**Co1**

1. **Define a class ‘product’ with data members pcode, pname and price. Create 3 objects of the class and find the product having the lowest price.**

**program**

import java.util.Scanner;

class product

{

int pcode,price;

String pname;

Scanner sc=new Scanner(System.in);

void read()

{

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

pcode=sc.nextInt();

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

pname=sc.next();

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

price=sc.nextInt();

}

void display()

{

System.out.println("");

System.out.println("Pcode:"+pcode);

System.out.println("Pname:"+pname);

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

}

}

public class Productl

{

public static void main(String args[])

{

Scanner sc=new Scanner(System.in);

int temp;

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

product p1=new product();

p1.read();

System.out.println("\nProduct 2:");

product p2=new product();

p2.read();

System.out.println("\nProduct 3:");

product p3=new product();

p3.read();

temp=p1.price;

System.out.println("\nProduct with lowest price:");

if(p2.price<temp && p2.price<p3.price)

{

temp=p2.price;

p2.display();

}

else if(p3.price<temp)

{

temp=p3.price;

p3.display();

}

else

{

p1.display();

}

}

}

**Output**

Product 1:

Enter the pcode:

101

Enter the pname:

usb

Enter the price:

800

Product 2:

Enter the pcode:

102

Enter the pname:

memorycard

Enter the price:

600

Product 3:

Enter the pcode:

103

Enter the pname:

mobile

Enter the price:

10000

Product with lowest price:

Pcode:102

Pname:memorycard

Price:600

1. **Read 2 matrices from the console and perform matrix addition.**

**program**

import java.util.Scanner;

public class Matrix

{

public static void main(String args[])

{

int i,j,n;

Scanner sc=new Scanner(System.in);

int a[][]=new int[10][10];

int b[][]=new int[10][10];

int c[][]=new int[10][10];

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

n=sc.nextInt();

System.out.println("Enter the elements of first matrix");

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

{

for(j=0;j<n;j++)

{

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

}

}

System.out.println("Enter the elements of second matrix");

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

{

for(j=0;j<n;j++)

{

b[i][j]=sc.nextInt();

}

}

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

{

for(j=0;j<n;j++)

{

c[i][j]=a[i][j]+b[i][j];

}

}

System.out.println("Resultant matrix");

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

{

for(j=0;j<n;j++)

{

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

}

System.out.println();

}

}

}

**Output**

Enter the size:

2

Enter the elements of first matrix

1

2

2

3

Enter the elements of second matrix

1

2

3

4

Resultant matrix

2 4

5 7

1. **Add complex numbers**

**program**

import java.util.Scanner;

class complex

{

int a,b;

Scanner sc=new Scanner(System.in);

void read()

{

System.out.println("Enter the value for a:");

a=sc.nextInt();

System.out.println("Enter the value for b:");

b=sc.nextInt();

}

}

public class Complexadd

{

public static void main(String args[])

{

int a,b;

complex c1=new complex();

System.out.println("\nComplex number 1:");

c1.read();

complex c2=new complex();

System.out.println("\nComplex number 2:");

c2.read();

a=c1.a+c2.a;

b=c1.b+c2.b;

System.out.println("\nComplex number 1:"+c1.a+"+"+c1.b+"i");

System.out.println("Complex number 2:"+c2.a+"+"+c2.b+"i");

System.out.println("Result="+a+"+"+b+"i");

}

}

**Output**

Complex number 1:

Enter the value for a:

1

Enter the value for b:

2

Complex number 2:

Enter the value for a:

3

Enter the value for b:

4

Complex number 1:1+2i

Complex number 2:3+4i

Result=4+6i

1. **Read a matrix from the console and check whether it is symmetric or not.**

**program**

import java.util.Scanner;

public class Symmetric

{

public static void main(String args[])

{

int i,j,n,c=0,r,cl;

Scanner sc=new Scanner(System.in);

int a[][]=new int[10][10];

int b[][]=new int[10][10];

System.out.println("Enter the row size:");

r=sc.nextInt();

System.out.println("Enter the column size:");

cl=sc.nextInt();

if(r==cl)

{

System.out.println("Enter the elements of matrix");

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

{

for(j=0;j<cl;j++)

{

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

}

}

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

{

for(j=0;j<cl;j++)

{

b[j][i]=a[i][j];

}

}

System.out.println("Transpos matrix:");

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

{

for(j=0;j<cl;j++)

{

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

}

System.out.println();

}

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

{

for(j=0;j<cl;j++)

{

if(a[i][j]!=b[i][j])

{

c=1;

break;

}

}

}

if(c==1)

System.out.println("Not Symmetric");

if(c==0)

System.out.println("Symmetric");

}

else

{

System.out.println("Not possible");

}

}

}

**Output**

Enter the row size:

2

Enter the column size:

2

Enter the elements of matrix

1

2

1

2

Transpos matrix:

1 1

2 2

Not Symmetric

**5. Create CPU with attribute price. Create inner class Processor (no. of cores, manufacturer) and static nested class RAM (memory, manufacturer). Create an object of CPU and print information of Processor and RAM.**

**Program**

import java.util.Scanner;

class cpu

{

Scanner sc=new Scanner(System.in);

int price;

void getcpu()

{

System.out.println("\nEnter the price of cpu:");

price=sc.nextInt();

}

class processor

{

int ncore;

String manf;

void getprocessor()

{

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

ncore=sc.nextInt();

System.out.println("Enter the manufacturer of processor");

manf=sc.next();

}

void putprocessor()

{

System.out.println("No of cores of processor:"+ncore);

System.out.println("Manufacturer of processor"+manf);

}

}

static class ram

{

int memory;

String manf;

Scanner sc=new Scanner(System.in);

void getram()

{

System.out.println("Enter the memory size(GB) of ram:");

memory=sc.nextInt();

System.out.println("Enter the manufacturer of ram");

manf=sc.next();

}

void putram()

{

System.out.println("Memory size of ram:"+memory+"GB");

System.out.println("Manufacturer of ram:"+manf);

}

}

}

public class Computer {

public static void main(String args[])

{

cpu c=new cpu();

cpu.processor p=c.new processor();

cpu.ram r=new cpu.ram();

c.getcpu();

p.getprocessor();

r.getram();

System.out.println("\nDetails");

p.putprocessor();

r.putram();

}

}

**Output**

Enter the price of cpu:

10000

Enter the no of cores of processor:

8

Enter the manufacturer of processor

intel

Enter the memory size(GB) of ram:

4

Enter the manufacturer of ram

acer

Details

No of cores of processor:8

Manufacturer of processorintel

Memory size of ram:4GB

Manufacturer of ram:acer