**Home Work**

Teacher: Kiran Waghmare

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1. WAP to add two matrices. (Matrix Addition 1)

import java.util.Scanner;

class Asg

{

public static void main(String args[])

{

Scanner sc=new Scanner(System.in);

int a[][]=new int[3][3];

int b[][]=new int[3][3];

int c[][]=new int[3][3];

System.out.println("Enter elements of 1st matrix");

for(int i=0; i<=2; i++)

{

for(int j=0; j<=2; j++)

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

}

System.out.println("Enter elements of 2st matrix");

for(int i=0; i<=2; i++)

{

for(int j=0; j<=2; j++)

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

}

System.out.println("Sum of the two matrix is ");

for(int i=0; i<=2; i++)

{

for(int j=0; j<=2; j++)

System.out.printf("%4d",a[i][j]+b[i][j]);

System.out.println();

}

}

}

1. WAP to subtract two matrices.

import java.util.Scanner;

class Asg

{

public static void main(String args[])

{

Scanner sc=new Scanner(System.in);

int a[][]=new int[3][3];

int b[][]=new int[3][3];

int c[][]=new int[3][3];

System.out.println("Enter elements of 1st matrix");

for(int i=0; i<=2; i++)

{

for(int j=0; j<=2; j++)

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

}

System.out.println("Enter elements of 2st matrix");

for(int i=0; i<=2; i++)

{

for(int j=0; j<=2; j++)

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

}

System.out.println("Difference of the two matrix is ");

for(int i=0; i<=2; i++)

{

for(int j=0; j<=2; j++)

System.out.printf("%4d",a[i][j]-b[i][j]);

System.out.println();

}

}

}

1. WAP to multiply two matrices. (Matrix Multiplication 1)

import java.util.Scanner;

class Asg

{

public static void main(String args[])

{

Scanner sc=new Scanner(System.in);

int a[][]=new int[3][3];

int b[][]=new int[3][3];

int c[][]=new int[3][3];

System.out.println("Enter elements of 1st matrix");

for(int i=0; i<=2; i++)

{

for(int j=0; j<=2; j++)

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

}

System.out.println("Enter elements of 2st matrix");

for(int i=0; i<=2; i++)

{

for(int j=0; j<=2; j++)

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

}

System.out.println("Product of the two matrix is ");

for(int i=0; i<=2; i++)

{

for(int j=0; j<=2; j++)

{

int sum=0;

for(int k=0; k<=2; k++)

sum+=a[i][k]\*b[k][j];

c[i][j]=sum;

System.out.printf("%4d",c[i][j]);

}

System.out.println();

}

}

}

1. WAP to print the transpose of a given matrix. (Matrix Transpose 1)

import java.util.Scanner;

class Asg

{

public static void main(String args[])

{

Scanner sc=new Scanner(System.in);

int a[][]=new int[3][3];

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

for(int i=0; i<=2; i++)

{

for(int j=0; j<=2; j++)

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

}

System.out.println("Transpose of the given matrix is ");

for(int i=0; i<=2; i++)

{

for(int j=0; j<=2; j++)

System.out.printf("%4d",a[j][i]);

System.out.println();

}

}

}

1. WAP to calculate the sum of all the matrix elements.(Sum of Matrix Elements 1)

import java.util.Scanner;

class Asg

{

public static void main(String args[])

{

Scanner sc=new Scanner(System.in);

int a[][]=new int[3][3];

int sum=0;

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

for(int i=0; i<=2; i++)

{

for(int j=0; j<=2; j++)

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

}

for(int i=0; i<=2; i++)

{

for(int j=0; j<=2; j++)

sum+=a[i][j];

}

System.out.println("The sum of all the matrix elements = "+sum);

}

}

1. WAP to print the diagonal elements of a given matrix.(Diagonal Matrix 1)

import java.util.Scanner;

class Asg

{

public static void main(String args[])

{

Scanner sc=new Scanner(System.in);

int a[][]=new int[3][3];

int e=0;

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

for(int i=0; i<=2; i++)

{

for(int j=0; j<=2; j++)

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

}

System.out.println("The diagonal matrix of the given matrix is");

for(int i=0; i<=2; i++)

{

for(int j=0; j<=2; j++)

{

if(i==j)

System.out.printf("%4d", a[i][j]);

else

System.out.printf("%4d", e);

}

System.out.println();

}

}

}

1. WAP to calculate the sum, difference and product of all the matrix elements according to the choice of the user.(Matrix Arithmetics 1)

import java.util.Scanner;

class Mtrx

{

int m[][]=new int[3][3];

Mtrx()

{

for(int i=0; i<=2; i++)

{

for(int j=0; j<=2; j++)

m[i][j]=0;

}

}

void elements()

{

Scanner sc=new Scanner(System.in);

System.out.println("Enter the 9 matrix elements");

for(int i=0; i<=2; i++)

{

for(int j=0; j<=2; j++)

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

}

}

void sum(Mtrx a, Mtrx b)

{

for(int i=0; i<=2; i++)

{

for(int j=0; j<=2; j++)

m[i][j]=a.m[i][j]+b.m[i][j];

}

}

void diff(Mtrx a, Mtrx b)

{

for(int i=0; i<=2; i++)

{

for(int j=0; j<=2; j++)

m[i][j]=a.m[i][j]-b.m[i][j];

}

}

void product(Mtrx a, Mtrx b)

{

for(int i=0; i<=2; i++)

{

for(int j=0; j<=2; j++)

{

for(int k=0; k<=2; k++)

m[i][j]+=a.m[i][k]+b.m[k][j];

}

}

}

void display()

{

for(int i=0; i<=2; i++)

{

for(int j=0; j<=2; j++)

System.out.printf("%4d",m[i][j]);

System.out.println();

}

}

}

class MtrxArthi

{

public static void main(String args[])

{

char ch='y';

while(ch=='y' ||ch=='Y')

{

Scanner sc=new Scanner(System.in);

Mtrx a=new Mtrx();

a.elements();

Mtrx b=new Mtrx();

b.elements();

Mtrx c=new Mtrx();

System.out.println("Enter your choice \n1. Sum \n2. Difference\n3. Product\n any other key to quit");

int x=sc.nextInt();

switch(x)

{

case 1: c.sum(a,b);

System.out.println("The sum of the two matrix is ");

c.display();

break;

case 2: c.diff(a,b);

System.out.println("The difference of the two matrix is ");

c.display();

break;

case 3: c.product(a,b);

System.out.println("The product of the two matrix is ");

c.display();

break;

default:

}

System.out.print("Do yo wish to continue: ");

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

}

}

}