Book: DS
enter author: KAMAL
enter price: 360
enter no. of Pages: 900
Book 2: enter the name of Book: Java
enter author: Sachin
enter price: 780
enter no. of Pages: 390

Book 1:
book name: DS
author name: KAMAL
Price: 360
number of Pages: 900
Book 2:
book name: Java
author name: Sachin
Price: 780
number of Pages: 390
```

```
import java.util.Scanner;
Class student {
String USN, name;
double [] marks= new double [6];
Void details()
{
Scanner S = new Scanner (System.in);
System.out.print ("Enter the USN:");
USN=S.next();
System.out.print ("Enter the name:");
name = S.next();
System.out.print ("Enter the marks for 6 subjects:");
for (int i=0; i<6; i++) {
System.out.print ("Subject" +(i+1)+":");
marks [i] = S.next double();
}
double per()
{
double total marks =0;
for(int i=0; i < marks.length; i++){
```

```
marks = total mark + mark[i];

turn [total mark/6];

oid display(){
S.O.P ("USN:" + USN);
S.O.P ("Name:" +Name);
S.O.P ("Percentage:" + Perc() + "%");
}
}

Class Main {
Public Static void main (String args[])
{
Scanner s = new Scanner (System.in);
S.O.P (" Enter the no. of Students );
int num = s.nextint ();
Student[] students = new student [num];
For (int i=0; i<num; i++){
S.O.P ("Enter details for Student" + (i+1)+":");
Students [i]= new Student();
Students [i]. details();
}
```

```
Enter the no. of students:
Enter the details for student 1
Enter the USN:1BM22CS301
Enter the marks for 6 subjects.
subject 1:78
subject 2:89
subject 3:67
subjed 4: 56
subject 5: 78
subject 6 : 4
Details of Students
USN: 1BM22CS301
Percentage: 69.833%
```

12/1/24

LAB-4

Date / /
Page

i/p

```
abstract Class Shape
{
    int length;
    int width;
  Shape (int length, int width)
    {
      this.length = length;
      this.width = width;
    }
abstract Void printarea();
}
Class rectangle intends Shape {
 Rectangle (int length, int width)
   {
     Super (length.width)
 }
 Void print area()
     {
     double area = length * width;
  S.O.P ("Area of rectangle" + area);
 }
}

Class Triangle Intends Shape
{
 Triangle (int length, int width)
   {
      Super(length.width);
 }
 Void Print area()
   {
   double area = 0.5* length* width;
    S.O.P ("Triangle area" + area);
}
```

```
Class Circle Extends Shape {
 Circle (int radius)
  {
  Super (radius, 0);
 }
 Void print area()
 {
 double area = 3.14 * length * length;
  S.O.P ("Circle area" + area);
 }
}

Class main {
Public Static Void main (String args[])
{
 Rectangle r = new rectangle (10,5);
  Triangle t = new Triangle (5,6);
   Circle c = new circle (3);

 Shape S;
  S = r;

    S.print area();
    S.Print area
  S = t;
    S. Print area();
  S = C;
    S. Print area();
 }
}
```

→ Rectangle area : 50.0
Triangle area : 15.0
circle area : 28.259999998

```
//p import java.util.Scanner;

Class Account
  {
  String customername;
  int account number;
  String account type;
  double balance;

Account (String customer name, int
account number, String account type,
double balance)
{
  this.customername = customername;
  this.account number = account number;
  this.account type = account type;
  this.balance = balance;
}

Public void deposit (double amount)
 {
  balance = balance + amount.
System.out.println (balance);
}

void display balance()
{
System.out.println ("current balance" +
                    balance);
}
}
```

Pending i/p on last page →

Date __/__/__
Page _____

```
Class Curract Extends Account
{
  double min Balance;
  double Service Charge;

curract (String Customername, int
accountnumber, double balance, double
min balance, double Service Charge)

{
Super (customername, accountnumber,
    balance);
  this.min balance = min balance;
  this Service Charge = Service Charge;
}

Void Check min balance ()
 {
  if (balance < min balance)
 { }
 balance = balance - Service Charge;
 S.O.P ("Service charge imposed" + balance);
 }
}
Void deposit (double amount)
 {
   super.deposit (amount)
    Check min balance ();
 }
Void withdraw (double amount)
  {
    balance = balance - amount
  S.O.P ("withdrawl succesful updated balance
                " + balance);
```

Date / /
Page

LAB-5

i/p

```
Package CIE
Public class Student{
Public String USN;
Public String name;
Public int sem;

Public Student (String USN, String name,
int sem)
 {
   this.USN = USN.
   this.Name = Name;
   this.Sem = Sem;
}
Public Class Internals
   {
Public int [] marks.
Public Internals (int[] marks)
   {
     this.marks = marks;
   }
}
Package SEE
import CIE.Student;
Public Class external Extends Student
  {

     Public int [] marks.
Public External (String USN, String name,
int sem, int [] marks)
{
 Super (USN, name, sem);
     this.marks marks;
}
```

Date / /
Page

```
import CIE. student;
import SEE student. External;
Public class main{
Public static void main (String args)
{
Student S1 = new Student ("1BM22CS301", "Tanvi");
int [] marks{ 86, 82, 85, 80, 81};

External S2 = new Student External
("1BM22CS302", "Tamanna", 3, marks);

