VELAGAPUDI RAMAKRISHNA SIDDHARTHA

ENGINEERING COLLEGE

(AUTONOMOUS)

JAVA PROGRAMMING

LAB – RECORD

WEEK – 1

Aim : Create a class Employee to print " Welcome to the Java Technology ".

Program :

```
package pkg208w1a12a0;

import java.io.*;

public class R_1
{
   public static void main(String args[])
   {
      System.out.println(" Welcome to The Java Technology ");
   }
}
```


Output :

run:

 Welcome to The Java Technology

BUILD SUCCESSFUL (total time: 0 seconds)

Result : Successfully Executed the Program

Aim :   Create a class Employee which contains the variables eno, ename, esal,mobile

   number (use either String or long datatype). Print the stored values.

Program :

```
package pkg208w1a12a0;
public class R_2
{
  public static void main(String args[])
  {
    Employee_R2 e = new Employee_R2();
    System.out.println(" Employee Number : " + e.eno);
    System.out.println(" Employee Name : " + e.ename);
    System.out.println(" Employee Salary : " + e.esal);
    System.out.println(" Employee Mobile Number : " + e.mobile);
  }
}

class Employee_R2
{
  int eno = 1541;
  long mobile = 1238966748;
  String ename = " Sundar Pichai ";
  float esal = 50.000f;
}
```

Output :

run:

 Employee Number : 1541

 Employee Name : Sundar Pichai

 Employee Salary : 50.0

 Employee Mobile Number : 1238966748

BUILD SUCCESSFUL (total time: 0 seconds)

Result : Successfully Executed the program

Aim : . Create a class Student with the following variables and methods

Fields: Sno: int Sname: String Java_marks: int Daa_marks: int Python_marks:int

Total:int Average:float

Member functions: public void setDetails() Use this method to set the

values tothe variables Public void getDetails() Print all the values stored in the variables.

Program :

```
package pkg208w1a12a0;

public class R_3
{
    public static void main(String args[])
    {
        Student_R3 s = new Student_R3();
        s.setDetails(45, "Msai", 10, 8, 10);
        s.getDetails();
    }
}

class Student_R3
{
    int Sno;
    String Sname;
    int Java_marks, Daa_marks, Python_marks, Total;
    float Average;

    public void setDetails(int Sno, String Sname, int Java_marks, int Daa_marks, int Python_marks)
    {
```

```java
        this.Sno = Sno;

        this.Sname = Sname;

        this.Java_marks = Java_marks;

        this.Daa_marks = Daa_marks;

        this.Python_marks = Python_marks;


        Total = (Java_marks + Daa_marks + Python_marks);

        Average = Total/3;

    }


    public void getDetails()

    {

        System.out.println("Roll Number : " + Sno);

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

        System.out.println("Java Marks : " + Java_marks);

        System.out.println("Daa marks : " + Daa_marks);

        System.out.println("Python Marks : " + Python_marks);

        System.out.println("Total Marks : " + Total);

        System.out.println("Average Marks : " + Average);

    }

}
```

Output :

run:

Roll Number : 45

Name : Msai

Java Marks : 10

Daa marks : 8

Python Marks : 10

Total Marks : 28

Average Marks : 9.0

BUILD SUCCESSFUL (total time: 0 seconds)

Result : Successfully Executed the Program .

Aim : Create a class Student with the following variables and methods Fields: Sno:int
Sname:String Java_marks:int Daa_marks:int Python_marks:int Total:int
Average:float Member functions: public void setDetails() Use this method to set the
values tothe variables Public void getDetails() Print all the values stored in the
variables Use Scanner() concept to modify the above program to read data from
the user. Modify thesetDetails() method to read data from the user.

Program :

```java
package pkg208w1a12a0;

import java.io.*;

import java.util.*;

public class R_4
{
    public static void main(String args[])
    {
        Student_R4 s  = new Student_R4();
        s.setDetails();
        System.out.println();
        s.getDetails();


    }
}


class Student_R4
{
    int Sno;
    String Sname;
    int Java_marks, Daa_marks, Python_marks, Total;
```

```java
float Average;

public void setDetails()
{
    Scanner sc = new Scanner(System.in);
    System.out.print("Enter the Roll Number : ");
    Sno = sc.nextInt();
    System.out.print("Enter Student Name : ");
    Sname = sc.next();
    System.out.print("Enter Java marks : ");
    Java_marks = sc.nextInt();
    System.out.print("Enter Daa marks : ");
    Daa_marks = sc.nextInt();
    System.out.print("Enter Python Marks : ");
    Python_marks = sc.nextInt();

    Total = (Java_marks + Daa_marks + Python_marks);
    Average = Total/3;
}

public void getDetails()
{
    System.out.println("Roll Number : " + Sno);
    System.out.println("Name : " + Sname);
    System.out.println("Java Marks : " + Java_marks);
    System.out.println("Daa marks : " + Daa_marks);
    System.out.println("Python Marks : " + Python_marks);
```

```
System.out.println("Total Marks : " + Total);

System.out.println("Average Marks : " + Average);

    }

}
```

Output :

run:

Enter the Roll Number : 45

Enter Student Name : Msai

Enter Java marks : 10

Enter Daa marks : 8

Enter Python Marks : 10

Roll Number : 45

Name : Msai

Java Marks : 10

Daa marks : 8

Python Marks : 10

Total Marks : 28

Average Marks : 9.0

BUILD SUCCESSFUL (total time: 13 seconds)

Result : Sucessfully Executed the Program .

WEEK – 2

Aim : Write a Java class InformationExtraction which contains the following information

Fileds: Name, Gender(use char datatype), Age, Mobile number, CGPA .

Create methods storeInformation() and displayInformation() to set and display the

Fileds.

       a. Store values directly into the variables.
       b. Store values using Scanner class.

Program :

```java
package pkg208w1a12a0;

import java.io.*;

import java.util.*;

public class R_5
{
    public static void main(String args[])
    {
        String Name1;

        char Gender1;

        int Age1,Mobile1;

        float CGPA1;


        InformationExtraction ie = new InformationExtraction();

        Scanner sc = new Scanner(System.in);


        System.out.print("Enter Your Name : ");

        Name1 = sc.next();

        System.out.print("Enter gender (m/f) : ");

        Gender1 = sc.next().charAt(0);

        System.out.print("Enter age : ");
```

```java
        Age1 = sc.nextInt();

        System.out.print("Enter mobile Number : ");

        Mobile1 = sc.nextInt();

        System.out.print("Enter CGPA points : ");

        CGPA1 = sc.nextFloat();


        ie.storeInformation(Name1, Gender1, Age1, Mobile1, CGPA1);

        System.out.println();

        ie.displayInformation();
    }
}


class InformationExtraction
{
    String Name;
    char Gender;
    int Age,Mobile;
    float CGPA;

    public void storeInformation(String Name, char Gender, int Age, int Mobile, float CGPA)
    {
        this.Name = Name;
        this.Gender = Gender;
        this.Age = Age;
        this.Mobile = Mobile;
        this.CGPA = CGPA;
    }
```

```java
    public void displayInformation()
    {
        System.out.println("Student Name : " + Name);

        System.out.println("Gender : " + Gender);

        System.out.println("Student Age : " + Age);

        System.out.println("Mobile : " + Mobile);

        System.out.println("Student CGPA : " + CGPA);
    }
}
```

Output :

```
 run:
Enter Your Name : Msai

Enter gender (m/f) : m

Enter age : 20

Enter mobile Number : 766543

Enter CGPA points : 7.9


Student Name : Msai

Gender : m

Student Age : 20

Mobile : 766543

Student CGPA : 7.9

BUILD SUCCESSFUL (total time: 18 seconds)
```

Result : Successfully Executed the program .

Aim : Create a class Library with the fileds book_number, bookname, authorname, price,

  no_of_pages. Create the methods

   a. Using a default method and another method to display the information

   b. Use a parameterized method to set the values and another method to display

    the information.

Program :

```
package pkg208w1a12a0;

public class R_6
{
    public static void main(String args[])
    {
        Library l = new Library();
        l.default_R();
        l.display();
        System.out.println();
        l.parameter_R(10, "Python", "Shyam Sir", 500, 1200);
        l.display();
    }
}


class Library
{
    int book_number;
    String book_name;
    String author_name;
    int price,no_of_pages;
```

```java
public void default_R()
{
    book_number = 5;
    book_name = "Java";
    author_name = "Ashok Sir";
    price = 450;
    no_of_pages = 890;
}


public void parameter_R(int book_number, String book_name, String author_name, int price, int no_of_pages)
{
    this.book_number = book_number;
    this.book_name = book_name;
    this.author_name = author_name;
    this.price = price;
    this.no_of_pages = no_of_pages;
}


public void display()
{
    System.out.println("Book Number : " + book_number);
    System.out.println("Book Name : " + book_name);
    System.out.println("Author Name : " + author_name);
    System.out.println("Book Price : " + price);
    System.out.println("No of Pages in a Book : " + no_of_pages);
}
```

}

Output :

run:

Book Number : 5

Book Name : Java

Author Name : Ashok Sir

Book Price : 450

No of Pages in a Book : 890

Book Number : 10

Book Name : Python

Author Name : Shyam Sir

Book Price : 500

No of Pages in a Book : 1200

BUILD SUCCESSFUL (total time: 0 seconds)

Result : Successfully Executed The Program .

