B.M.S COLLEGE OF ENGINEERING BENGALURU

Autonomous Institute, Affiliated to VTU

LAB REPORT

23CS3PCOOJ

OBJECT ORIENTED JAVA PROGRAMMING

Submitted in partial fulfillment of the requirements for the award of the degree of

Bachelor of Engineering in
Computer Science and Engineering

Submitted by:

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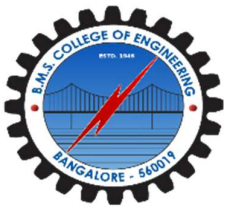
B.M.S COLLEGE OF ENGINEERING

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING



Certificate

This is to certify that **Tanish M V** has satisfactorily completed the course of experiments in the Object Oriented Java Programming course as prescribed by the department during the academic year 2023-24.

Name: Tanish M V

USN: 1BM22CS302

Semester: 3

Section: 3F

MAX MARKS	OBTAINED
10	

Signature of faculty

PROGRAM 1:

Write a program to overload the method print that prints sum of n natural numbers when one variable is passed, and prints the prime numbers in a given range when 2 parameters are passed.

```
class Overload {
   void print(int n) {
   int sum = 0;
   for(int i=1; i<=n;i++) {
      sum = sum+i;
      }
   System.out.println("Sum of "+n+" natural numbers is "+sum);
   }
   void print(int m, int n) {
      System.out.println("Prime numbers in the range are ");
      for(int i=m;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.println(i);
      }
   }
}
class OverloadDemo {
   public static void main(String[] args) {
      Overload o = new Overload();
      o.print(5);
      o.print(7,13);
   }
}
```

OUTPUT:

```
C:\Users\Tanish\Desktop\java>javac OverloadDemo.java

C:\Users\Tanish\Desktop\java>java OverloadDemo
Sum of 5 natural numbers is 15
Prime numbers in the range are
7
11
13
```

PROGRAM 2:

Write a Java program to create a class Grocery that has the variables c_name and c_phone. Create a method to accept 3 parameters to specify quantity of dal, quantity of pulses an quantity of sugar. The method to return the total price. Display the name, ph_no and total bill of 3 customers.

```
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 main {
   public static void main(String[] args) {
      Grocery g1 = new Grocery("Rama", "8060302010");
      Grocery g2 = new Grocery("Shama", "7689632510");
      Grocery g3 = new Grocery("Bhama", "9632587412");
```

```
    g1.calc(2, 2, 1);
    g1.display();

    g2.calc(3, 5, 2);
    g2.display();

    g3.calc(1, 1, 0.5);
    g3.display();
  }
}
```

OUTPUT:

```
C:\Users\Tanish\Desktop\java>javac main.java

C:\Users\Tanish\Desktop\java>java main
Name  Phone number  Total
Rama 8060302010     410.0

Name  Phone number  Total
Shama 7689632510     800.0

Name  Phone number  Total
Bhama 9632587412     205.0
```

PROGRAM 3:

Write a Java program to calculate roots of a quadratic equation. Use appropriate methods to take input, and calculate the roots.

```
import java.util.Scanner;

class Quad {
  int a, b, c;
  double root1, root2, d;
  Scanner s = new Scanner(System.in);

  void input() {
    System.out.println("Quadratic equation is in the form : ax^2 + bx + c");
    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 calculateRoots() {
        if (d > 0) {
            System.out.println("Roots are real and unequal");
            root1 = (-b + Math.sqrt(d)) / (2 * a);
            root2 = (-b - Math.sqrt(d)) / (2 * a);
            System.out.println("First root is: " + root1);
            System.out.println("Second root is: " + root2);
        } else if (d == 0)
            {
            System.out.println("Roots are real and equal");
            root1 = -b + Math.sqrt(d) / (2 * a);
            System.out.println("Root: " + root1);
        } else
             {
            System.out.println("No real solutions. Roots are imaginary");
            double real = -b / (2 * a);
            double imaginary = Math.sqrt(-d) / (2 * a);
            System.out.println("The equation has two complex roots: " + real + " + " +
imaginary + "i and " + real + " - " + imaginary + "i");
        }
    }
}
class main {
    public static void main(String[] args) {
        Quad q = new Quad();
        q.input();
        q.discriminant();
        q.calculateRoots();
    }
}
```

OUTPUT:

```
C:\Users\Tanish\Desktop\java>javac main.java

C:\Users\Tanish\Desktop\java>java main
Quadratic equation is in the form : ax^2 + bx + c
Enter a: 1
Enter b: -5
Enter c: -14
Roots are real and unequal
First root is: 7.0
Second root is: -2.0
```

