Question:

1. Write a program to find the area and perimeter of a rectangle

Program:

class Rectangle

{

public static void main(String args[])

{

int length,breadth;

length=8;breadth=5;

Rectangle ob=new Rectangle();

ob.area(length,breadth);

ob.perimeter(length,breadth);

}

public void area(int l,int b)

{

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

}

public void perimeter(int l,int b)

{

System.out.println("Perimeter = "+(2\*(l+b)));

}

}

Output:

Area = 40

Perimeter = 26

Question:

2. Write a program to create a calculator having methods add(), subtract(), multiply(), divide() which perform the respective function over two numbers passed as parameters to the methods

Program:

class Calculator

{

public static void main(String args[])

{

int x,y;

x=10;y=2;

Calculator ob=new Calculator();

ob.add(x,y);

ob.subtract(x,y);

ob.multiply(x,y);

ob.divide(x,y);

}

void add(int x,int y)

{

System.out.println("Sum = "+(x+y));

}

void subtract(int x,int y)

{

System.out.println("Difference = "+(x-y));

}

void multiply(int x,int y)

{

System.out.println("Product = "+(x\*y));

}

void divide(int x,int y)

{

System.out.println("Quotient = "+(x/y));

}

}

Output:

Sum = 12

Difference = 8

Product = 20

Quotient = 5

Question:

3. Write a program to create Fibonacci series upto n terms. Accept ‘n’ as command line argument

Program:

class Fibo

{

public static void main(String args[])

{

int n=Integer.parseInt(args[0]);

Fibo obj=new Fibo();

obj.fibonacci(n);

}

public void fibonacci(int n)

{

int x=0;int y=1;

int i,sum;

System.out.println("Fibonacci Series -->");

System.out.print(x+" "+y);

for(i=3;i<=n;i++)

{

sum=x+y;

System.out.print(" "+sum);

x=y;

y=sum;

}

}

}

Output:

8

Fibonacci Series -->

0 1 1 2 3 5 8 13

Question:

4. Write a program to accept “RIP APJ Abdul Kalam” as command line argument and print it

Program:

class APJ

{

public static void main(String args[])

{

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

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

}

}

Output:

RIP APJ Abdul Kalam

RIP APJ Abdul Kalam

Question:

5. Write a program to print the following design pattern :-

\*

\*\*

\*\*\*

Program:

class Pat

{

public static void main(String args[])

{

for(int i=1;i<=3;i++)

{

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

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

System.out.println();

}

}

}

Output:

\*

\*\*

\*\*\*

Question:

6. Write a program to add, subtract, multiply or divide two numbers according to the user’s choice using switch case. Accept the input as command line argument

Program:

class Cal

{

public static void main(String args[])

{

int z=0;

int x=Integer.parseInt(args[0]);

char ch=args[1].charAt(0);

int y=Integer.parseInt(args[2]);

System.out.println("Result -->");

switch(ch)

{

case '+': z=x+y;

break;

case '-': z=x-y;

break;

case 'X': z=x\*y;

break;

case '/': z=x/y;

break;

default : System.out.println("Something went wrong !! Try Again");

System.exit(0);

}

System.out.println(z);

}

}

Output:

8 - 3

Result -->

5

Question:

7. Write a program to create a class Box having :-

(i) 4 double data members – length, breadth, height and vol

(ii) 3 constructors taking (a) no argument (b) 1 argument (c) 3 arguments

(iii) Member function display() to display the volume of the box

(iv) Member function volume() to calculate the volume of the box

Program:

import java.io.\*;

class Box

{

double length,breadth,height,vol;

Box()

{

length=breadth=height=0;

}

Box(double x)

{

length=breadth=height=x;

}

Box(double x,double y,double z)

{

length=x;

breadth=y;

height=z;

}

void display()

{

System.out.println("Volume = "+vol);

}

void volume()

{

vol=length\*breadth\*height;

}

public static void main(String args[])throws IOException

{

double x,y,z;

BufferedReader br=new BufferedReader(new InputStreamReader(System.in));

Box ob1=new Box();

ob1.volume();

ob1.display();

System.out.println("Enter one side--> ");

x=Double.parseDouble(br.readLine());

Box ob2=new Box(x);

ob2.volume();

ob2.display();

System.out.println("Enter three sides--> ");

x=Double.parseDouble(br.readLine());

y=Double.parseDouble(br.readLine());

z=Double.parseDouble(br.readLine());