Aim : Create a class Library with the fileds book_number, bookname, authorname, price,

   no_of_pages. Create the methods

   a. Using a default method and another method to display the information

   b. Use a parameterized method to set the values and another method to display

      the information.

   Modify the program above by changing the behaviour of the methods by accepting

   the data from the user.

      a. Use java.util.Scanner class to read data from the user

Program :

```java
package pkg208w1a12a0;

import java.io.*;

import java.util.*;

public class R_7

{

  public static void main(String args[])

  {

    int book_number1;

    String book_name1;

    String author_name1;

    int price1,no_of_pages1;


    Library_R7 lr = new Library_R7();

    Scanner sc = new Scanner(System.in);


    lr.default_R();

    lr.display();
```

```java
        System.out.println();


        System.out.print("Enter Book Number : ");
        book_number1 = sc.nextInt();
        System.out.print("Enter the Book Name : ");
        book_name1 = sc.next();
        System.out.print("Enter the Author name of the book : ");
        author_name1 = sc.next();
        System.out.print("Enter the Book Price : ");
        price1 = sc.nextInt();
        System.out.print("Enter the Number of pages in the Book : ");
        no_of_pages1 = sc.nextInt();


        lr.parameter_R(book_number1, book_name1, author_name1, price1, no_of_pages1);
        lr.display();
    }
}

class Library_R7
{
    int book_number;
    String book_name;
    String author_name;
    int price,no_of_pages;

    public void default_R()
    {
```

```java
        book_number = 5;

        book_name = "Java";

        author_name = "Ashok Sir";

        price = 450;

        no_of_pages = 890;

    }


    public void parameter_R(int book_number, String book_name, String author_name, int price, int no_of_pages)

    {

        this.book_number = book_number;

        this.book_name = book_name;

        this.author_name = author_name;

        this.price = price;

        this.no_of_pages = no_of_pages;

    }


    public void display()

    {

        System.out.println("Book Number : " + book_number);

        System.out.println("Book Name : " + book_name);

        System.out.println("Author Name : " + author_name);

        System.out.println("Book Price : " + price);

        System.out.println("No of Pages in a Book : " + no_of_pages);

    }

}
```

Output :

run:

Book Number : 5

Book Name : Java

Author Name : Ashok Sir

Book Price : 450

No of Pages in a Book : 890

Enter Book Number : 12

Enter the Book Name : C_Programming

Enter the Author name of the book : Pavan_Kumar_Sir

Enter the Book Price : 39

Enter the Number of pages in the Book : 512

Book Number : 12

Book Name : C_Programming

Author Name : Pavan_Kumar_Sir

Book Price : 39

No of Pages in a Book : 512

BUILD SUCCESSFUL (total time: 22 seconds)

Result : Successfully Executed the Program .

Aim : Create a class Average with the fields a and b. Set the values using default

constructor andprint the information using a method.

Program :

package pkg208w1a12a0;

public class R_8

{

  public static void main(String args[])

  {

    Average a = new Average();

    a.display();

  }

}

class Average

{

  int subject1,subject2;

  float average;

  public Average()

  {

    subject1 = 100;

    subject2 = 87;

    average = (subject1 + subject2)/2;

  }

  public void display()

```
    {

        System.out.println("Subject 1 marks : " + subject1);

        System.out.println("Subject 2 marks : " + subject2);

        System.out.println("Average Marks : " + average);

    }

}
```

Output :

run:

Subject 1 marks : 100

Subject 2 marks : 87

Average Marks : 93.0

BUILD SUCCESSFUL (total time: 0 seconds)

Result : Successfully Executed the Program .

WEEK – 3

Aim : Create a class Library with the fileds book_number, bookname, authorname, price,

no_of_pages. Create the methods

a. Using a default method and another method to display the information

b. Use a parameterized method to set the values and another method to display

the information.

Modify program above by setting the values through the parameterized constructors

and the print the information**.**

Program :

```
package pkg208w1a12a0;

public class R_9
{
    public static void main(String args[])
    {
        Library l = new Library();
        l.display();
        System.out.println();
        l = new Library(10, "Python", "Shyam", 980, 1500);
        l.display();

    }
}


class Library
{
    int book_number;
```

```java
    String book_name;

    String author_name;

    int price,no_of_pages;


    public Library()
    {
        book_number = 5;

        book_name = "Java";

        author_name = "Ashok Sir";

        price = 450;

        no_of_pages = 890;
    }


    public Library(int book_number, String book_name, String author_name, int price, int no_of_pages)
    {
        this.book_number = book_number;

        this.book_name = book_name;

        this.author_name = author_name;

        this.price = price;

        this.no_of_pages = no_of_pages;
    }


    public void display()
    {
        System.out.println("Book Number : " + book_number);

        System.out.println("Book Name : " + book_name);

        System.out.println("Author Name : " + author_name);
```

```
        System.out.println("Book Price : " + price);

        System.out.println("No of Pages in a Book : " + no_of_pages);

    }

}
```

Output :

run:

Book Number : 5

Book Name : Java

Author Name : Ashok Sir

Book Price : 450

No of Pages in a Book : 890

Book Number : 10

Book Name : Python

Author Name : Shyam

Book Price : 980

No of Pages in a Book : 1500

BUILD SUCCESSFUL (total time: 0 seconds)

Result : Successfully Executed the program .

Aim : Create a class Computer with the fields processor, memory, system type, name of the computer, status of windows activation. Set the values to these fields using method overloading and display the information.

Program :

```
package pkg208w1a12a0;
public class R_10
{
    public static void main(String args[])
    {
        Computer c = new Computer();
        c.Computer1();
        c.display();
        System.out.println();
        c.Computer1("i4", 500, "Core 7", "Lenovo", "Not Activated");
        c.display();
    }
}

class Computer
{
    String Processor;
    float memory;
    String Type;
    String Cname;
    String Wstatus;
```

```java
    public void Computer1()
    {
        Processor = "i3";

        memory = 1030;

        Type = "Core";

        Cname = "Acer Aspire";

        Wstatus = "Activated";
    }


    public void Computer1(String Processor, float memory, String Type, String Cname,String Wstatus)
    {
        this.Processor = Processor;

        this.memory = memory;

        this.Type = Type;

        this.Cname = Cname;

        this.Wstatus = Wstatus;
    }


    public void display()
    {
        System.out.println("System Processor : " + Processor);

        System.out.println("System Memory : " + memory);

        System.out.println("System Type : " + Type);

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

        System.out.println("Windows Status : " + Wstatus);
    }
}
```

Output :

Run :

System Processor : i3

System Memory : 1030.0

System Type : Core

System name : Acer Aspire

Windows Status : Activated

System Processor : i4

System Memory : 500.0

System Type : Core 7

System name : Lenovo

Windows Status : Not Activated

Result : Successfully Executed the Program .

Aim : Create a class Computer with the fields processor, memory, system type, name of the computer, status of windows activation. Set the values to these fields using Constructor overloading and display the information.

Program :

```java
package pkg208w1a12a0;

public class R_11
{
    public static void main(String args[])
    {
        Computer c = new Computer();
        c.display();
        System.out.println();
        c = new Computer("i4", 500, "Core 7", "Lenovo", "Not Activated");
        c.display();
    }
}


class Computer
{
    String Processor;
    float memory;
    String Type;
    String Cname;
    String Wstatus;


    public Computer()
```

```java
    {
        Processor = "i3";

        memory = 1030;

        Type = "Core";

        Cname = "Acer Aspire";

        Wstatus = "Activated";

    }


    public Computer(String Processor, float memory, String Type, String Cname,String Wstatus)

    {

        this.Processor = Processor;

        this.memory = memory;

        this.Type = Type;

        this.Cname = Cname;

        this.Wstatus = Wstatus;

    }


    public void display()

    {

        System.out.println("System Processor : " + Processor);

        System.out.println("System Memory : " + memory);

        System.out.println("System Type : " + Type);

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

        System.out.println("Windows Status : " + Wstatus);

    }

}
```

Output :

run:

System Processor : i3

System Memory : 1030.0

System Type : Core

System name : Acer Aspire

Windows Status : Activated

System Processor : i4

System Memory : 500.0

System Type : Core 7

System name : Lenovo

Windows Status : Not Activated

BUILD SUCCESSFUL (total time: 0 seconds)

Result : Successfully Executed the Program .

Aim : Create a class cuboid with the variables length, breadth and height. Set the values to these variables using default and parametersied constructors. Compute the volume of the cuboid and display the information.