PROGRAM 4:

Write a Java program to create a class Student with members USN, name, marks(6 subjects). Include methods to accept student details and marks, Also include a method to calculate the percentage and display appropriate details. (Array of student object to be created)

```
import java.util.Scanner;

class Student {
  String USN;
  String Name;
  double[] marks = new double[6];

  void inputDetails() {
    Scanner s = new Scanner(System.in);
    System.out.println("Enter USN:");
    USN = s.next();
    System.out.println("Enter Name:");
    Name = s.next();
    System.out.println("Enter marks of 6 Subjects:");
    for (int i = 0; i < 6; i++) {
      System.out.println("Subject " + (i + 1) + ":");
      marks[i] = s.nextDouble();
    }
  }

  double calculatePercentage() {
```

```
        double totalmarks = 0;
        for (double mark : marks) {
            totalmarks += mark;
        }
        return (totalmarks / 6);
    }

    void displayDetails() {
        System.out.println("Student Details:");
        System.out.println("USN: " + USN);
        System.out.println("Name: " + Name);
        System.out.println("Percentage: " + calculatePercentage() + "%");
    }
}

public class Main {
    public static void main(String args[]) {
        Scanner s = new Scanner(System.in);
        System.out.println("Enter number of students:");
        int num = s.nextInt();
        Student[] students = new Student[num];
        for (int i = 0; i < num; i++) {
            System.out.println("Enter details for Student " + (i + 1) + ":");
            students[i] = new Student();
            students[i].inputDetails();
        }
        for (Student student : students) {
            student.displayDetails();
        }
        s.close();
    }
}
```

OUTPUT:

```
C:\Users\Tanish\Desktop\java>javac Main.java

C:\Users\Tanish\Desktop\java>java Main
Enter number of students:
2
Enter details for Student 1:
Enter USN:
1BM22CS302
Enter Name:
Tanish
Enter marks of 6 Subjects:
Subject 1:
78
Subject 2:
89
Subject 3:
78
Subject 4:
99
Subject 5:
87
Subject 6:
78
Enter details for Student 2:
Enter USN:
1BM22CS287
Enter Name:
Rahul
Enter marks of 6 Subjects:
Subject 1:
76
Subject 2:
67
Subject 3:
66
Subject 4:
90
Subject 5:
91
Subject 6:
66
Student Details:
USN: 1BM22CS302
Name: Tanish
Percentage: 84.83333333333333%
Student Details:
USN: 1BM22CS287
Name: Rahul
Percentage: 76.0%
```

PROGRAM 5:

Create a class Book that contains four members: name, author, price, and num_pages. Include a constructor to set the values for the members. Include methods to set and get the details of the objects. Include a toString( ) method that could display the complete details of the book. Develop a Java program to create n book objects.

```
import java.util.Scanner;

class Book {
   String name;
```

```
    String author;
    int price;
    int numPages;

    Book(String name, String author, int price, int numPages) {
        this.name = name;
        this.author = author;
        this.price = price;
        this.numPages = numPages;
    }

    public String toString() {
        String name, author, price, numPages;
        name = "Book name: " + this.name + "\n";
        author = "Author name: " + this.author + "\n";
        price = "Price: " + this.price + "\n";
        numPages = "Number of pages: " + this.numPages + "\n";
        return (name + author + price + numPages);
    }
}

public class book {
    public static void main(String[] args) {
        int n;
        Book[] b;
        String name, author;
        int price, numPages;
        Scanner s = new Scanner(System.in);

        System.out.print("Enter the number of books: ");
        n = s.nextInt();
        b = new Book[n];

        for (int i = 0; i < n; i++) {
            System.out.println("Enter details of Book " + (i + 1));
            System.out.print("Name: ");
            name = s.next();
            System.out.print("Author: ");
            author = s.next();
            System.out.print("Price: ");
```

```
        price = s.nextInt();
        System.out.print("Number of pages: ");
        numPages = s.nextInt();
        b[i] = new Book(name, author, price, numPages);
      }

      System.out.println("\nDisplaying book details: ");
      for (int i = 0; i < n; i++) {
        System.out.println("Book" + (i + 1) + ":\n" + b[i]);
      }
    }
}
```

