PART-B

# Create a class named 'Member' having data members: Name, Age, PhoneNumber, Place and Salary. It also has a method named 'printSalary' which prints the salary of the members. Two classes 'Employee' and 'Manager' inherit the 'Member' class. The 'Employee' and 'Manager' classes have data members 'specialization' and 'department' respectively. Now, assign name, age, phone number, address and salary to an employee and a manager by making an object of both of these classes and print the same. [inheritance]

import java.util.Scanner;

class Member

{

String name;

int age;

String phone\_no;

String place;

long salary;

public void readMemData()

{

Scanner sc= new Scanner(System.in);

System.out.println("Enter employee's name, age, phone number, place and salary");

name=sc.next();

age=sc.nextInt();

phone\_no=sc.next();

place=sc.next();

salary=sc.nextLong();

}

public void printMemData()

{

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

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

System.out.println( "Phone No :"+phone\_no);

System.out.println("Place: "+place);

}

public void printSalary()

{

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

}

}

class Employee extends Member

{

String specialization;

void readEmpSp()

{

readMemData();

Scanner sc=new Scanner(System.in);

System.out.println("Enter Specialisation: ");

specialization=sc.nextLine();

}

void printEmpSp()

{

printMemData();

System.out.println("Specialization: "+ specialization);

}

}

class Manager extends Member

{

String dept;

void readManDept(){

readMemData();

Scanner sc=new Scanner(System.in);

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

dept=sc.nextLine();

}

void printManDept()

{

printMemData();

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

}

}

class B\_1\_Emp

{

public static void main(String args[])

{

Employee e1=new Employee();

Manager m1=new Manager();

System.out.println("Employee Details");

e1.readEmpSp();

e1.printEmpSp();

e1.printSalary();

System.out.println("Manager Details");

m1.readManDept();

m1.printManDept();

m1.printSalary();

}

}

**Output:**

Employee Details

Enter employee's name, age, phone number, place and salary

Ram 24 7367890924 Udupi 20000

Enter Specialisation:

Graphics Design

Name : Ram

Age: 24

Phone No :7367890924

Place: Udupi

Specialization: Graphics Design

salary:20000

Manager Details

Enter employee's name, age, phone number, place and salary

Vignesh 20 7338085595 Nittur 100000

Enter the department:

Product Management

Name : Vignesh

Age: 20

Phone No :7338085595

Place: Nittur

Department :Product Management

salary:100000

# Write a program to create an abstract class named shape that contains two integers and an empty method named print Area(). Provide three classes named Rectangle, Triangle and Ellipse such that each one of the classes extends the class shape. Each one of the class contains only the method print Area() that print the area of the given shape. [Abstract class]

import java.util.Scanner;

public class B\_2\_Abclass

{

public static void main(String args[])

{

Rectangle r = new Rectangle();

Triangle t = new Triangle();

Ellipse e = new Ellipse();

int v1, v2;

Scanner sc = new Scanner(System.in);

System.out.print("Enter Length and Width of a rectangle: ");

v1=sc.nextInt();

v2=sc.nextInt();

r.printArea(v1, v2);

System.out.print("Enter Base and Height of Triangle: ");

v1=sc.nextInt();

v2=sc.nextInt();

t.printArea(v1, v2);

System.out.print("Enter Axis values of Ellipse: ");

v1=sc.nextInt();

v2=sc.nextInt();

e.printArea(v1, v2);

sc.close();

}

}

abstract class Shape

{

int h=0,w=0;

abstract void printArea(int h, int w);

}

class Rectangle extends Shape

{

void printArea(int a, int b)

{

this.h=a;

this.w=b;

float area=h\*w;

System.out.println("The area of rectangle is "+ area);

}

}

class Triangle extends Shape

{

void printArea(int a , int b)

{

this.h=a;

this.w=b;

float area=0.5f\*h\*w;

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

}

}

class Ellipse extends Shape

{

void printArea(int a , int b)