Box ob3=new Box(x,y,z);

ob3.volume();

ob3.display();

}

}

Output:

Volume = 0.0

Enter one side-->

2

Volume = 8.0

Enter three sides-->

4

3

2

Volume = 24.0

Question:

8. Write a program to calculate the area of circle and triangle by overloading method area()

Program:

class AreaOverload

{

public static void main(String args[])throws IOException

{

double r,b,h;

BufferedReader br=new BufferedReader(new InputStreamReader(System.in));

System.out.println("Enter radius of circle -->");

r=Double.parseDouble(br.readLine());

System.out.println("Enter base and height of triangle -->");

b=Double.parseDouble(br.readLine());

h=Double.parseDouble(br.readLine());

AreaOverload ob=new AreaOverload();

System.out.println("Area of circle --> "+ob.area(r));

System.out.println("Area of triangle --> "+ob.area(b,h));

}

double area(double r)

{

return (3.14\*r\*r);

}

double area(double b,double h)

{

return (0.5\*b\*h);

}

}

Output:

Enter radius of circle -->

1

Enter base and height of triangle -->

2

3

Area of circle --> 3.14

Area of triangle --> 3.0

Question:

9. Write a program to calculate the bill for a person according to the mode of payment having data members code, rate and quantity. Overload method payment() as :-

(i) Additional 1% cost for payment by credit card

(ii) Additional 0.5% cost for payment by debit card

(iii) No additional cost for payment by cash

Program:

import java.io.\*;

class Input

{

int code,rate,quantity,s=0;

void input()throws IOException

{

int i=1;

BufferedReader br=new BufferedReader(new InputStreamReader(System.in));

while(i==1)

{

System.out.println("Enter the item code -->");

code=Integer.parseInt(br.readLine());

System.out.println("Enter the item rate -->");

rate=Integer.parseInt(br.readLine());

System.out.println("Enter the item quantity -->");

quantity=Integer.parseInt(br.readLine());

s=s+(rate\*quantity);

System.out.println ("Press 1 to continue else any other integer -->");

i=Integer.parseInt(br.readLine());

}

}

void cal(String ch)

{

System.out.print("Bill with cash payment = Rs."+s);

}

void cal(String ch,double a)

{

double p=0.00;

p=((s\*a)/100)+s;

System.out.println("Bill with debit = Rs."+p);

}

void cal(String ch,int a)

{

double p=0.00;

p=((s\*a)/100)+s;

System.out.println("Bill with credit = Rs."+p);

}

}

class Demo

{

public static void main(String args[])throws IOException

{

String p;

BufferedReader br=new BufferedReader(new InputStreamReader(System.in));

System.out.print("Enter the mode of Payment -->");

p=br.readLine();

if(p.equals("Cash")==true)

{

Input obj=new Input();

obj.input();

obj.cal("Cash");

}

else if(p.equals("Debit")==true)

{

Input obj1=new Input();

obj1.input();

obj1.cal("Debit",0.5);

}

else if(p.equals("Credit")==true)

{

Input obj2=new Input();

obj2.input();

obj2.cal("Credit",1);

}

else

System.out.println("Wrong Entry !! Try Again");

}

}

Output:

Enter the mode of Payment -->Credit

Enter the item code -->

1

Enter the item rate -->

10

Enter the item quantity -->

5

Press 1 to continue else any other integer -->

1

Enter the item code -->

2

Enter the item rate -->

20

Enter the item quantity -->

10

Press 1 to continue else any other integer -->

1

Enter the item code -->

3

Enter the item rate -->

5

Enter the item quantity -->

10

Press 1 to continue else any other integer -->

2

Bill with credit = Rs.303.0

Question:

10. Write a program to demonstrate inheritance in java

Program:

class A

{

int x=10;

void show()

{

System.out.println("The value of x->"+x);

}

}

class B extends A

{

int x=20;

void show()

{

System.out.println("The value of x in B->"+x);

System.out.println("The value of x->"+super.x);

}

}

class Demo

{

public static void main(String args[])

{

A ob=new A();

ob.show();

B ob1=new B();

ob1.show();

}

}

Output:

The value of x->10

The value of x in B->20

The value of x->10

Question:

11. Create a class Employee having

(i) Protected data members name as String and age as int.

(ii) Constructor to set name and age.