OUTPUT:

```
C:\Users\Tanish\Desktop\java>javac book.java

C:\Users\Tanish\Desktop\java>java book
Enter the number of books: 2
Enter details of Book 1
Name: Jungle Book
Author: Rudyard Kipling
Price: 200
Number of pages: 500
Enter details of Book 2
Name: Harry Potter
Author: J K Rowling
Price: 1000
Number of pages: 600
Displaying bookdetails:
Book 1:
Book name: Jungle Book
Author name: Rudyard Kipling
Price: 200
Number of pages: 500
Book 1:
Book name: Harry Potter
Author name: J K Rowling
Price: 1000
Number of pages: 600
```

PROGRAM 6:

Develop a Java program to create an abstract class named Shape that contains two integers and an empty method named printArea( ). Provide three classes named Rectangle, Triangle and

Circle such that each one of the classes extends the class Shape. Each one of the classes contain the method printArea( ) that prints the area of the given shape.

```
abstract class Shape {
   int length;
   int width;

   public Shape(int length, int width) {
      this.length = length;
      this.width = width;
   }

   public abstract void printArea();
}

class Rectangle extends Shape {
   public Rectangle(int length, int width) {
      super(length, width);
   }

   public void printArea() {
      int area = length * width;
      System.out.println("Rectangle Area: " + area);
   }
}

class Triangle extends Shape {
   public Triangle(int length, int width) {
      super(length, width);
   }

   public void printArea() {
      double area = 0.5 * length * width;
      System.out.println("Triangle Area: " + area);
   }
}

class Circle extends Shape {
   public Circle(int radius) {
      super(radius, 0); // Use 'length' for radius
   }

   public void printArea() {
```

```
    double area = Math.PI * length * length;
    System.out.println("Circle Area: " + area);
  }
}

public class Main {
  public static void main(String[] args) {
    Rectangle r= new Rectangle(5, 10);
    r.printArea();

    Triangle t = new Triangle(4, 6);
    t.printArea();

    Circle c= new Circle(3);
    c.printArea();
  }
}
```

OUTPUT:

```
C:\Users\Tanish\Desktop\java>javac Main.java

C:\Users\Tanish\Desktop\java>java Main
Rectangle Area: 50
Triangle Area: 12.0
Circle Area: 28.274333882308138
```

PROGRAM 7:

Develop a Java program to create a class Bank that maintains two kinds of account for its customers, one called savings account and the other current account. The savings account provides compound interest and withdrawal facilities but no cheque book facility. The current account provides cheque book facility but no interest. Current account holders should also maintain a minimum balance and if the balance falls below this level, a service charge is imposed.

Create a class Account that stores customer name, account number and type of account. From this derive the classes Cur-acct and Sav-acct to make them more specific to their requirements. Include the necessary methods in order to achieve the following tasks:

a) Accept deposit from customer and update the balance.

b) Display the balance.
c) Compute and deposit interest
d) Permit withdrawal and update the balance

Check for the minimum balance, impose penalty if necessary and update the balance.

```
import java.util.Scanner;
class Account {
 String name;
 int acc_no;
 double balance;
 char c;

 Account(String name, int acc_no, char c) {
  this.c = c;
  this.name = name;
  this.acc_no = acc_no;
  balance = 0.0;
 }
 void deposit(double amt) {
  balance += amt;
 }
 void withdraw(double amt) {
  if (balance > amt) {
   balance -= amt;
  } else {
   System.out.println("Insufficiant funds");
  }
 }
 void display() {
  System.out.println("Balance is " + balance);
 }
 void interest() {
  System.out.println("Interest not calculated for Current account;");
 }
}

class Cur_acc extends Account {
 int min_bal = 500;
 int penalty = 50;
 Cur_acc(String name, int acc_no) {
  super(name, acc_no, 'c');
 }
 void withdraw(double amt) {
```

```
    if (balance < min_bal) {
      System.out.println("Penalty applied");
      balance -= penalty;
    }
    if (balance > amt) {
      balance -= amt;
    } else {
      System.out.println("Insufficiant funds");
    }

  }

}
class Sav_acc extends Account {
  int min_bal = 500;
  int penalty = 50;
  double rate = 5.0;
  double amount;
  Sav_acc(String name, int acc_no) {
    super(name, acc_no, 's');
  }
  void interest() {
    Scanner sc = new Scanner(System.in);
    System.out.println("Enter time(in years) since conception of account: ");
    double t = sc.nextDouble();
    amount = balance * (Math.pow((1 + rate / 100.0), t));
    System.out.println("Balance is " + amount);
    balance = amount;
  }
 }


class Bank {
  public static void main(String s[]) {
    Scanner sc = new Scanner(System.in);
    double amt = 0;
    System.out.println("Enter name of account holder: ");
    String name = sc.nextLine();
    System.out.println("Enter account number: ");
    int acc_no = sc.nextInt();
    System.out.println("Enter 's' for Svaings Account \nEnter 'c' for Current Account");
    Account obj;
    char a = sc.next().charAt(0);
    switch (a) {
```

```
    case 's':
      obj = new Sav_acc(name, acc_no);

      break;
    case 'c':
      obj = new Cur_acc(name, acc_no);

      break;
    default:
      System.out.println("Invalid input");
      return;
    }
    while (true) {
      System.out.println("Enter\n1. To deposit\n2. To Withdraw\n3. To Display balance\n4. To
compute interest\n5. To exit");
      int n = sc.nextInt();
      switch (n) {
      case 1:
        System.out.println("Enter amount to deposit: ");
        amt = sc.nextDouble();
        obj.deposit(amt);
        break;
      case 2:
        System.out.println("Enter amount to withdraw: ");
        amt = sc.nextDouble();
        obj.withdraw(amt);
        break;
      case 3:
        obj.display();
        break;
      case 4:
        obj.interest();
        break;
      case 5:
        return;
      default:
        System.out.println("Invalid input");
      }
    }
  }
}
```

