**1. package** labctod;

**import** java.util.Scanner;

**public** **class** week1inlab1\_powerbill {

**public** **static** **void** main(String[] args) {

**int** bill,u;

Scanner sc= **new** Scanner(System.***in***);

System.***out***.println("enter the value");

u=sc.nextInt();

**if**(u<50)

bill=u\*2;

**else** **if**(u>=51&&u <=100)

bill=50\*2+(u-50)\*3;

**else** **if**(u>=101&&u<=300)

bill=50\*2+(u-50)\*5;

**else** **if**(u>=301&&u<=450)

bill=50\*2+(u-50)\*6;

**else**

bill=50\*2+(u-50)\*8;

System.***out***.println("total electric bill"+bill);

}

}

2. **package** labctod;

**import** java.util.Scanner;

**public** **class** week1postlab1\_perfectornot {

**public** **static** **void** main(String[] args)

{

**int** n, sum=0;

Scanner sc=**new** Scanner(System.***in***);

System.***out***.print("Enter the number: ");

n=sc.nextInt();

**int** i=1;

**while**(i <= n/2)

{

**if**(n % i == 0)

{

sum = sum + i;

}

i++;

}

**if**(sum==n)

{

System.***out***.println(n+" is a perfect number.");

}

**else**

System.***out***.println(n+" is not a perfect number.");

}

}

**3. package** skill;

**import** java.util.Scanner;

**public** **class** week1prblm5\_binarycode {

**public** **static** **void** main(String[] args) {

Scanner sc=**new** Scanner(System.***in***);

**int** n=sc.nextInt();

sc.close();

**char**[]binary=Integer.*toBinaryString*(n).toCharArray();

**int** tempCount=0;

**int** maxCount=0;

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

{

Temp Count=(binary[i]=='0')? 0: tempCount+1;

**if**(tempCount>maxCount)

{

maxCount=tempCount;

}

}

System.***out***.println(maxCount);

}

}

4. **package** skill;

**public** **class** week1prblm6\_armstrongornot {

**public** **static** **void** main(String[] args) {

**int** sum=0,n=123,temp,res;

temp=n;

**while**(n>0)

{

res=n%10;

sum=sum+(res\*res\*res);

n=n/10;

}

**if**(temp==sum)

System.***out***.println("armstrong");

**else**

System.***out***.println("not armstrong");

}

}

**5. package** labctod;

**import** java.util.Scanner;

**public** **class** week3inlab2\_utility2Darrays {

**private** **static** **int** *r*,*c*;

**private** **static** **int**[][] *a*;

**private** **static** **void** accept()

{

Scanner sc=**new** Scanner(System.***in***);

System.***out***.print("Enter size of rows and columns = ");

*r*=sc.nextInt();

*c*=sc.nextInt();

*a*=**new** **int**[*r*][*c*];

System.***out***.print("Enter "+(*r*\**c*)+" elements = ");

**for**(**int** i=0;i<*r*;i++)

**for**(**int** j=0;j<*c*;j++)

*a*[i][j]=sc.nextInt();

}

**private** **static** **void** findSum()

{

**int** s=0;

**for**(**int**[] e : *a*)

**for**(**int** b : e)

s = s+b;

System.***out***.println("Sum of matrix elements = "+s);

}

**private** **static** **void** print()

{

System.***out***.println("Matrix form = ");

**for**(**int**[] e : *a*)

{

**for**(**int** b : e)

System.***out***.print(b+" ");

System.***out***.print("\n");

}

}

**private** **static** **void** printPrincipal()

{

System.***out***.print("Principal Diagonal elements = ");

**for**(**int** i=0;i<*r*;i++)

{

**for**(**int** j=0;j<*c*;j++)

{

**if**(i==j)

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

}

}

System.***out***.print("\n ");

}

**private** **static** **void** printPrincipalSum()

{

System.***out***.print("Principal Diagonal elements sum = ");

**int** s=0;

**for**(**int** i=0;i<*r*;i++)

{

**for**(**int** j=0;j<*c*;j++)

{

**if**(i==j)

s=s+*a*[i][j];

}

}

System.***out***.print(s);

}

**public** **static** **void** main(String[] args)

{

*accept*();

*findSum*();

*print*();

*printPrincipal*();

*printPrincipalSum*();

}

}

6. **package** skill;

**public** **class** week3prblm4\_geometricshape {

**public** **void** findArea(**int** s)

{

System.***out***.println("Area of square = "+s\*s);

}

**public** **void** findArea(**int** l ,**int** b)

{

System.***out***.println("Area of rectangle = "+l\*b);

}

**public** **void** findArea(**double** r)

{

System.***out***.println("Area of circle = "+(**double**)(Math.***PI***\*r\*r));

}

}

7. **package** labctod;

**class** hello{

**int** length;

**int** breadth;

**public** hello()

{

**int** length = 0;

**int** breadth = 0;

}

**public** hello(**int** length)

{

**this**.length = length ;

breadth = 5

}

**public** hello(**int** length,**int** breadth)

{

**this**.length = length;

**this**.breadth = breadth;

}

**public** **void** m1()

{

System.***out***.println(length\*breadth);