S.O.P ("Student1");
S.O.P ("USN": +S1.USN);
S.O.P ("Name": +S1.Name);
S.O.P ("Sem": "+S1.sem);
S.O.P ("Student2");
S.O.P ("USN" + S2.USN);
S.O.P ("Name:" + S2.name);
S.O.P ("sem:" + S2.Sem);
}
```

i/p

```
Class Wrongage extends Exception
{
Public Wrongage (String str)
    {
      Super(Str);
    }
}
Class Father
{
  int fage;
Public father (int age) throws Wrongage
    {
  if (fage<0)
{     S.O.P("Invalid age i/p");}
```

```
    this.fage = fage;
  }
}

Pullei Son extends father
{
  int Son age;
Pullei Son (int Son Age, int fage)
throws wrong age
    {
      super(fage);
If (Son age > fage)
{
S.O.P ("Son's age can't be greater than
      father's age");
}

this. Son'age = Son age;
}
}

Pullei Class main {
Pullei Static void main (String args[])
  {
try {
    father f = new father (50);
    Son   S = new Son (70, 50);
  }
Catch (Wrong age e) {
  System.out.println (e);
}
}
}
```

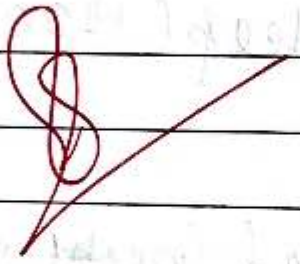
Date __/__/__
Page

i/p

```
Class One extends Thread
{
Public Void run()
{
for(int i =0; i<5; i++)
  {
S.O.P ("BMS College of Eng");
try
    {
      Thread.sleep(10000);
    }
Catch
     (Interrupted Exception e)
  {
    System.out.println(e);
  }
}
}
Class two extends Thread {
Public Void run()
{
for(int i=0; i <5; i++)
{
 S.O.P("CSE");
try
{
  Thread.sleep(2000);
}
(atch (InterruptedException e)
    {
      S.O.P(e) }
  }
}
}
```

Date __/__/__
Page

```
Class Main{
Public Static Void main (String args[])
  {
    One t1 = new One();
    Two t2 = new two();
     t1.Start();
     t2.Start();
  }
}
```



```
Check minbalance();
}
}
```

~~Class~~ Class Savacct extends Acount {
double interest rate;

Savacct(String customername, int account number, double balance, double interest rate)

{
Super (customer name, account number, Savings, balance);

this.interestrate = interest rate;
}

Void Compute and Depoit interest ()
{
double interest = balance * interst rate / 100.
balance = balance + interst;
S.O.P ("Interst deposited updated balance" + balance);

Void deposit (double amount)
{
Super.deposit (amount)
Compute and Deposit Interest();
}
Void withdraw (double amount)
{
balance = balance - amount;
S.O.P ("Updated balance" + balance)
}

Class BankDemo
{
psvm(String args[])
{
~~currentacc~~
CurAct currentAccount = newCurAcc
("John Doe", 12345, 10000, 500, 10);
~~current deposit~~
CurrentAccount.deposit(200);
currentAccount.displayBalance();
currentAccount.withdraw(300);
~~Sav Acc Sav~~
SavAct SavingAccount = newSavAcct
("John Doe", 78901, 1500, 5);
SavingsAccount.deposit(300);
SavingAccount.displayBalance();
SavingAccount.withdraw(100);
}
}

LAB-6

Date __/__/__
Page _____

```
import java.awt.*;
import java.awt.event.*;
public class Test extends windowAdapter
{
  frame f;
  Test()
{
f.newframe();
f.addwindowlistener(this);
label l = new label("employer id");
Button b = new button("Submit");
Textfield t = new textfield();
l.setbounds(20, 80, 80, 30);
t.setbounds(20, 100, 180, 130);
b.setbounds(100, 100, 80, 30);
f.add(b);
f.add(l);
f.add(t);
f.setsize(400, 360);
f.settitle("employee info");
f.setlayout(null);
f.setvisible(true);
}
public void windowclosing
(window event e)
{
System.exit(0);
}
public static void main(String args[])
{
Test aut_obj = new Test();
{
```

```
import java.awt.*;
import java.awt.event.*;
Public class Event handling
extends windowadapter
implements ActionListener
{
 frame f;
 Textfield tf;
 Event handling()
 {
  f.newframe();
  f.addwindowlistener(this);
 tf = new Textfield(20);
 tf.setbounds(60,50,170,20);
 Button b = new Button("click me");
  b.setbounds(100,120,80,30);
  b.addActionlistener(this);
  f.add(b);
  f.add(tf);
  f.setsize(300,300);
  f.setlayout(null);
  f.setVisible(true);
 }
Public void actionperformed(Action
event e)
{
 tf.setText("welcome");
}
Public void windowclosing
(window event e)
{
   System.exit(0);
}
Public static void main(String args[])
{
  new Eventhandling();
}
}
```

```
import java.io.*;
Public class Byte array input{
Public static void main (String [] args)

throw IOException
{
byte [] buf = {35,51,37,38};

byte array input stream byt = new Byte array
input stream (buf)
 int k=0;
 while ((k=byt.read())!=-1)
{
   char ch = (char)k;
   System.out.println("ASCII :" + k + "special
   character" +ch);
}
}
}
```

25/2/24