OUTPUT:

```
C:\Users\Tanish\Desktop\java>javac Bank.java

C:\Users\Tanish\Desktop\java>java Bank
Enter name of account holder:
Tanish
Enter account number:
1234
Enter 's' for Svaings Account
Enter 'c' for Current Account
s
Enter
1. To deposit
2. To Withdraw
3. To Display balance
4. To compute interest
5. To exit
1
Enter amount to deposit:
1000
Enter
1. To deposit
2. To Withdraw
3. To Display balance
4. To compute interest
5. To exit
2
Enter amount to withdraw:
300
Enter
1. To deposit
2. To Withdraw
3. To Display balance
4. To compute interest
5. To exit
3
Balance is 700.0
Enter
1. To deposit
2. To Withdraw
3. To Display balance
4. To compute interest
5. To exit
4
Enter time(in years) since conception of account:
2
Balance is 771.75
Enter
1. To deposit
2. To Withdraw
3. To Display balance
4. To compute interest
5. To exit
5
```

PROGRAM 8:

Create a package CIE which has two classes- Student and Internals. The class Student has members like usn, name, sem. The class internals derived from student has an array that stores the internal marks scored in five courses of the current semester of the student. Create another package SEE which has the class External which is a derived class of Student. This class has an array that stores the SEE marks scored in five courses of the current semester of the student. Import

the two packages in a file that declares the final marks of n students in all five courses.