Program :

```
package pkg208w1a12a0;

public class R_12
{
    public static void main(String args[])
    {
        Cuboid c = new Cuboid();
        c.display();
        System.out.println();
        c = new Cuboid(50,15,60);
        c.display();
    }
}

class Cuboid
{
    int length, bredth, height;

    public Cuboid()
    {
        length = 100;
        bredth = 50;
        height = 80;
```

```java
    }

    public Cuboid(int length, int bredth, int height)
    {
        this.length = length;
        this.bredth = bredth;
        this.height = height;
    }

    public void display()
    {
        int volume;
        volume = (length * bredth * height);
        System.out.println(" Volume of the Cuboid : " + volume);
    }
}
```

Output :

run:

 Volume of the Cuboid : 400000

 Volume of the Cuboid : 45000

BUILD SUCCESSFUL (total time: 2 seconds)

Result : Successfully Executed the program.

WEEK - 4

Aim : Create a class cuboid with the variables length, breadth and height. Set the values to

these variables using Method Overloading. Compute the volume

of the cuboid and display the information.

Program :

```
package pkg208w1a12a0;

public class R_13
{
    public static void main(String args[])
    {
        Cuboid_R c = new Cuboid_R();
        c.Cuboid();
        c.display();
        System.out.println();
        c.Cuboid(15, 30, 75);
        c.display();
    }
}

class Cuboid_R
{
    int length, bredth, height;

    public void Cuboid()
    {
        length = 100;
        bredth = 50;
```

```java
        height = 80;

    }


    public void Cuboid(int length, int bredth, int height)

    {

        this.length = length;

        this.bredth = bredth;

        this.height = height;

    }


    public void display()

    {

        int volume;

        volume = (length * bredth * height);

        System.out.println(" Volume of the Cuboid : " + volume);

    }

}
```

Output :

run:

 Volume of the Cuboid : 400000

 Volume of the Cuboid : 33750

BUILD SUCCESSFUL (total time: 2 seconds)

Result : Successfully Executed the program .

Aim : Create a class Rectangle with fields length and breadth. Set the values to these two variables using method overloading and write a method to compute the area and perimeter using a method.

Program :

```
package pkg208w1a12a0;

public class R_14
{
    public static void main(String args[])
    {
        Rectangle r = new Rectangle();
        r.area();
        r.display();
        System.out.println();
        r.area(50, 100);
        r.display();
    }
}

class Rectangle
{
    int length, bredth;

    public void area()
    {
        length = 100;
        bredth = 200;
```

```
    }


    public void area(int length, int bredth)

    {

        this.length = length;

        this.bredth = bredth;

    }


    public void display()

    {

        System.out.println("Area of the rectangle : " + (length * bredth));

        System.out.println("Perimeter of the rectangle : " + (2*(length + bredth)));

    }

}
```

Output :

run:

Area of the rectangle : 20000

Perimeter of the rectangle : 600

Area of the rectangle : 5000

Perimeter of the rectangle : 300

BUILD SUCCESSFUL (total time: 0 seconds)

Result : Successfully Executed the program.

Aim : Create a class Rectangle with fields length and breadth. Set the values to these two variables using Constructor overloading and write a method to compute the area and perimeter using a method.

Program :

```java
package pkg208w1a12a0;
public class R_15
{
    public static void main(String args[])
    {
        Rectangle r = new Rectangle();
        r.display();
        System.out.println();
        r = new Rectangle(50,100);
        r.display();
    }
}

class Rectangle
{
    int length, bredth;

    public Rectangle()
    {
        length = 100;
        bredth = 200;
    }
```

```
    public Rectangle(int length, int bredth)

    {

        this.length = length;

        this.bredth = bredth;

    }


    public void display()

    {

        System.out.println("Area of the rectangle : " + (length * bredth));

        System.out.println("Perimeter of the rectangle : " + (2*(length + bredth)));

    }

}
```

Output :

run:

Area of the rectangle : 20000

Perimeter of the rectangle : 600

Area of the rectangle : 5000

Perimeter of the rectangle : 300

BUILD SUCCESSFUL (total time: 0 seconds)

Result : Successfully Executed the program .

Aim : Create a class Emp with the fields eno,ename,company_name. Take the company_name as a static variable. Write a method set() to set the values and print the information using display()method .

Program :

```java
package pkg208w1a12a0;
public class R_16
{
   public static void main(String args[])
   {
      Emp_R e = new Emp_R();
      e.set();
      e.display();
   }
}

class Emp_R
{
   int eno;
   String ename;
   static String Company;

   public void set()
   {
      eno = 1543;
      ename = "xyz";
      Company = "Google";
```

```
    }

    public void display()
    {
        System.out.println("Employee Number : " + eno);

        System.out.println("Employee Name : " + ename);

        System.out.println("Company Name : " + Company);
    }
}
```

Output :

 run:

Employee Number : 1543

Employee Name : xyz

Company Name : Google

BUILD SUCCESSFUL (total time: 2 seconds)

Result : Successfully Executed the program .

WEEK - 5

Aim : Create a class Emp with the fields eno,ename,company_name. Take the
company_name as a static variable. Write a method set() to set the values and print
the information using display()method. Modify company_name using a static
method.

Program :

```
package pkg208w1a12a0;

public class R_17
{
    public static void main(String args[])
    {
        Emp_R17 e2 = new Emp_R17();

        e2.set();

        e2.display();

        System.out.println();

        e2.update();

        e2.display();
    }
}


class Emp_R17
{
    int eno;

    String ename;

    static String Company;


    public void set()
    {
```

```java
        eno = 1543;

        ename = "xyz";

        Company = "Google";

    }


    public static void update()

    {

        Company = "Cisco";

    }


    public void display()

    {

        System.out.println("Employee Number : " + eno);

        System.out.println("Employee Name : " + ename);

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

    }

}
```

Output :

Employee Number : 1543

Employee Name : xyz

Company Name : Google

Employee Number : 1543

Employee Name : xyz

Company Name : Cisco

BUILD SUCCESSFUL (total time: 1 second)

Result : Successfully Executed the program .

Aim : Create a class Reservation with the fields of username, email, no of tickets. Create a method to set the values to the username and email. Write a method to ask the user to enter the number of tickets and reduce that no of tickets. Print the total information.

Program :

```
package pkg208w1a12a0;

import java.io.*;

import java.util.*;

public class R_18
{
    public static void main(String args[])
    {
        Reservation r = new Reservation();
        r.set_details("Msai", "saitemp@gmail.com");
        r.ticket();
        r.display();
    }
}

class Reservation
{
    String username;
    String email;
    int no_tickets;

    public void set_details(String username, String email)
    {
```

```java
        this.username = username;

        this.email = email;

    }


    public void ticket()

    {

        Scanner sc = new Scanner(System.in);

        System.out.print("Enter no of Tickets : ");

        no_tickets = sc.nextInt();

        no_tickets = no_tickets - 1;

    }


    public void display()

    {

        System.out.println("User name : " + username);

        System.out.println("Email : " + email);

        System.out.println("No of tickets : " + no_tickets);

    }

}
```

Output :

run:

Enter no of Tickets : 10

User name : Msai

Email : saitemp@gmail.com

No of tickets : 9

BUILD SUCCESSFUL (total time: 6 seconds)

Result : Successfully Executed the program.

Aim : Create a class Reservation with the fields of username, email, no of tickets. Create a method to set the values to the username and email. Write a static method to ask the user.

Program :

```java
package pkg208w1a12a0;
import java.io.*;
import java.util.Scanner;
public class R_19
{
   public static void main(String args[])
   {
      Reservation1 r1 = new Reservation1();
      r1.set_details("Msai", "saitemp1@gmail.com");
      r1.ticket();
      r1.display();
   }
}

class Reservation1
{
   String username;
   String email;
   static int no_tickets;

   public void set_details(String username, String email)
   {
      this.username = username;
```

```java
        this.email = email;

    }


    public static void ticket()

    {

        Scanner sc = new Scanner(System.in);

        System.out.print("Enter no of Tickets : ");

        no_tickets = sc.nextInt();

        no_tickets = no_tickets - 1;

    }


    public void display()

    {

        System.out.println("User name : " + username);

        System.out.println("Email : " + email);

        System.out.println("No of tickets : " + no_tickets);

    }
}
```

Output :

run:

Enter no of Tickets : 10

User name : Msai

Email : saitemp1@gmail.com

No of tickets : 9

BUILD SUCCESSFUL (total time: 7 seconds)

Result : Successfully Executed the program.

Aim : Create a class A with the variables x,y. Create a method to set the date to x and y.
Create a subclass B with the variable z. create a method to set the data to z. Write a
method to display the information.