(iii) Member function display()

Inherit a class Worker having

(i) data members hoursWorked and salaryPerHour

(ii) a member function to calculate total salary

Inherit a class Manager having

(i) data members department and salary

Write an appropriate main method to display the use of all the functions. Use super to initialize the parent class

Program:

import java.io.\*;

class Employee

{

protected String name;

protected int age;

Employee(String s,int a)

{

name=s;

age=a;

}

void display()

{

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

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

}

}

class Worker extends Employee

{

int hoursWorked,salaryPerHour;

Worker(String s,int a,int hw,int sph)

{

super(s,a);

hoursWorked=hw;

salaryPerHour=sph;

}

void cal()

{

System.out.println("Total Salary : Rs."+(hoursWorked\*salaryPerHour));

}

}

class Manager extends Employee

{

String department;

int salary;

Manager(String s,int a,String d,int sal)

{

super(s,a);

department=d;

salary=sal;

}

void cal()

{

System.out.println("Salary of Manager is Rs"+salary);

}

}

class Demo

{

public static void main(String args[])throws IOException

{

String s,d;

int a,hw,sph,sal;

BufferedReader br=new BufferedReader(new InputStreamReader(System.in));

System.out.println("Enter name -->");

s=br.readLine();

System.out.println("Enter age -->");

a=Integer.parseInt(br.readLine());

System.out.println("Enter department -->");

d=br.readLine();

System.out.println("How many hours he/she worked ?");

hw=Integer.parseInt(br.readLine());

System.out.println("Enter the salary per hour -->");

sph=Integer.parseInt(br.readLine());

System.out.println("Enter the salary of Manager-->");

sal=Integer.parseInt(br.readLine());

Worker ob1=new Worker(s,a,hw,sph);

Manager ob2=new Manager(s,a,d,sal);

ob1.display();

ob1.cal();

ob2.cal();

}

}

Output:

Jishnu Dey

Enter age -->

20

Enter department -->

Android Developers

How many hours he/she worked ?

10

Enter the salary per hour -->

1000

Enter the salary of Manager-->

60000

Name : Jishnu Dey

Age : 20

Total Salary : Rs.10000

Salary of Manager is Rs60000

Question:

12. Create a super class Figure that stores dimensions of various two dimensional objects, having a method area() that computes the area of an object. Derive two subclasses – Rectangle and Triangle from Figure. Override area() in each of the sub classes so that it returns the area of a rectangle and of a triangle

Program:

abstract class Figure

{

int a,b;

Figure(int x,int y)

{

a=x;

b=y;

}

abstract int area();

}

class Rectangle extends Figure

{

Rectangle(int length,int breadth)

{

super(length,breadth);

}

int area()

{

int z=a\*b;

return(z);

}

}

class Triangle extends Figure

{

Triangle(int base,int height)

{

super(base,height);

}

int area()

{

int z=(int)(0.5\*b\*a);

return z;

}

}

class Demo

{

public static void main(String args[])

{

Rectangle ob1=new Rectangle(3,4);

Triangle ob2=new Triangle(3,4);

System.out.println("Area of Rectangle is "+ob1.area());

System.out.println("Area of Triangle is "+ob2.area());

}

}

Output:

Area of Rectangle is 12

Area of Triangle is 6

Question:

13. Define a class Triangle with an abstract method type\_of\_triangle(). Inherit this class into three sub classes EquilateralTriangle, IsocelesTriangle and ScaleneTriangle. The method type\_of\_triangle() will show the message ” 3 sides are equal”, “2 sides are equal” and “3 sides are different” for three above mentioned subclasses respectively

Program:

abstract class Triangle

{

abstract void type\_of\_triangle();

}

class EquilateralTriangle extends Triangle

{

void type\_of\_triangle()

{

System.out.println("3 sides are equal");

}

}

class IsocelesTriangle extends Triangle

{

void type\_of\_triangle()

{

System.out.println("2 sides are equal");

}

}

class ScaleneTriangle extends Triangle

{

void type\_of\_triangle()

{

System.out.println("3 sides are different");

}

}

class Demo

{

public static void main(String args[])

{

EquilateralTriangle ob1=new EquilateralTriangle();

IsocelesTriangle ob2=new IsocelesTriangle();

ScaleneTriangle ob3=new ScaleneTriangle();

ob1.type\_of\_triangle();

ob2.type\_of\_triangle();

ob3.type\_of\_triangle();

}

}

Output:

3 sides are equal

2 sides are equal

3 sides are different

Question:

14. Write a program to implement Link List in Java.

Program:

import java.io.\*;

class node

{

int data;

node next;

node()