}

}

**public** **class** week4inlab2\_rectangle {

**public** **static** **void** main(String[] args) {

hello obj = **new** hello();

obj.m1();

hello obj1= **new** hello(10);

obj1.m1();

hello obj2 = **new** hello(12,2);

obj2.m1();

}

}

8. **package** labctod;

**import** java.util.Scanner;

**class** week4inlab3\_student {

**int** id,m1,m2,m3;

String name;

**public** **void** GetData() {

Scanner sc = **new** Scanner(System.***in***);

System.***out***.println("enter student id,name m1,m2,m3");

id = sc.nextInt();

name=sc.nextLine();

m1=sc.nextInt();

m2=sc.nextInt();

m3=sc.nextInt();

}

**public** **void** calculate()

{

**int** total=m1+m2+m3;

**int** average=(total)/3;

}

**public** **void** DisplayData()

{

System.***out***.println("student id"+id);

System.***out***.println("student name"+name);

System.***out***.println("student m1"+m1);

System.***out***.println("student m2"+m2);

System.***out***.println("student m3"+m3);

}

**public** **static** **void** main(String[] args) {

week4inlab3\_student obj=**new** week4inlab3\_student();

obj.GetData();

obj.DisplayData();

obj.calculate();

week4inlab3\_student obj1=**new** week4inlab3\_student();

obj1.GetData();

obj1.DisplayData();

obj1.calculate();

}

}

9. **package** labctod;

**import** java.util.Scanner;

**public** **class** week4postlab1\_engine {

**private** **int** engineID,horsepower;

**private** **float** engineWeight;

**private** String engineType;

**public** week4postlab1\_engine(**int** e,**int** h,**float** w,String t)

{

**this**.setengineID(e);

**this**.setengineType(t);

**this**.setengineWeight(w);

**this**.sethorsepower(h);

}

**private** **void** setengineID(**int** e)

{

**this**.engineID=e;

}

**private** **void** sethorsepower(**int** h)

{

**this**.horsepower=h;

}

**private** **void** setengineWeight(**float** w)

{

**this**.engineWeight=w;

}

**private** **void** setengineType(String t)

{

**this**.engineType=t;

}

**private** **int** getengineID()

{

**return** **this**.engineID;

}

**private** **int** gethorsepower()

{

**return** **this**.horsepower;

}

**private** **float** getengineWeight()

{

**return** **this**.engineWeight;

}

**private** String getengineType()

{

**return** **this**.engineType;

}

**public** String toString()

{

String result="\n"+ "Engine ID = "+**this**.getengineID()+"\n"+"Engine Type = "+**this**.engineType+"\n"+"Engine horsepower = "+**this**.gethorsepower()+"\n"+"Engine weight = "+**this**.engineWeight;

**return** result;

}

**public** **static** **void** main(String[] args)

{

Scanner sc=**new** Scanner(System.***in***);

System.***out***.print("Enter engine id,horsepower,weight,type = ");

week4postlab1\_engine s1=**new** week4postlab1\_engine(sc.nextInt(),sc.nextInt(),sc.nextFloat(),sc.next());

System.***out***.print("Enter engine id,horsepower,weight,type = ");

week4postlab1\_engine s2=**new** week4postlab1\_engine(sc.nextInt(),sc.nextInt(),sc.nextFloat(),sc.next());

System.***out***.print(s1);

System.***out***.print(s2);

}

}

10. **package** skill;

**import** java.util.Scanner;

**public** **class** week4prblm2\_cuboidwith3instance {

**private** **double** length,breadth,height,volume;

**public** week4prblm2\_cuboidwith3instance(**double** l,**double** b,**double** h)

{

**this**.setLength(l);

**this**.setBreadth(b);

**this**.setHeight(h);

}

**public** **void** setLength(**double** length) {

**this**.length = length;

}

**public** **void** setBreadth(**double** breadth) {

**this**.breadth = breadth;

}

**public** **void** setHeight(**double** height) {

**this**.height = height;

}

**public** **double** getLength() {

**return** **this**.length;

}

**public** **double** getBreadth() {

**return** **this**.breadth;

}

**public** **double** getHeight() {

**return** **this**.height;

}

**public** **double** volume()//when i use void then call function in main();

{

**this**.volume=(**double**)(**this**.length\***this**.breadth\***this**.height);

**return** **this**.volume;

}

**public** String toString()

{

String result="\nLength = "+**this**.getLength()+"\nBreadth = "+**this**.getBreadth()+"\nHeight = "+**this**.getHeight()+"\nVolume = "+**this**.volume();

**return** result;

}

**public** **static** **void** main(String[] args)

{

Scanner sc=**new** Scanner(System.***in***);

System.***out***.print("\nEnter length,breadth and height = ");

week4prblm2\_cuboidwith3instance c1=**new** week4prblm2\_cuboidwith3instance(sc.nextDouble(),sc.nextDouble(),sc.nextDouble());

System.***out***.print("\nEnter length,breadth and height = ");

week4prblm2\_cuboidwith3instance c2=**new** week4prblm2\_cuboidwith3instance(sc.nextDouble(),sc.nextDouble(),sc.nextDouble());