Program :

```
package pkg208w1a12a0;
public class R_20
{
    public static void main(String args[])
    {
        B20 b = new B20();
        b.set_date(12, 7);
        b.assign(2022);
        b.display();
    }
}


class A20
{
    int x,y;
    void set_date(int a, int b)
    {
        x = a;
        y = b;
    }
}


class B20 extends A20
```

```java
{
    int z;
    void assign(int c)
    {
        z = c;
    }
    void display()
    {
        System.out.println(" Date is : " + x + " / " + y + " / " + z);
    }
}
```

Output :

run:

 Date is : 12 / 7 / 2022

BUILD SUCCESSFUL (total time: 2 seconds)

Result : Successfully Executed the program.

WEEK – 6

Aim : Create a class Q with a variable q and consider default constructor for setting to q.
Create a subclass R with a variable r and consider default constructor for setting to r.
Create a subclassto R as S with a variable s and consider a default constructor for
setting for s. Create a displayfunction in each of the classes. Create a main method to
call the functions**.**

Program :

```java
package pkg208w1a12a0;
public class R_21
{
   public static void main(String args[])
   {
     S21 obj = new S21();
     obj.show3();
     obj.show2();
     obj.show1();
   }
}
class Q21
{
   int q;
   public Q21()
   {
     q = 20;
   }
   void show1()
   {
```

```java
      System.out.println("q : " + q);
   }
}
class R21 extends Q21
{
   int r;
   public R21()
   {
      r = 40;
   }
   void show2()
   {
      System.out.println("r : " + r);
   }
}
class S21 extends R21
{
   int s;
   public S21()
   {
      s = 60;
   }
   void show3()
   {
      System.out.println("s : " + s);
   }
}
```

Output :

run:

s : 60

r : 40

q : 20

BUILD SUCCESSFUL (total time: 2 seconds)

Result : Successfully Executed the Program.

Aim : Create a class person with the filed firstname, lastname. Use parameterized method to set the values to the variables at runtime. Create sub class Employee with the variable eno, edept, esal. Create parameterized method for setting the data and default method for display the information.

Program :

```java
package pkg208w1a12a0;
public class R_22
{
    public static void main(String args[])
    {
        R_employee_p obj = new R_employee_p("M J N V", "Sai", 45, " IT ", 50000);
        obj.display();
    }
}
class personR
{
    String first_name, last_name;
    public personR(String fn, String ln)
    {
        first_name = fn;
        last_name = ln;
    }
}
class R_employee_p extends personR
{
    int eno;
    String edept;
```

```java
    double esal;
    public R_employee_p(String fn, String ln,
        int eno, String edept, double esal)
    {
        super(fn,ln);
        this.eno = eno;
        this.edept = edept;
        this.esal = esal;
    }
    void display()
    {
        System.out.println("First Name : " + first_name);
        System.out.println("Last Name : " + last_name);
        System.out.println("Employee Number : " + eno);
        System.out.println("Department : " + edept);
        System.out.println("Salary : " + esal);
    }
}
```

Output :

run:

First Name : M J N V

Last Name : Sai

Employee Number : 45

Department : IT

Salary : 50000.0

BUILD SUCCESSFUL (total time: 0 seconds)

Result : Successfully Executed the program.

Aim : Create a class person with the filed firstname, lastname. Use parameterized method to set the values to the variables at runtime. Create sub class Employee with the variable eno, edept, esal. Create parameterized method for setting the data and default method for display the information.

Modify the above program by creating a subclass of Employee called Department with the variables dno, dname, experience. Set parameterized method for setting the the data and display all the information .

Program :

```
package pkg208w1a12a0;
public class R_23
{
    public static void main(String args[])
    {
        Department d = new Department("M.J.N.V", " Sai", 45, " IT ", 50000, 1, "IT", 5);
        d.display();
    }
}
class rperson_d
{
    String first_name;
    String last_name;
    public rperson_d(String fn, String ln)
    {
        first_name = fn;
        last_name = ln;
    }
}
```

```java
class remployee_p1 extends rperson_d
{
    int eno;

    String edept;

    double esal;

    public remployee_p1(String fn, String ln, int eno, String edept, double esal)

    {

        super(fn,ln);

        this.eno = eno;

        this.edept = edept;

        this.esal = esal;

    }

}
class Department extends remployee_p1
{
    int dno;

    String dname;

    int experience;

    public Department(String fn, String ln, int eno, String edept, double esal,

        int dno, String dname, int experience)

    {

        super(fn, ln, eno, edept, esal);

        this.dno = dno;

        this.dname = dname;

        this.experience = experience;

    }
```

```
    void display()

    {

        System.out.println("First Name : " + first_name);

        System.out.println("Last Name : " + last_name);

        System.out.println("Employee Number : " + eno);

        System.out.println("Department : " + edept);

        System.out.println("Salary : " + esal);

        System.out.println("Department Number : " + dno);

        System.out.println("Department name : " + dname);

        System.out.println("Experience : " + experience);

    }

}
```

Output :

run:

First Name : M.J.N.V

Last Name : Sai

Employee Number : 45

Department : IT

Salary : 50000.0

Department Number : 1

Department name : IT

Experience : 5

BUILD SUCCESSFUL (total time: 0 seconds)

Result : Successfully Executed the Program.

Aim : Create a class named Employee with the following details

  Data members:

    (a) name (b) address (c) age (d) gender

  Methods :

    (a) Display () to show the employee details

  Create another class FullTimeEmployee that inherits the Employee class :

  Data members :

    (a) Salary   Designation

  Method :

    (a) Display () to show the salary and designation along with other employee
      details.

  Create another class PartTimeEmployee that inherits the Employee class :

  Data members :

    (a) Workinghours rateperhour

  Methods :

    (a) caluculatepay() to caluculate the amount payable

    (b) display() to show the amount payable along with the employee details.

   Create objects of these classes and call their methods .use appropriate constructors.

Program :

```
package pkg208w1a12a0;

public class R_24
{
  public static void main(String args[])
  {
    rfte f = new rfte("Sai", "Bhavanipuram", 20, "Male", 50000, "Manager");
    f.show2();


    rpte p = new rpte("Rizwan", "Times_hospital", 19, "Male", 8, 100);
```

```java
        p.show1();

        p.calculate_pay();

        p.display();

    }

}


class remp

{

    String name;

    String address;

    int age;

    String gender;


    public remp(String name, String address, int age, String gender)

    {

        this.name = name;

        this.address = address;

        this.age = age;

        this.gender = gender;

    }


    void show1()

    {

        System.out.println();

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

        System.out.println("Employee Address : " + address);

        System.out.println("Employee Age : " + age);
```

```java
        System.out.println("Gender : " + gender);

        System.out.println();

    }

}


class rfte extends remp
{
//   fte : Full Time Employee
    double salary;
    String desig;


    public rfte(String name, String address, int age, String gender,
            double salary, String desig)
    {
        super(name, address, age, gender);
        this.salary = salary;
        this.desig = desig;
    }


    void show2()
    {
        System.out.println();
        System.out.println("Employee name : " + name);
        System.out.println("Employee Address : " + address);
        System.out.println("Employee Age : " + age);
        System.out.println("Gender : " + gender);
        System.out.println("Employee Salary : " + salary);
```

```java
        System.out.println("Employee Designation : " + desig);

        System.out.println();

    }

}


class rpte extends remp

{

    float work_hours;

    float rate_hour;

    float toat_pay;


    public rpte(String name, String address, int age, String gender,

        float work_hours, float rate_hour)

    {

        super(name, address, age, gender);

        this.work_hours = work_hours;

        this.rate_hour = rate_hour;

    }


    void calculate_pay()

    {

        toat_pay = work_hours*rate_hour;

    }


    void display()

    {

        System.out.println("The Toatl amout for employee is : " + toat_pay);
```

```
    }
}
```

Output :

run:

Employee name : Sai

Employee Address : Bhavanipuram

Employee Age : 20

Gender : Male

Employee Salary : 50000.0

Employee Designation : Manager

Employee name : Rizwan

Employee Address : Times_hospital

Employee Age : 19

Gender : Male

The Toatl amout for employee is : 800.0

BUILD SUCCESSFUL (total time: 0 seconds)

Result : Successfully Executed the Program.

WEEK – 7

Aim : Create a class Employer with company_name and city. Create a parameterised

method companyDetails(String, String) to set the values to the two variables. Create

a showCompanyDetails() method to display the company information. Create a

subclass Employee with eno,ename,esal. Create a parameterized constructor to set

the values to these variables. create a showEmployee() to display the information.

Create a main method to test the classes.

Program :

```
package pkg208w1a12a0;

public class R_25
{
    public static void main(String args[])
    {
        Employee25 e = new Employee25();
        e.companyDetails("Google","NewYork");
        e.showCompanyDetails();
        e.p1(4549390,"Sai",190000);
        e.showEmployee();
    }
}

class Employer
{
    String company_name,city;
    void companyDetails(String company_name,String city)
    {
        this.company_name = company_name;
        this.city = city;
```

```java
    }
    void showCompanyDetails()
    {
        System.out.println("company info:");
        System.out.println(company_name);
        System.out.println(city);
    }
}
class Employee25 extends Employer
{
    int eno;
    String ename;
    float esal;
    void p1(int eno,String ename,float esal)
    {
        this.eno  = eno;
        this.ename = ename;
        this.esal = esal;
    }
    void showEmployee()
    {
        System.out.println("employee info:");
        System.out.println(eno);
        System.out.println(ename);
        System.out.println(esal);

    }
```

}

Output :

run:

company info:

Google

NewYork

employee info:

4549390

Sai

190000.0

BUILD SUCCESSFUL (total time: 0 seconds)

Result : Successfully Executed the program.