{

this.h=a;

this.w=b;

float area=3.14f\*h\*w;

System.out.println("The area of Ellipse is "+ area);

}

}

**Output:**

Enter Length and Width of a rectangle: 4 5

The area of rectangle is 20.0

Enter Base and Height of Triangle: 4 5

The area of Triangle is 10.0

Enter Axis values of Ellipse: 4 5

The area of Ellipse is 62.800003

# Write a program to calculate marks of a student using multiple inheritance implemented through interface. Class Student with data members rollNo, name, String cls and methods to set and put data. Create another class test extended by class Student with data members mark, mark2, mark3 and methods to set and put data. Create interface sports with members sportsWt = 5 and putWt(). Now let the class results extends class test and implements interface sports. Write a Java program to read required data and display details in a neat format. [multiple inheritance using interface]

import java.util.Scanner;

class Student

{

int rollNo;

String name, cls;

void getData(int n , String nm, String c)

{

rollNo= n;

name=nm;

cls=c;

}

void putData()

{

System.out.println("\nStudent details: ");

System.out.println("Roll No: " + rollNo);

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

System.out.println("Class: " + cls);

}

}

class Test extends Student

{

int mark1, mark2, mark3;

void getMarks(int m1,int m2,int m3)

{

mark1=m1;

mark2=m2;

mark3=m3;

}

void putMarks()

{

System.out.println("\nMarks obtained: ");

System.out.println("Subject 1: " + mark1);

System.out.println("Subject 2: " + mark2);

System.out.println("Subject 3: " + mark3);

}

}

interface Sports

{

int sportsWt=5;

void putWt();

}

class Result extends Test implements Sports

{

int total;

public void putWt()

{

System.out.println("Sports Weight: " + sportsWt);

}

void display()

{

total=mark1+mark2+mark3+sportsWt;

putData();

putMarks();

putWt();

System.out.println("Total Score: "+ total);

}

}

class B\_3\_Student

{

public static void main(String args[])

{

Result r1= new Result();

int m1,m2,m3,rno;

String nm,cl;

Scanner sc=new Scanner(System.in);

System.out.println("Enter Roll No, Name and Class of the student");

rno=sc.nextInt();

nm=sc.nextLine();

cl=sc.nextLine();

System.out.println("Enter marks in three subjects: ");

m1=sc.nextInt();

m2=sc.nextInt();

m3=sc.nextInt();

r1.getData(rno,nm,cl);

r1.getMarks(m1,m2,m3);

r1.display();

}

}

Output:

Enter Roll No, Name and Class of the student

101 Vignesh N U

BCA fourth semister

Enter marks in three subjects:

100 100 100

Student details:

Roll No: 101

Name: Vignesh N U

Class: BCA fourth semister

Marks obtained:

Subject 1: 100

Subject 2: 100

Subject 3: 100

Sports Weight: 5

Total Score: 305

# Create a user defined package name MyPack. Add a public class Bank with account number, name and balance as data members and methods to initialize data, deposit amount, withdraw amount (minimum balance 1000) and display balance. Use this package in another class and perform basic banking operations. [User defined package]

Package:

package mypackage;

public class Bank

{

long accNo;

double balance;

String name;

public Bank(long a, String n, double bal)

{

accNo=a;

name = n;

balance = bal;

}

public void deposit(double amt)

{

balance = balance + amt;

System.out.println("Your Balance: "+ balance);

}

public void withdraw(double amt)

{

if(balance-amt>1000)

{

balance=balance-amt;

System.out.println("Your Balance: "+ balance);

}

else{

System.out.println("Insufficient balance");

}

}

public void display()

{

System.out.println("Account No: "+ accNo);

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

System.out.println("Balance: "+ balance);

}

}

Program:

import mypackage.Bank;

import java.util.Scanner;

class Account

{

public static void main(String args[])

{

Scanner sc=new Scanner(System.in);

int choice= 0;

long ac;

String nm;

double amt,id;

