

```
1  // 2D array demo 1
2
3  public class two_dimensional_array_demo1
4  {
5      public static void main(String [] args)
6      {
7          int row = 0;
8          int col = 0;
9          int sum = 0;
10         int [][] scores = new int[5][3];
11         int rowSum = 0;
12         int colSum = 0;
13         double teamAve = 0.0;
14         double [] colAverages = new double[3];
15
16         // ***** creating random scores *****
17
18         for (row = 0; row < 5; row++)
19         {
20             for (col = 0; col < 3; col++)
21             {
22                 scores [row][col] = (int) (Math.random() * 300 + 1);
23                 System.out.println ("Bowler #" + (row + 1) +
24                                     " score in game #" + (col + 1) + " is "
25                                     + scores [row][col]);
26             }
27         }
28
29         // ***** computing team average *****
30
31         for (row = 0; row < 5; row++)
32         {
33             for (col = 0; col < 3; col++)
34             {
35                 sum = sum + scores [row][col];
36             }
37         }
38
39         teamAve = (double) sum / 15;
40         System.out.println ("The team average is " + teamAve );
41
42         // ***** neatly displaying the 2D array *****
43
44         for (row = 0; row < 5; row++)
45         {
46             System.out.print ("Bowler #" + (row + 1) + "'s scores\t" );
47
48             for (col = 0; col < 3; col++)
49             {
50                 System.out.print (scores [row][col] + "\t");
51             }
52
53             System.out.println ();           // moving cursor to next row
54         }
55
56         // ***** computing row averages *****
57
58         for (row = 0; row < 5; row++)
59         {
60             rowSum = 0;
61
62             for (col = 0; col < 3; col++)
63             {
64                 rowSum = rowSum + scores [row][col];
65             }
66
67             System.out.println ("The total of the scores in row " +
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68         (row + 1) + " is " + rowSum);
69         System.out.println("The average of this row is " +
70             (rowSum / 3.0));
71     }
72
73     // ***** computing column averages *****
74     for (col = 0; col < 3; col++)
75     {
76         colSum = 0;
77
78         for (row = 0; row < 5; row++)
79         {
80             colSum = colSum + scores[row][col];
81         }
82
83         System.out.println("The total of the scores in column " +
84             (col + 1) + " is " + colSum);
85         colAverages[col] = colSum / 5.0;
86         System.out.println("The average of this column is " +
87             colAverages[col]);
88     }
89 }
90
91 }
```