Aim : Create a base class called person with SSN and name as data types with getdata and display as member functions. Derive a new class called student with rollno, branch,mark1,mark2,mark3 as datamembers and getdata and display as member functions and finally derive a new class called grade from student class in that calculate the average for marks and display the grade for the student

        a. A grade >=90%

        b. B grade>=80%

        c. C grade>=70%

        d. Less than 70% fail.

Program :

```
package pkg208w1a12a0;
public class R_26
{
   public static void main(String args[])
   {
     grade g = new grade();
     g.getdata(245,"Sai");
     g.display();
     g.getdata2(92,"IT",95,84,85);
     g.display2();
     g.average();
     g.display3();
   }
}


class Personr
```

```java
{
    int ssn;
    String name;
    void getdata(int ssn,String name)
    {
        this.ssn=ssn;
        this.name=name;
    }
    void display()
    {
      System.out.println("The ssn of person is: "+ssn);
      System.out.println("The name of person is: "+name);
    }
}
class studentr extends Personr
{
    int rollno;
    String branch;
    float mark1,mark2,mark3;
    void getdata2(int rollno,String branch,float mark1,float mark2,float mark3)
    {
        this.rollno=rollno;
        this.branch=branch;
        this.mark1=mark1;
        this.mark2=mark2;
        this.mark3=mark3;
    }
```

```java
  void display2()
  {
    System.out.println("The rollno of student is: "+rollno);

    System.out.println("The branch of student is: "+branch);

    System.out.println("The Mark1,Mark2 and Mark3 are:"+mark1+" "+mark2+" "+mark3);


  }


}
class grade extends studentr
{
  float avg;

  float sum;

  void average()
  {
   sum = mark1+mark2+mark3;

   avg = sum/3;

  }
  void display3()
  {
    if(avg>=90)
    {
     System.out.println("A grade");

    }
    else if(avg>=80)
    {
     System.out.println("B grade");
```

```
        }
    else if(avg>=70)
    {
     System.out.println("C grade");
    }
    else if(avg<70)
    {
     System.out.println("Fail");
    }
  }
}
```

Output :

run:

The ssn of person is: 245

The name of person is: Sai

The rollno of student is: 92

The branch of student is: IT

The Mark1,Mark2 and Mark3 are:95.0 84.0 85.0

B grade

BUILD SUCCESSFUL (total time: 0 seconds)

Result : Successfully Executed the Program.

Aim : Create a class Person with the fileds first name and last name. Set the data and

print it.Create two subclasses employee and staff with the variables and methods:

Employee:

Variables: eno, esal, designation

Methods: setEmployee(int, double, String) and displayEmployee()

Staff:

Variable: sno,experience

Methods:setStaff(int,int) and displayStaff()

Create a class to access the information of all.

Program :

```java
package pkg208w1a12a0;

public class R_27
{
    public static void main(String args[])
    {
        staff s = new staff();
        s.setStaff(10043,15);

        s.setdata("M J N V", "Sai");
        s.display();
        employe e = new employe();
        e.setEmployee(12143, 50000.0, "CEO");
        e.displayEmployee();
        s.displayStaff();
    }
}
```

```java
class person_r
{
 String fname,lname;
 void setdata(String fname,String lname)
 {
   this.fname=fname;
   this.lname=lname;
 }
 void display()
 {
   System.out.println("The fname and lname of person is: "+fname+" "+lname);
 }
}
class employe extends person_r
{
  int eno;
  double esal;
  String designation;
  void setEmployee(int eno, double esal, String designation)
  {
   this.eno=eno;
   this.esal=esal;
   this.designation=designation;
  }
  void displayEmployee()
  {
```

```java
    System.out.println("The eno,esal and designation of employee is: "+eno+" "+esal+" "+designation);
  }
}
class staff extends person_r
{
  int sno,exp;
  void setStaff(int sno,int exp)
  {
    this.sno=sno;
    this.exp=exp;
  }
  void displayStaff()
  {
    System.out.println("The Sno and Experience of Staff is: "+sno+" "+exp);
  }
}
```

Output :

run:

The fname and lname of person is: M J N V Sai

The eno,esal and designation of employee is: 12143 50000.0 CEO

The Sno and Experience of Staff is: 10043 15

BUILD SUCCESSFUL (total time: 0 seconds)

Result : Successfully Executed the Program.

Aim : Create a class Polygon with variables l,b,h. Create a method set() to read the data.

Create an abstract method compute(). Create a sublcass rectangle to find the area of

the rectangle. Create another subclass cuboid to compute the volume of the cuboid.

Test the class bycreating a main method.

Program :

```java
package pkg208w1a12a0;
public class R_28
{
    public static void main(String args[])
    {
        rectangle28 r = new rectangle28();
        r.set(5, 10, 5);
        r.compute();
        System.out.println();
        cuboid28 c = new cuboid28();
        c.set(5, 10, 10);
        c.compute();
    }
}
abstract class Polygon
{
    int l,b,h;
    public void set(int l, int b, int h)
    {
        this.l = l;
        this.b = b;
```

```java
        this.h = h;

    }

    public abstract void compute();

}
class rectangle28 extends Polygon
{

    public void compute()

    {

        System.out.println("Area of the Rectangle : " + (l*b));

    }

}
class cuboid28 extends Polygon
{

    public void compute()

    {

        System.out.println("Volume of the cuboid : " + (l*b*h));

    }

}
```

Output :

run:

Area of the Rectangle : 50

Volume of the cuboid : 500

BUILD SUCCESSFUL (total time: 0 seconds)

Result : Successfully Executed the program.

WEEK – 8

Aim : Create a class SortAlgorithm with an array and three methods. One method will read integer data to store into the array. create abstract method sort(int[]) to implement sorting algorithm.Create a display method to display the array. Create a subclass to implement sorting algorithm. Test the created class.

Program :

```java
package pkg208w1a12a0;

import java.io.*;

import java.util.*;

public class R_29
{
    public static void main(String args[])
    {
        Sortarray s = new Sortarray();
        s.set();
        s.sort();
        s.display();
    }
}


abstract class Sortalgorithm
{
    int a[] = new int[5];
    public void set()
    {
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter Array Elements : ");
```

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

        {

            a[i] = sc.nextInt();

        }

    }


    public abstract void sort();


    public void display()

    {

        System.out.print("Array Elements are : ");

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

        {

            System.out.print(a[i] + " ");

        }

    }

}


class Sortarray extends Sortalgorithm

{

    public void sort()

    {

        int temp;

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

        {

            for(int j = 0; j < (a.length)-i-1; j++)

            {
```

```
            if(a[j] > a[j+1])

            {

                temp = a[j+1];

                a[j+1] = a[j];

                a[j] = temp;

            }

        }

    }

}
```

Output :

run:

Enter Array Elements :

5

4

3

6

1

Array Elements are : 1 3 4 5 6

BUILD SUCCESSFUL (total time: 7 seconds)

Result : Successfully Executed the program.

Aim : Implement a java program for multilevel inheritance.

Program :

```java
package pkg208w1a12a0;
public class R_30
{
    public static void main(String args[])
    {
        rBabyDog bd = new rBabyDog();
        bd.sleep();
        bd.bark();
        bd.eat();
    }
}


class rAnimal
{
    void eat()
    {
        System.out.println(" I am Very Hungary ");
    }
}


class rDog extends rAnimal
{
    void bark()
    {
```

```java
      System.out.println("Gaurd Dog is Barking");
   }
}


class rBabyDog extends rDog
{
   void sleep()
   {
      System.out.println(" Baby Dog is Sleeping ");
   }
}
```

Output :

run:

 Baby Dog is Sleeping

Gaurd Dog is Barking

 I am Very Hungary

BUILD SUCCESSFUL (total time: 0 seconds)

Result : Successfully Executed the Program.

Aim : Write the following code in your editor below:

      1. A class named Arithmetic with a method named add that takes 2 integers as parametersand returns an integer denoting their sum.

      2. A class named Adder that inherits from a superclass named Arithmetic.

Program :

```java
package pkg208w1a12a0;
public class R_31
{
  public static void main(String args[])
  {
    Arithmetic a = new Arithmetic();
    System.out.println("Super class is : " + a.getClass());
    System.out.println("Addition of 2 numbers : " + a.add(100, 200));
  }
}
class Arithmetic
{
  public int add(int a, int b)
  {
    int sum = a + b;
    return sum;
  }
}


class Adder extends Arithmetic
{
```

```
  public void display()