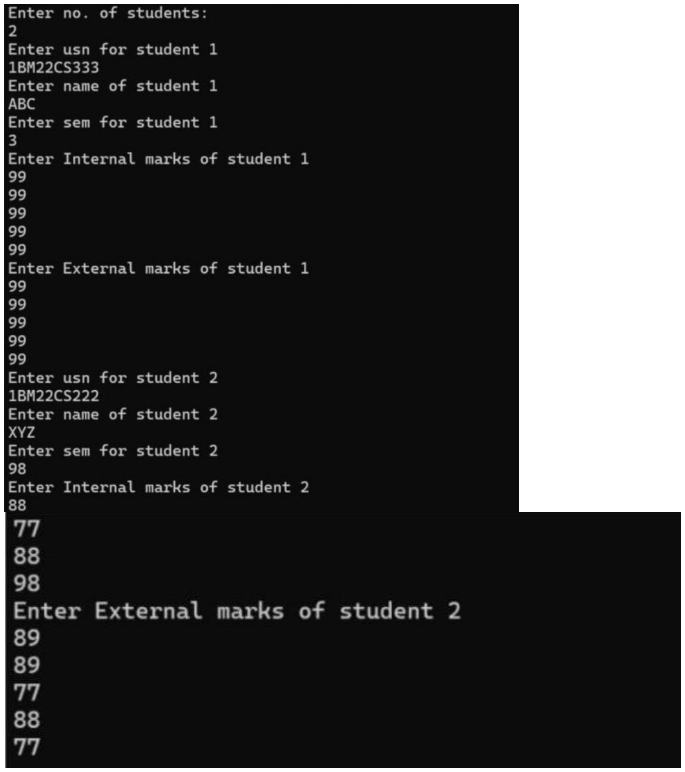
1. Create a folder CIE and save the programs Student.java and Internals.java within it.
2. Create a folder SEE and save the program External.java within it.
3. Save the Main program outside these two folders.
4. Compile Main.java and Execute the Main.class

```
// student.java
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;
   }
}

// internals.java
package CIE;

public class internals extends student {
   public int[] internalMarks;

   public internals(String usn, String name, int sem, int[] internalMarks) {
      super(usn, name, sem);
      this.internalMarks = internalMarks;
   }
}

// SEE Package

// externals.java
package SEE;
```

```
import CIE.student;

public class externals extends student {
   public int[] seeMarks;

   public externals(String usn, String name, int sem, int[] seeMarks) {
      super(usn, name, sem);
      this.seeMarks = seeMarks;
   }
}

// main1.java
import CIE.internals;
import SEE.externals;
import java.util.Scanner;

public class main1 {
   public static void main(String[] args) {
      Scanner scanner = new Scanner(System.in);
      System.out.print("Enter the number of students: ");
      int n = scanner.nextInt();
      internals[] cieStudents = new internals[n];
      externals[] seeStudents = new externals[n];

      // Input CIE marks
      for (int i = 0; i < n; i++) {
         System.out.println("Enter details for CIE of student " + (i + 1));
         System.out.print("USN: ");
         String usn = scanner.next();
         System.out.print("Name: ");
         String name = scanner.next();
         System.out.print("Semester: ");
         int sem = scanner.nextInt();
         int[] cieMarks = new int[5];
         System.out.print("Enter CIE marks for 5 courses: ");
         for (int j = 0; j < 5; j++) {
            cieMarks[j] = scanner.nextInt();
         }
         cieStudents[i] = new internals(usn, name, sem, cieMarks);
```

```
        }

        // Input SEE marks
        for (int i = 0; i < n; i++) {
            System.out.println("Enter details for SEE of student " + (i + 1));
            System.out.print("USN: ");
            String usn = scanner.next();
            System.out.print("Name: ");
            String name = scanner.next();
            System.out.print("Semester: ");
            int sem = scanner.nextInt();
            int[] seeMarks = new int[5];
            System.out.print("Enter SEE marks for 5 courses: ");
            for (int j = 0; j < 5; j++) {
                seeMarks[j] = scanner.nextInt();
            }
            seeStudents[i] = new externals(usn, name, sem, seeMarks);
        }

        // Displaying final marks
        System.out.println("\nFinal Marks of Students:");
        for (int i = 0; i < n; i++) {
            System.out.println("\nDetails of Student " + (i + 1));
            System.out.println("USN: " + cieStudents[i].usn);
            System.out.println("Name: " + cieStudents[i].name);
            System.out.println("Semester: " + cieStudents[i].sem);
            System.out.println("CIE Marks: ");
            for (int j = 0; j < 5; j++) {
                System.out.print(cieStudents[i].internalMarks[j] + " ");
            }
            System.out.println("\nSEE Marks: ");
            for (int j = 0; j < 5; j++) {
                System.out.print(seeStudents[i].seeMarks[j] + " ");
            }
        }
    }
}
```

OUTPUT:



PROGRAM 9:

Write a program that demonstrates handling of exceptions in inheritance tree. Create a base class called "Father" and derived class called "Son" which extends the base class. In Father class, implement a constructor which takes the age and throws the exception WrongAge( ) when the input age<0. In Son class, implement a constructor that cases both father and son's age and throws an exception if son's age is >=father's age.

```
import java.util.Scanner;
class WrongAge extends Exception {
   public WrongAge(String e) {
      super(e);
   }
}

class Father {
   private int age;

   public Father(int age) throws WrongAge {
```

```
        if (age < 0) {
            throw new WrongAge("Age cant be less than 0");
        }
        this.age = age;
    }

    public int getAge() {
        return age;
    }
}

class Son extends Father {
    private int sonAge;

    public Son(int fatherAge, int sonAge) throws WrongAge {
        super(fatherAge);

        if (sonAge >= fatherAge) {
            throw new WrongAge("Son's age cant be more than Father's age");
        }

        if(sonAge<0){
            throw new WrongAge("Age cant be negative");
        }
        this.sonAge = sonAge;
    }

    public int getSonAge() {
        return sonAge;
    }
}

public class Main {
    public static void main(String[] args) {
        Scanner sc=new Scanner(System.in);
        int Fage,Sage;
        try {
            System.out.println("Enter Father's age: ");
            Fage=sc.nextInt();
            Father father = new Father(Fage);
```

```
        System.out.println("Enter Son's age: ");
        Sage=sc.nextInt();
        Son son = new Son(Fage,Sage);

        System.out.println("Father's age: "+father.getAge()+"\nSon's Age: "+son.getSonAge());
      } catch (WrongAge e) {
        System.out.println("Exception caught: " + e.getMessage());
      }
    }
}
```