{

data=0;

next=null;

}

node(int a,node h)

{

data=a;

next=null;

node temp=h;

while(temp.next!=null)

temp=temp.next;

temp.next=this;

}

void display()

{

node temp=this.next;

if(temp==null)

{

System.out.println("No node present");

return;

}

System.out.println("Linked List --> ");

while(temp!=null)

{

System.out.println(temp.data+" ");

temp=temp.next;

}

}

}

class LinkedList

{

public static void main(String a[])throws IOException

{

int ch,s=0,p=0;

node h=new node();

BufferedReader br=new BufferedReader(new InputStreamReader(System.in));

while(s!=1)

{

System.out.println("Enter the choice:1-->Insert 2-->Display 3-->Exit");

ch=Integer.parseInt(br.readLine());

if(ch==1)

{

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

p=Integer.parseInt(br.readLine());

node ob=new node(p,h);

System.out.println("Data inserted");

}

if(ch==2)

h.display();

if(ch==3)

s=1;

}

}

}

Output:

Enter the choice:1-->Insert 2-->Display 3-->Exit

1

Enter the data:

1

Data inserted

Enter the choice:1-->Insert 2-->Display 3-->Exit

1

Enter the data:

2

Data inserted

Enter the choice:1-->Insert 2-->Display 3-->Exit

1

Enter the data:

3

Data inserted

Enter the choice:1-->Insert 2-->Display 3-->Exit

1

Enter the data:

5

Data inserted

Enter the choice:1-->Insert 2-->Display 3-->Exit

2

Linked List -->

1

2

3

5

Enter the choice:1-->Insert 2-->Display 3-->Exit

3

Question:

15. Write a program to perform linear and binary search using interface.

Program:

import java.util.Scanner;

public interface SearchMethods

{

int search(int a[],int n);

}

class Linear implements SearchMethods

{

Scanner sc=new Scanner(System.in);

public int search(int a[],int n)

{

System.out.println("Enter the number to be searched:");

int num=sc.nextInt();

int c=0;

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

{

if(a[i]==num)

{

c=1;

break;

}

}

return c;

}

}

class Binary implements SearchMethods

{

Scanner sc1=new Scanner(System.in);

public int search(int a[],int n)

{

System.out.println("Enter the number to be searched:");

int num=sc1.nextInt();

int c=0;

int mid,beg=0,end=n-1;

while(beg<end)

{

mid=beg+end/2;

if(num==a[mid])

{

c=1;

break;

}

else if(num>mid)

beg=mid+1;

else

end=mid-1;

}

return c;

}

}

class Demo

{

public static void main(String[] args)

{

int m=1,z;

Scanner sc=new Scanner(System.in);

System.out.println("Enter the no. of data :");

int n=sc.nextInt();

int a[]=new int[n];

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

{

System.out.print("enter the value :");

a[i]=sc.nextInt();

}

while(m==1)

{

System.out.println("enter choice-> 1. linear search 2. Binary search");

z=sc.nextInt();

switch(z)

{

case 1: Linear ob=new Linear();

int f;

f=ob.search(a,n);

if(f==1)

System.out.println("Number present ");

else

System.out.println("Number not present");

break;

case 2:

int c1;

Binary ob1=new Binary();

c1=ob1.search(a,n);

if(c1==1)

System.out.println("Number present ");

else

System.out.println("Number not present");

break;

default:System.out.println("Wrong Choice ");

}

System.out.println("Enter 1 to search again else enter any other number ");

m=sc.nextInt ();

}

}

}

Output:

Enter the no. of data :

6

enter the value :2

enter the value :1

enter the value :5

enter the value :4

enter the value :3

enter the value :9

enter choice-> 1. linear search 2. Binary search

1

Enter the number to be searched:

8

Number not present

Enter 1 to search again else enter any other number

1

enter choice-> 1. linear search 2. Binary search

2

Enter the number to be searched:

5

Number present

Enter 1 to search again else enter any other number

4

Question:

16. Write a program to implement multithreading(Extending Thread).

Program:

import java.io.\*;

class A extends Thread

{

public void run()

{

try

{

for(int i=1;i<=5;i++)

{

System.out.println(i+" ");

sleep(100);

}

}

catch(InterruptedException e)

{

}

}

}

class B extends Thread

{

public void run()

{

try

{

for(int i=1;i<=10;i++)

{

System.out.println(i+" ");

sleep(80);