System.***out***.print(c1);

System.***out***.print(c2);

}

}

11. **package** skill;

**import** java.util.Scanner;

**public** **class** week5prblm1\_namedDate {

**private** **int** date,month,year;

**public** week5prblm1\_namedDate(**int** d,**int** m,**int** y)

{

**this**.setDate(d);

**this**.setMonth(m);

**this**.setYear(y);

**this**.displayDate();

}

**private** **void** setDate(**int** date) {

**this**.date = date;

}

**private** **void** setMonth(**int** month) {

**this**.month = month;

}

**private** **void** setYear(**int** year) {

**this**.year = year;

}

**private** **int** getDate() {

**return** **this**.date;

}

**private** **int** getMonth() {

**return** **this**.month;

}

**private** **int** getYear() {

**return** **this**.year;

}

**private** **void** displayDate()

{

System.***out***.print(**this**.getMonth()+"/"+**this**.getDate()+"/"+**this**.getYear());

}

**public** **static** **void** main(String[] args)

{

Scanner sc=**new** Scanner(System.***in***);

System.***out***.print("\nEnter date,month and year = ");

week5prblm1\_namedDate d1=**new** week5prblm1\_namedDate(sc.nextInt(),sc.nextInt(),sc.nextInt());

}

}

12. **package** skill;

**import** java.util.Scanner ;

**class** Member

{

**private** **int** age,Salary;

**private** Long phno;

**private** String name,address;

**public** **void** getdata()

{

Scanner sc=**new** Scanner(System.***in***);

System.***out***.print("\nEnter name,age,phone number,Salary = ");

**this**.name=sc.next();

**this**.age=sc.nextInt();

**this**.phno=sc.nextLong();

**this**.Salary=sc.nextInt();

System.***out***.print("\nEnter Address = ");

**this**.address=sc.next();

}

**public** **void** printSalary()

{

System.***out***.print("\nSalary = "+**this**.Salary);

}

**public** String toString()

{

String result="\nName = "+**this**.name+"\nAge = "+**this**.age+"\nPhone number = "+**this**.phno+"\nAddress = "+**this**.address;

**return** result;

}

}

**class** Employee **extends** Member

{

**private** String specialization;

**public** **void** getdata()

{

**super**.getdata();

Scanner sc=**new** Scanner(System.***in***);

System.***out***.print("\nEnter specialization = ");

**this**.specialization=sc.next();

}

**public** String toString()

{

String result="\nEmployee details are = "+**super**.toString()+"\nSpecialization = "+**this**.specialization;

**return** result;

}

}

**class** Manager **extends** Member

{

**private** String department;

**public** **void** getdata()

{

**super**.getdata();

Scanner sc=**new** Scanner(System.***in***);

System.***out***.print("\nEnter department = ");

**this**.department=sc.next();

}

**public** String toString()

{

String result="\nManager details are = "+**super**.toString()+"\nDepartment = "+**this**.department;

**return** result;

}

}

**public** **class** week6prblm5\_Member {

**public** **static** **void** main(String[] args)

{

Manager m1=**new** Manager();

Employee e1=**new** Employee();

m1.getdata();

e1.getdata();

System.***out***.print(m1);

m1.printSalary();

System.***out***.print(e1);

e1.printSalary();

}

}

13. package p1;

abstract class marks

{

  protected double total,percentage;

  public abstract void getPercentage();

}

class studentA extends marks

{

  private double m1,m2,m3;

  studentA(double m1,double m2,double m3)

  {

    this.m1=m1;

    this.m2=m2;

    this.m3=m3;

  }

  @Override

  public void getPercentage()

  {

    super.total=m1+m2+m3;

    super.percentage=(total/300)\*100;

    }

  public String toString()

  {

    return "Percentage of StudentA: " + super.percentage;

  }

}

class studentB extends marks

{

  private double m1,m2,m3,m4;

  studentB(double m1,double m2,double m3,double m4)

  {

    this.m1=m1;

    this.m2=m2;

    this.m3=m3;

    this.m4=m4;

  }

  @Override

  public void getPercentage()

  {

    super.total=m1+m2+m3+m4;

    super.percentage=(total/400)\*100;

  }

  public String toString()

  {

    return "Percentage of StudentB: " + super.percentage;

  }

}

public class lab13

{

  public static void main(String[] args)

  {

    studentA s1=new studentA(10,20,30);

    s1.getPercentage();

    studentB s2=new studentB(20,30,40,50);

    s2.getPercentage();

    System.out.println(s1);

    System.out.println(s2);

  }

}

14.

package p1;

abstract class Animals

{

  abstract void speak();

}

class cats extends Animals

{

  @Override

  public void speak()

  {

    System.out.println("Cat meows");

  }

}

class dogs extends Animals

{

  @Override

  public void speak()

  {

    System.out.println("Dog barks");

  }

}

public class lab14

{

  public static void main(String[] args)

  {

    cats c1=new cats();

    c1.speak();

    dogs d1=new dogs();

    d1.speak();

  }

}