System.out.println("Enter A/c No: ");

ac=sc.nextLong();

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

nm=sc.next();

System.out.println("Enter the initial balance: ");

id=sc.nextDouble();

Bank b1= new Bank(ac,nm,id);

while(choice<=3)

{

System.out.println("MENU");

System.out.println("1.Deposit\n2.Withdraw\n3.Display\n4.Exit");

System.out.println("Enter your choice: ");

choice = sc.nextInt();

switch(choice)

{

case 1:

System.out.println("Enter the amount to be deposited: ");

amt= sc.nextInt();

b1.deposit(amt);

break;

case 2:

System.out.println("Enter the amount to be withdrawn: ");

amt= sc.nextInt();

b1.withdraw(amt);

break;

case 3:

b1.display();

}

}

}

}

Output:

Enter A/c No:

0441101007905

Enter the name:

Vignesh

Enter the initial balance:

1200

MENU

1.Deposit

2.Withdraw

3.Display

4.Exit

Enter your choice:

3

Account No: 441101007905

Name of the customer: Vignesh

Balance: 1200.0

MENU

1.Deposit

2.Withdraw

3.Display

4.Exit

Enter your choice:

1

Enter the amount to be deposited:

500

Your Balance: 1700.0

MENU

1.Deposit

2.Withdraw

3.Display

4.Exit

Enter your choice:

2

Enter the amount to be withdrawn:

600

Your Balance: 1100.0

MENU

1.Deposit

2.Withdraw

3.Display

4.Exit

Enter your choice:

2

Enter the amount to be withdrawn:

200

Insufficient balance

MENU

1.Deposit

2.Withdraw

3.Display

4.Exit

Enter your choice:

3

Account No: 441101007905

Name of the customer: Vignesh

Balance: 1100.0

MENU

1.Deposit

2.Withdraw

3.Display

4.Exit

Enter your choice:

4

# Write a program that implements a multi-threaded program has three threads. First thread generates a random integer every second, and if the value is even, second thread computes the square of the number and prints. If the value is odd the third thread will print the value of cube of the number. [Multithreading]

import java.io.\*;

import java.util.\*;

class First extends Thread

{

public void run()

{

for(;;)

{

int r;

Random d = new Random();

r = d.nextInt(200) + 1;

try

{

Thread.sleep(1000);

if(r%2==0)

{

Thread t2=new Second(r);

t2.start();

}

else

{

Thread t3=new Third(r);

t3.start();

}

}

}

catch(InterruptedException e)

{}

}}}

class Second extends Thread

{

int r1;

Second(int r)

{

r1=r;

}

public void run()

{

System.out.println("The square of number "+r1+" is: "+r1\*r1);

}

}

class Third extends Thread

{

int r1;

Third(int r)

{

r1=r;

}

public void run()

{

System.out.println("The Cube of the Number "+r1+" is: "+r1\*r1\*r1);

}

}

class B\_5\_Mthread

{

public static void main(String[] args) {

Thread t1=new First();

System.out.println("press Ctrl+c to stop......");

t1.start();

}

}

Output:

press Ctrl+c to stop......

The square of number 74 is: 5476

The square of number 70 is: 4900

The Cube of the Number 45 is: 91125

The square of number 4 is: 16

The square of number 4 is: 16

The Cube of the Number 173 is: 5177717

The Cube of the Number 179 is: 5735339

The Cube of the Number 53 is: 148877

The Cube of the Number 45 is: 91125

The Cube of the Number 137 is: 2571353

The square of number 150 is: 22500

The Cube of the Number 169 is: 4826809

The Cube of the Number 53 is: 148877

The square of number 76 is: 5776

The Cube of the Number 151 is: 3442951

The Cube of the Number 115 is: 1520875

The square of number 172 is: 29584

The Cube of the Number 87 is: 658503

The square of number 82 is: 6724

The square of number 32 is: 1024

The Cube of the Number 143 is: 2924207