}

}

catch(InterruptedException e)

{

}

}

}

class Demo

{

public static void main(String args[])

{

A ob1=new A();

B ob2=new B();

ob1.start();

ob2.start();

}

}

Output:

1

1

2

2

3

3

4

4

5

5

6

7

8

9

10

Question:

17. Write a program to implement multithreading(Runnable).

Program:

import java.io.\*;

class a implements Runnable

{

public void run()

{

try

{

for(int i=1;i<=5;i++)

{

System.out.println(i+" ");

Thread.sleep(100);

}

}

catch(InterruptedException e)

{

}

}

}

class b implements Runnable

{

public void run()

{

try

{

for(int i=1;i<=10;i++)

{

System.out.println(i+" ");

Thread.sleep(80);

}

}

catch(InterruptedException e)

{

}

}

}

class Demo

{

public static void main(String args[])

{

a obj1=new a();

b obj2=new b();

Thread t1=new Thread(obj1);

Thread t2=new Thread(obj2);

t1.start();

t2.start();

}

}

Output:

1

1

2

2

3

3

4

4

5

5

6

7

8

9

10

Question:

18. Write a program to create an Address Book.

Program:

import java.io.\*;

import java.util.\*;

class Person

{

int id;

String city,name;

int pin;

Person(int i,String c,String n,int p)

{

id=i;

city=c;

name=n;

pin=p;

}

}

class AddressBook

{

Scanner sc=new Scanner(System.in);

int size;static int i=0;

Person[] a;

AddressBook(int s)

{

size=s;

a=new Person[size];

}

void insert()

{

System.out.print("enter id: ");

int id=sc.nextInt();

System.out.print("enter city: ");

String city=sc.nextLine();

sc.nextLine();

System.out.print("enter name: ");

String name=sc.nextLine();

System.out.print("enter pin: ");

int pin=sc.nextInt();

a[i++]=new Person(id,city,name,pin);

}

void delete()

{

int pos=0;

System.out.print("enter id of the person whose detail is to be deleted: ");

int d=sc.nextInt();

for(int j=0;j<size;j++)

if(a[j].id==d)

{

pos=j;

break;

}

a[pos]=null;

}

void display()

{

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

{

if(a[j]!=null)

{

System.out.println("id: "+a[j].id);

System.out.println("name: "+a[j].name);

System.out.println("city: "+a[j].city);

System.out.println("pin: "+a[j].pin);

}

}

}

}

class Work

{

public static void main(String args[]) throws IOException

{

Scanner sc=new Scanner(System.in);

int s;

System.out.print("enter no. of person: ");

s=sc.nextInt();

AddressBook ob=new AddressBook(s);

while(true)

{

System.out.println("enter choice");

System.out.println("1: insert");

System.out.println("2: delete");

System.out.println("4: display");

int c=sc.nextInt();

switch(c)

{

case 1: ob.insert();

break;

case 2: ob.delete();

break;

case 4: ob.display();

break;

default: System.out.print("invalid choice");

System.exit(0);

}

System.out.println("do you want to continue? yes/no");

String n=sc.nextLine();

sc.nextLine();

if(n.equals("no"))

System.exit(0);

}

}

}

Output:

enter no. of person: 2

enter choice

1: insert

2: delete

4: display

1

enter id: 1

enter city: Kolkata

enter name: Jishnu

enter pin: 700004

do you want to continue? yes/no

yes

enter choice

1: insert

2: delete

4: display

1

enter id: 2

enter city: Mumbai

enter name: Ajit

enter pin: 1000005

do you want to continue? yes/no

no

enter choice

1: insert

2: delete

4: display

4

id: 1

name: Jishnu

city:

pin: 700004

id: 2

name: Ajit

city:

pin: 1000005

do you want to continue? yes/no

no

Question:

19. Write a program to print applet and print “Hello World”.

Program:

import java.applet.Applet;

import java.awt.\*;

public class Helloworld extends Applet

{

public void paint(Graphics g)

{

g.drawString("Hello World", 25,25);

}

}

**Applet Code :**

<html>

<head>

<title>

Hello World Applet

</title >

</head>

<body>

<applet code="Helloworld.class" width=500 height=400>

</applet>

</body>

</html>

Output:

D:\ JavaPrograms> javac HelloWorld.java

D:\ JavaPrograms>AppletViewer applet.html

|  |
| --- |
| AppletViewer:Hello  World.class |
| Applet |
| Hello World |