OUTPUT:

```
C:\Users\Tanish\Desktop\java>java Main
Enter Father's age:
-2
Exception caught: Age cant be less than 0

C:\Users\Tanish\Desktop\java>javac Main.java

C:\Users\Tanish\Desktop\java>java Main
Enter Father's age:
34
Enter Son's age:
12
Father's age: 34
Son's Age: 12

C:\Users\Tanish\Desktop\java>javac Main.java

C:\Users\Tanish\Desktop\java>java Main
Enter Father's age:
23
Enter Son's age:
50
Exception caught: Son's age cant be more than Father's age
```

PROGRAM 10:

Write a program which creates two threads, one thread displaying “BMS College of Engineering” once every ten seconds and another displaying “CSE” once every two seconds.

```
class Thread1 extends Thread{
  public void run(){
    while(true){
      System.out.println("BMS College of Engineering");
```

```
        try {
          Thread.sleep(10000);
        } catch(InterruptedException e) {
          System.out.println("Interruted "+e);
        }
      }
    }
}
class Thread2 extends Thread{
    public void run(){
      while(true){
        System.out.println("CSE");
        try {
          Thread.sleep(2000);
        } catch(InterruptedException e) {
          System.out.println("Interruted "+e);
        }
      }
    }
}

public class Main{
    public static void main(String args[]){
      Thread1 bms=new Thread1();
      Thread2 cs=new Thread2();
      bms.start();
      cs.start();
    }
}
```

OUTPUT:

```
C:\Users\Tanish\Desktop\java>javac Main.java

C:\Users\Tanish\Desktop\java>java Main
CSE
BMS College of Engineering
CSE
CSE
CSE
CSE
BMS College of Engineering
CSE
CSE
CSE
CSE
CSE
BMS College of Engineering
CSE
CSE
CSE
CSE
CSE
BMS College of Engineering
CSE
```

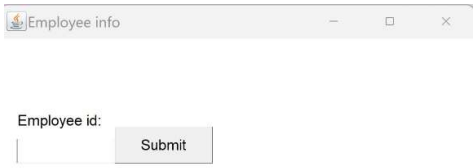
PROGRAM 11:

Creating label, button and TextField in a Frame using AWT.

```
import java.awt.*;
import java.awt.event.*;

public class AWTExample extends WindowAdapter {

  Frame f;

  AWTExample() {
    f = new Frame();
    f.addWindowListener(this);

    Label l = new Label("Employee id:");
    Button b = new Button("Submit");
    TextField t = new TextField();

    l.setBounds(20, 80, 80, 30);
    t.setBounds(20, 100, 80, 30);
    b.setBounds(100, 100, 80, 30);

    f.add(b);
```

```
    f.add(l);
    f.add(t);

    f.setSize(400, 300);
    f.setTitle("Employee info");
    f.setLayout(null);
    f.setVisible(true);
  }

  public void windowClosing(WindowEvent e) {
    System.exit(0);
  }

  public static void main(String[] args) {
    AWTExample awt = new AWTExample();
  }
}
```

OUTPUT:



PROGRAM 12:

Create a button and add a action listener for Mouse click.

```
import java.awt.*;
import java.awt.event.*;

public class EventHandling extends WindowAdapter implements ActionListener {

  Frame f;
  TextField tf;

  EventHandling() {

    // create components
    f = new Frame();
```

```
    f.addWindowListener(this);
    tf = new TextField();

    tf.setBounds(60, 50, 170, 20);
    Button b = new Button("click me");

    b.setBounds(100, 120, 80, 30);

    // register listener
    b.addActionListener(this); //passing current instance

    // add components and set size, layout and visibility
    f.add(b);
    f.add(tf);

    f.setSize(300, 300);
    f.setLayout(null);
    f.setVisible(true);
  }

  public void actionPerformed(ActionEvent e) {
    tf.setText("Welcome");
  }

  public void windowClosing(WindowEvent e) {

    System.exit(0);
  }

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

OUTPUT: