EXPERIMENT 1

1. To implement addition and multiplication of two 2D arrays.
2. **package** firstproject;
3. **import** java.util.Scanner;
4. **public** **class** TwoMatrix {
5. **public** **static** **void** main(String args[]) {
7. //declaring and initializing 2D array
8. **int** arr[][]=**new** **int** [2][2];
9. **int** arr1[][]=**new** **int** [2][2];
10. **int** sum[][]=**new** **int** [2][2];
11. Scanner input=**new** Scanner (System.***in***);
12. System.***out***.println("Enter first matrix:");
13. **for**(**int** i=0;i<2;i++)
14. {
15. **for**(**int** j=0;j<2;j++) {
16. arr[i][j]=input.nextInt();
17. }
18. }
19. System.***out***.println("Enter second matrix:");
20. **for**(**int** i=0;i<2;i++)
21. {
22. **for**(**int** j=0;j<2;j++) {
23. arr1[i][j]=input.nextInt();
24. }
25. }
26. System.***out***.println("Printing array first matrix:\n");
27. **for**(**int** i=0;i<2;i++){
28. **for**(**int** j=0;j<2;j++){
29. System.***out***.print("arr["+i+"]["+j+"]=" +arr[i][j]);
30. //System.out.print(arr[i][j]+" ");
31. }
32. System.***out***.println();
33. }
34. System.***out***.println("Printing array second matrix:\n");
35. **for**(**int** i=0;i<2;i++){
36. **for**(**int** j=0;j<2;j++){
37. System.***out***.print("arr1["+i+"]["+j+"]=" +arr1[i][j]);
38. // System.out.print(arr[i][j]+" ");
39. }
40. System.***out***.println("\n");
41. }
42. System.***out***.println("addition of two matix:\n");
43. **for**(**int** i=0;i<2;i++)
44. {
45. **for**(**int** j=0;j<2;j++)
46. {
47. sum[i][j]=arr[i][j]+arr1[i][j];
48. System.***out***.println("sum["+i+"]["+j+"]="+sum[i][j]);
49. }
50. }
51. }
52. }

MULTIPLICATION OF 2D ARRAY.

**package** firstproject;

**import** java.util.Scanner;

**public** **class** ArrayMul {

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

//declaring and initializing 2D array

**int** arr[][]=**new** **int** [3][3];

**int** arr1[][]=**new** **int** [3][3];

**int** mul[][]=**new** **int** [3][3];

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

System.***out***.println("Enter first matrix:");

**for**(**int** i=0;i<3;i++)

{

**for**(**int** j=0;j<3;j++) {

arr[i][j]=input.nextInt();

}

}

System.***out***.println("Enter second matrix:");

**for**(**int** i=0;i<3;i++)

{

**for**(**int** j=0;j<3;j++) {

arr1[i][j]=input.nextInt();

}

}

System.***out***.println("Printing array first matrix:\n");

**for**(**int** i=0;i<3;i++){

**for**(**int** j=0;j<3;j++){

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

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

}

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

}

System.***out***.println("Printing array second matrix:\n");

**for**(**int** i=0;i<3;i++){

**for**(**int** j=0;j<3;j++){

System.***out***.print("arr1["+i+"]["+j+"]=" +arr1[i][j]);

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

}

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

}

System.***out***.println("Multiplying matix:\n");

**for**(**int** i=0;i<3;i++){

**for**(**int** j=0;j<3;j++){

mul[i][j]=0;

**for**(**int** k=0;k<3;k++)

{

mul[i][j]+=arr[i][k]\*arr1[k][j];

}

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

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

}

}

}

}

TRANSPOSE OF 2D ARRAY

**package** firstproject;

**import** java.util.Scanner;

**public** **class** ArrayTranspose {

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

//declaring and initializing 2D array

**int** arr[][]=**new** **int** [2][2];

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

System.***out***.println("Enter matrix:");

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

{

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

arr[i][j]=input.nextInt();

}

}

System.***out***.println("Printing array matrix:\n");

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

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

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

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

}

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

}

System.***out***.println("Transpose array matrix:\n");

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

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

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

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

}

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

}

}

}