  {

     System.out.println("This is Child class named Adder");

  }

}
```

Output :

run:

Super class is : class pkg208w1a12a0.Arithmetic

Addition of 2 numbers : 300

BUILD SUCCESSFUL (total time: 0 seconds)

Result : Successfully Executed the program.

Aim : Complete the code in your editor by writing an overridden getNumberOfTeamMembers method that prints the same statement as the superclass' getNumberOfTeamMembers method, except that it replaces n with 11 (the number of players on a Soccer team).

Program :

```java
package pkg208w1a12a0;
public class R_32
{
    public static void main(String args[])
    {
        sports s1 = new sports();
        soccer s2 = new soccer();
        System.out.println(s1.get_name());
        s1.get_number_of_team_members();
        System.out.println(s2.get_name());
        s2.get_number_of_team_members();
    }
}


class sports
{
    public String get_name()
    {
        return "Generic Sports";
    }
```

```java
    public void get_number_of_team_members()

    {

        System.out.println("Each team has n players in " + get_name());

    }

}


class soccer extends sports

{

    @Override
    public String get_name()

    {

        return "Soccer Class";

    }

    public void get_number_of_team_members()

    {

        System.out.println("Each team has 11 players in the Soccer class");

    }

}
```

Output :

run:

Generic Sports

Each team has n players in Generic Sports

Soccer Class

Each team has 11 players in the Soccer class

BUILD SUCCESSFUL (total time: 0 seconds)

Result : Successfully executed the program.

WEEK – 9

Aim : When a method in a subclass overrides a method in superclass, it is still possible to call the overridden method using super keyword. If you write super.func() to call the function func(), it will call the method that was defined in the superclass.

You are given a partially completed code in the editor. Modify the code so that the codeprints the following text:

Hello I am a motorcycle, I am a cycle with an
engine.My ancestor is a cycle who is a vehicle
with pedals.

Program :

```
package pkg208w1a12a0;
public class R_33
{
    public static void main(String args[])
    {
        motorcycle m = new motorcycle();
    }
}


class bicycle
{
    public String define_name()
    {
        return "a vehicle with pedals. ";
    }
}
```

```java
class motorcycle extends bicycle
{
    public String define_name()
    {
        return "a cycle with an Engine. ";
    }


    public motorcycle()
    {
        System.out.println("Hello i am a motorCycle, i am " + define_name());
        String temp = super.define_name();
        System.out.println("My ancestor is a cycle who is " + temp);
    }
}
```

Output :

run:

Hello i am a motorCycle, i am a cycle with an Engine.

My ancestor is a cycle who is a vehicle with pedals.

BUILD SUCCESSFUL (total time: 0 seconds)

Result : Successfully Executed the program.

Aim : Write a java program to raise Arithmetic Exception.

Program :

```java
package pkg208w1a12a0;
public class R_34
{
    public static void main(String args[])
    {
        try
        {
            int num = 5/0;
        }
        catch(ArithmeticException e)
        {
//          System.out.println(e.getMessage());
            System.out.println("Input Error Occured");
        }
        System.out.println("Program is Still Running");
    }
}
```

Output :

run:

Input Error Occured

Program is Still Running

BUILD SUCCESSFUL (total time: 0 seconds)

Result : Sucessfully Executed the program.

Aim : Write a java program to raise Null Pointer Exception.

Program :

```
package pkg208w1a12a0;

public class R_35
{
    public static void main(String args[])
    {
        try
        {
            String name = null;
            System.out.println(name.length());
        }
        catch(NullPointerException e)
        {
//          System.out.println(e.getMessage());
            System.out.println("Input String Error Occured");
        }
        System.out.println("Program is Still Running");
    }
}
```

Output :

run:

Input String Error Occured

Program is Still Running

BUILD SUCCESSFUL (total time: 0 seconds)

Result : Sucessfully Executed the program.

Aim : Write a program to raise ArrayIndexOutOfBoundsException to access an element in the array which is not there in it.

Program :

```
package pkg208w1a12a0;

public class R_36
{
   public static void main(String args[])
   {
     try
     {
        int a[] = {10, 20, 30, 40, 50};
        System.out.println("Array element at a position : " + a[10]);
     }
     catch(ArrayIndexOutOfBoundsException e)
     {
//       System.out.println(e.getMessage());
        System.out.println("Array index Error Occured");
     }
     System.out.println("Program is Still Running");
   }
}
```

Output :

run:

Array index Error Occured

Program is Still Running

BUILD SUCCESSFUL (total time: 0 seconds)

Result : Sucessfully Executed the program.

WEEK – 10

Aim : Create a class with two numbers and an array. Ask the user to enter the numbers through the Scanner class. Raise the exceptions like ArithmeticException.,

Program :

```
package pkg208w1a12a0;
import java.io.*;
import java.util.*;
public class R_37
{
    public static void main(String args[])
    {
        int a,b,c;
        int arr[] = {1, 2, 3, 50};
        Scanner sc = new Scanner(System.in);
        try
        {
            System.out.print("Enter 1st number : ");
            a = sc.nextInt();
            System.out.print("Enter 2nd number : ");
            b = sc.nextInt();
            c = a/b;
            System.out.println("Division result : " + c);
            System.out.println("Array element : " + arr[5]);
        }
        catch(ArithmeticException e)
        {
            System.out.println("Arithmetic error cought");
```

```
        }
        catch(ArrayIndexOutOfBoundsException e)
        {
            System.out.println("Index Error");
        }
        catch(InputMismatchException e)
        {
            System.out.println("Wrong input");
        }
    }
}
```

Output :

run:

Enter 1st number : 5

Enter 2nd number : sai

Wrong input

BUILD SUCCESSFUL (total time: 4 seconds)

run:

Enter 1st number : 5

Enter 2nd number : 10

Division result : 0

Index Error

BUILD SUCCESSFUL (total time: 5 seconds)

Result : Sucessfully Executed the program.

Aim : Write a program to ask the user to enter the marks in java and maximum marks. If the maxmarks entered by the user is 0, then raise the exception.

Program :

```java
package pkg208w1a12a0;

import java.io.*;

import java.util.*;

public class R_38
{
  public static void main(String args[])
  {
    Scanner sc = new Scanner(System.in);
    System.out.print("Enter Java marks : ");
    int jm = sc.nextInt();
    System.out.print("Enter the maximum marks : ");
    int maxm = sc.nextInt();
    try
    {
      if(maxm == 0)
      {
        maxZero obj = new maxZero("You entered zero");
        throw obj;
      }
    }
    catch(maxZero e)
    {
      System.out.println(e.getMessage());
```

```
      }
  }
}


class maxZero extends Exception
{
   public maxZero(String s)
   {
      super(s);
   }
}
```

Output :

run:

Enter Java marks : 10

Enter the maximum marks : 0

You entered zero

BUILD SUCCESSFUL (total time: 5 seconds)

Result : Sucessfully executed the program.

Aim : Write a program to ask the user to enter the percentage of marks in III semester. If the percentage entered is lessthan 50, raise an IneligibleException to inform them that he is not eligible for placements. Otherwise Print his percentage.

Program :

```
package pkg208w1a12a0;

import java.io.*;

import java.util.*;

public class R_39
{
  public static void checkper(float p) throws IneligibleException
  {
    if(p < 50)
    {
      throw new IneligibleException("Not Eligible for placements. ");
    }
    else
    {
      System.out.println("Eligible for placements : " + p);
    }
  }
  public static void main(String args[])
  {
    Scanner sc = new Scanner(System.in);
    float percent;
    System.out.print("Enter your Percentage : ");
    percent = sc.nextFloat();
```

```java
        try
        {
            checkper(percent);
        }
        catch(Exception e)
        {
            System.out.println(e);
        }
    }
}


class IneligibleException extends Exception
{
    public IneligibleException(String s)
    {
        super(s);
    }
}
```

Output :

run:

Enter your Percentage : 45

pkg208w1a12a0.IneligibleException: Not Eligible for placements.

BUILD SUCCESSFUL (total time: 3 seconds)

Result : Sucessfully Executed the program.

Aim : For this problem, we have 2 types of queries you can perform on a List:

> 1. Insert y at index x:
>
>> Insert x y
>
> 2. Delete the element at index x:
>
>> Delete x
>
> Given a list,L, of N integers, perform Q queries on the list. Once all queries are completed,print the modified list as a single line of space-separated integers.

Program :

```
package pkg208w1a12a0;

import java.io.*;

import java.util.*;

public class R_40
{
  public static void main(String args[])
  {
    Scanner sc = new Scanner(System.in);
    System.out.print("Enter number of the integers : ");
    int n = sc.nextInt();
    System.out.println("Enter the elements : ");
    List<Integer> list = new ArrayList<Integer>();
    for(int i = 0; i < n; i++)
    {
      list.add(sc.nextInt());
    }
    System.out.print("Enter a number : ");
    int q = sc.nextInt();
```

```java
        while(q --> 0)
        {
            sc.nextLine();
            System.out.print("Enter the keyword : ");
            String s = sc.nextLine();


            if(s.equals("Insert"))
            {
                System.out.print("Enter the position : ");
                int x = sc.nextInt();
                System.out.print("Enter the list element : ");
                int y = sc.nextInt();
                list.add(y);
            }
            else
            {
                System.out.print("Enter the list element to delete : ");
                int x = sc.nextInt();
                list.remove(x);
            }
        }
        System.out.println("List elements are : ");
        for(int j = 0; j < list.size(); j++)
        {
            System.out.print(list.get(j) + " ");
        }
}
```

}

Output :

run:

Enter number of the integers : 5

Enter the elements :

12

0

1

78

12

Enter a number : 2

Enter the keyword : Insert

Enter the position : 5

Enter the list element : 23

Enter the keyword : Delete

Enter the list element to delete : 0

List elements are :

0 1 78 12 23

BUILD SUCCESSFUL (total time: 1 minute 0 seconds)

Result : Sucessfully Executed the program.

WEEK – 11

Aim : Sometimes it's better to use dynamic size arrays. Java's Arraylist can provide you this

feature. Try to solve this problem using Arraylist.

You are given n lines. In each line there are zero or more integers. You need to

answer a fewqueries where you need to tell the number located in yth position of xth

line. Take your input from System.in.

Program :

```java
package pkg208w1a12a0;

import java.io.*;

import java.util.*;

public class R_41
{
    public static void main(String args[])
    {
        Scanner sc = new Scanner(System.in);

        ArrayList[] list = new ArrayList[20002];

        System.out.print("Enter number of lines : ");

        int n = sc.nextInt();

        for(int i = 1; i <= n; i++)
        {
            list[i] = new ArrayList();

            System.out.print("Enter a number 1 : ");

            int x = sc.nextInt();


            System.out.println("Enter the elements : ");

            for(int j = 1; j <= x; j++)
            {
```

```java
            int val = sc.nextInt();

            list[i].add(val);

        }

    }


    System.out.print("Enter a number 2 : ");

    int q = sc.nextInt();


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

    {

        int x,y;

        System.out.print("Enter 1st number : ");

        x = sc.nextInt();

        System.out.print("Enter 2nd number : ");

        y = sc.nextInt();


        try

        {

            System.out.println("result : " + list[x].get(y-1));

        }

        catch(Exception e)

        {

            System.out.println("Error !!! ");

        }

    }

  }

}
```

Output :

run:

Enter number of lines : 5

Enter a number 1 : 5

Enter the elements :

5

41

77

74

22

Enter a number 1 : 2

Enter the elements :

1

12

Enter a number 1 : 5

Enter the elements :

4

37

34

36

52

Enter a number 1 : 0

Enter the elements :

Enter a number 1 : 4

Enter the elements :

3

20

22

33

Enter a number 2 : 5

Enter 1st number : 1

Enter 2nd number : 3

result : 77

Enter 1st number : 3

Enter 2nd number : 4

result : 36

Enter 1st number : 31

Enter 2nd number : 13

Error !!!

Enter 1st number : 4

Enter 2nd number : 3

Error !!!

Enter 1st number : 5

Enter 2nd number : 5

Error !!!

BUILD SUCCESSFUL (total time: 1 minute 43 seconds)

Result : Sucessfully Executed the program.

Aim : In the first line, there will be an integer denoting number of pairs. Each of the next

lines willcontain two strings seperated by a single space. Print T lines. In the ith line,

print number of unique pairs you have after taking ith pair as input.

Program :

```java
package pkg208w1a12a0;

import java.io.*;

import java.util.*;

public class R_42
{
    public static void main(String args[])
    {
        Scanner sc = new Scanner(System.in);

        System.out.print("Enter No of pairs : ");

        int n = sc.nextInt();

        String pair_left[] = new String[n];

        String pair_right[] = new String[n];

        System.out.println("Enter the pair names : ");

        for(int i = 0; i < n; i++)
        {
            pair_left[i] = sc.next();

            pair_right[i] = sc.next();
        }

        HashSet<String> hs = new HashSet<>();

        for(int j = 0; j < n; j++)
        {
            hs.add(pair_left[j] + " " + pair_right[j]);
```

```
        System.out.println("Hash set size : " + hs.size());

    }

  }

}
```

Output :

run:

Enter No of pairs : 5

Enter the pair names :

john tom

john mary

john tom

mary anna

mary anna

Hash set size : 1

Hash set size : 2

Hash set size : 2

Hash set size : 3

Hash set size : 3

BUILD SUCCESSFUL (total time: 28 seconds)

Result : Sucessfully Executed the program.

Aim : Create multiple threads which prints VRSEC and CSE for 15 times and 30 times.

Program :

```java
package pkg208w1a12a0;

import java.io.*;

import java.util.*;

public class R_43
{
    public static void main(String args[])
    {
        rcollege rc = new rcollege();

        rdepartment rd = new rdepartment();

        rc.start();

        rd.start();
    }
}


class rcollege extends Thread
{
    public void run()
    {
        for(int i = 0; i < 15; i++)
        {
            try
            {
                Thread.sleep(250);
            }
```

```java
            catch(InterruptedException e)
            {
                System.out.println("Error");
            }
            System.out.println("VRSEC");
        }
    }
}


class rdepartment extends Thread
{
    public void run()
    {
        for(int i = 0; i < 30; i++)
        {
            try
            {
                Thread.sleep(250);
            }
            catch(Exception e)
            {
                System.out.println("Error");
            }
            System.out.println("CSE");
        }
    }
}
```

Output :

run:

CSE

VRSEC

CSE

VRSEC

VRSEC

CSE

VRSEC

CSE

VRSEC

CSE

CSE

VRSEC

CSE

VRSEC

CSE

VRSEC

CSE

VRSEC

CSE

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CSE

CSE

CSE

CSE

CSE

CSE

CSE

CSE

BUILD SUCCESSFUL (total time: 10 seconds)

Result : Sucessfully Executed the program.

Aim : Create a thread that display area of square and another thread to display volume of cuboid 10times for every 2 and 3 seconds respectively.

Program :

```java
package pkg208w1a12a0;
import java.io.*;
import java.util.*;
public class R_44
{
    public static void main(String args[])
    {
        square44 s = new square44();
        cuboid44 c = new cuboid44();
        s.start();
        c.start();
    }
}
class square44 extends Thread
{
    @Override
    public void run()
    {
        int n = 5;
        for(int i = 0; i < 10; i++)
        {
            try
            {
```

```java
                Thread.sleep(2000);
            }
            catch(Exception e)
            {
                System.out.println(" Square Exception ");
            }
            System.out.println("Area of the Square of length 5 : " + (n*n));
        }
    }
}
class cuboid44 extends Thread
{
    @Override
    public void run()
    {
        int l = 5, b = 10, h = 20;
        for(int i = 0; i < 10; i++)
        {
            try
            {
                Thread.sleep(3000);
            }
            catch(Exception e)
            {
                System.out.println(" Cuboid Exception ");
            }
            System.out.println("Volume of the Cuboid with dimensions 5,10,20 : " + (l*b*h));
```

```
        }
    }
}
```

Output :

run:

Area of the Square of length 5 : 25

Volume of the Cuboid with dimensions 5,10,20 : 1000

Area of the Square of length 5 : 25

Volume of the Cuboid with dimensions 5,10,20 : 1000

Area of the Square of length 5 : 25

Area of the Square of length 5 : 25

Volume of the Cuboid with dimensions 5,10,20 : 1000

Area of the Square of length 5 : 25

Volume of the Cuboid with dimensions 5,10,20 : 1000

Area of the Square of length 5 : 25

Area of the Square of length 5 : 25

Volume of the Cuboid with dimensions 5,10,20 : 1000

Area of the Square of length 5 : 25

Volume of the Cuboid with dimensions 5,10,20 : 1000

Area of the Square of length 5 : 25

Area of the Square of length 5 : 25

Volume of the Cuboid with dimensions 5,10,20 : 1000

Volume of the Cuboid with dimensions 5,10,20 : 1000

Volume of the Cuboid with dimensions 5,10,20 : 1000

Volume of the Cuboid with dimensions 5,10,20 : 1000

BUILD SUCCESSFUL (total time: 30 seconds)

Result : Sucessfully Executed the program.

WEEK – 12

Aim : Create multiple threads for the following cases:

 • Create four threads that prints even numbers, odd numbers,

  prime numbers,natural numbers upto that number

 • Assign priorities to the program

Program – 1:

```java
package pkg208w1a12a0;

import java.io.*;

import java.util.*;

public class R_45_a

{

   public static void main(String args[])

   {

      teven t1 = new teven();

      todd t2 = new todd();

      tprime t3 = new tprime();

      tnatural t4 = new tnatural();

      t1.start();

      t2.start();

      t3.start();

      t4.start();

   }

}

class teven extends Thread

{

   public void run()

   {
```

```java
        for(int i = 0; i < 10; i++)
        {
            if(i%2 == 0)
            {
                System.out.println("Even number : " + i);
            }
        }
    }
}
class todd extends Thread
{
    public void run()
    {
        for(int i = 0; i < 10; i++)
        {
            if(i%2 != 0)
            {
                System.out.println("Odd number : " + i);
            }
        }
    }
}
class tprime extends Thread
{
    public void run()
    {
        int count = 0;
```

```java
      for(int i = 2; i < 10; i++)
      {
        for(int j = 2; j < i; j++)
        {
          if(i%j == 0)
          {
            count += 1;
          }
        }
        if(count == 0)
        {
          System.out.println("prime number : " + i);
        }
      }
  }
}
class tnatural extends Thread
{
  public void run()
  {
    for(int i = 0; i <= 10; i++)
    {
      System.out.println("Natural number : " + i);
    }
  }
}
```

Output :

```
run:

Even number : 0

Even number : 2

Even number : 4

Even number : 6

Even number : 8

Odd number : 1

Odd number : 3

Odd number : 5

Odd number : 7

Odd number : 9

prime number : 2

Natural number : 0

Natural number : 1

prime number : 3

Natural number : 2

Natural number : 3

Natural number : 4

Natural number : 5

Natural number : 6

Natural number : 7

Natural number : 8

Natural number : 9

Natural number : 10

BUILD SUCCESSFUL (total time: 0 seconds)
```

Result : Sucessfully executed the program.

Program – 2:

```java
package pkg208w1a12a0;

import java.io.*;

import java.util.*;

public class R_45_b
{
    public static void main(String args[])
    {
        teven45 t1 = new teven45();

        todd45 t2 = new todd45();

        tprime45 t3 = new tprime45();

        tnatural45 t4 = new tnatural45();

        t4.setPriority(10);

        t3.setPriority(8);

        t2.setPriority(5);

        t1.setPriority(3);

        t1.start();

        t2.start();

        t3.start();

        t4.start();
    }
}

class teven45 extends Thread
{
    public void run()
    {
```

```java
        for(int i = 0; i < 10; i++)
        {
            if(i%2 == 0)
            {
                System.out.println("Even number : " + i);
            }
        }
    }
}


class todd45 extends Thread
{
    public void run()
    {
        for(int i = 0; i < 10; i++)
        {
            if(i%2 != 0)
            {
                System.out.println("Odd number : " + i);
            }
        }
    }
}
class tprime45 extends Thread
{
    public void run()
    {
```

```java
        int count = 0;

        for(int i = 2; i < 10; i++)

        {

            for(int j = 2; j < i; j++)

            {

                if(i%j == 0)

                {

                    count += 1;

                }

            }

            if(count == 0)

            {

                System.out.println("prime number : " + i);

            }

        }

    }

}

class tnatural45 extends Thread

{

    public void run()

    {

        for(int i = 0; i <= 10; i++)

        {

            System.out.println("Natural number : " + i);

        }

    }

}
```

Output :

run:

Natural number : 0

prime number : 2

prime number : 3

Odd number : 1

Natural number : 1

Natural number : 2

Natural number : 3

Natural number : 4

Odd number : 3

Odd number : 5

Natural number : 5

Even number : 0

Natural number : 6

Natural number : 7

Natural number : 8

Natural number : 9

Natural number : 10

Odd number : 7

Odd number : 9

Even number : 2

Even number : 4

Even number : 6

Even number : 8

BUILD SUCCESSFUL (total time: 0 seconds)

Result : Sucessfully Executed the program.

Aim : Create three threads which display Java, technology, third year and of them set priorities to the first and third thread as 8 and third thread 1. Make use of the yield method to invoke the equal priority thread when the other thread is executing.

Program :

```java
package pkg208w1a12a0;
import java.io.*;
import java.util.*;
public class R_46
{
    public static void main(String args[])
    {
        A46 p1 = new A46();
        p1.start();
        p1.setPriority(8);
        int p = p1.getPriority();
        System.out.println("Thread Started : " + Thread.currentThread().getName());
        System.out.println("Thread Ended : " + Thread.currentThread().getName());
        System.out.println("Thread priority : " + p);

        B46 p2 = new B46();
        p2.start();
        p2.setPriority(8);
        System.out.println("Thread Started : " + Thread.currentThread().getName());
        System.out.println("Thread Ended : " + Thread.currentThread().getName());
        System.out.println("Thread priority : " + p2.getPriority());

        C46 p3 = new C46();
```

```java
        p3.start();

        p3.setPriority(1);

        System.out.println("Thread Started : " + Thread.currentThread().getName());

        System.out.println("Thread Ended : " + Thread.currentThread().getName());

        System.out.println("Thread priority : " + p3.getPriority());

    }

}


class A46 extends Thread
{
    public void run()
    {
        Thread.yield();
        System.out.println("Course : Java");
    }
}


class B46 extends Thread
{
    public void run()
    {
        Thread.yield();
        System.out.println("Technology");
    }
}


class C46 extends Thread
```

```java
{
    public void run()
    {
        Thread.yield();
        System.out.println("Second Year");
    }
}
```

Output :

run:

Course : Java

Thread Started : main

Thread Ended : main

Thread priority : 8

Thread Started : main

Technology

Thread Ended : main

Thread priority : 8

Thread Started : main

Thread Ended : main

Second Year

Thread priority : 1

BUILD SUCCESSFUL (total time: 0 seconds)

Result : Sucessfully Executed the program.

Aim : Create three threads which display Welcome, to, programming and of them set
priorities tothe first and third thread as 6 and third thread 2. Make use of the yield
method to invoke the equal priority thread when the other thread is executing.

Program :

```java
package pkg208w1a12a0;

import java.io.*;

import java.util.*;

/**
 *
 * @author SHREE
 */
public class R_47
{
  public static void main(String args[])
  {
    A47 p1 = new A47();

    p1.start();

    p1.setPriority(6);

    int p = p1.getPriority();

    System.out.println("Thread Started : " + Thread.currentThread().getName());

    System.out.println("Thread Ended : " + Thread.currentThread().getName());

    System.out.println("Thread priority : " + p);


    B47 p2 = new B47();

    p2.start();

    p2.setPriority(6);

    System.out.println("Thread Started : " + Thread.currentThread().getName());
```

```java
        System.out.println("Thread Ended : " + Thread.currentThread().getName());

        System.out.println("Thread priority : " + p2.getPriority());


        C47 p3 = new C47();

        p3.start();

        p3.setPriority(2);

        System.out.println("Thread Started : " + Thread.currentThread().getName());

        System.out.println("Thread Ended : " + Thread.currentThread().getName());

        System.out.println("Thread priority : " + p3.getPriority());
    }
}


class A47 extends Thread
{
    public void run()
    {
        Thread.yield();
        System.out.println("Welcome to");
    }
}
class B47 extends Thread
{
    public void run()
    {
        Thread.yield();
        System.out.println("The Programming");
    }
```

```
}
class C47 extends Thread
{
    public void run()
    {
        Thread.yield();
        System.out.println("Second Year");
    }
}
```

Output :

run:

Welcome to

Thread Started : main

Thread Ended : main

Thread priority : 6

Thread Started : main

The Programming

Thread Ended : main

Thread priority : 6

Thread Started : main

Second Year

Thread Ended : main

Thread priority : 2

BUILD SUCCESSFUL (total time: 0 seconds)

Result : Sucessfully Executed the Program.

Aim : A java program to check whether the given year is leap year or not using block

   lambda expressions.

Program :

package pkg208w1a12a0;

import java.io.*;

import java.util.*;

public class R_48

{

   public static void main(String args[])

  {

    New ly = (year) ->

    {

      if((year%400 == 0) || (year%4 == 0) && (year%100 != 0))

      {

         return true;

      }

      else

      {

         return false;

      }

    };

    if(ly.test(2024))

    {

      System.out.println("It is a Leap Year");

    }

    else

```java
        {
            System.out.println("It is not a Leap Year");
        }
    }
}


interface New
{
    boolean test(int n);
}
```

Output :

run:

It is a Leap Year

BUILD SUCCESSFUL (total time: 0 seconds)

Result : Sucessfully Executed the program.

Aim : A java program to sum all the Fibonacci values upto the given integer using streams

Program :

```java
package pkg208w1a12a0;

import java.io.*;

import java.util.stream.*;

public class R_49
{
    public static void main(String args[])
    {
        int sum = Stream.iterate(new int[]{0,1}, n -> new int[]{n[1], n[0] + n[1]})
            .limit(10)
            .map(n -> n[0])
            .mapToInt(n -> n)
            .sum();
        System.out.println("Sum of first 10 fibonacci numbers : " + sum);
    }
}
```

Output :

run:

Sum of first 10 fibonacci numbers : 88

BUILD SUCCESSFUL (total time: 0 seconds)

Result : Sucessfully Executed the program.