```c
 1   //sample code on 2D arrays
 2   #include<stdio.h>
 3   #define N 3
 4
 5   //void init(int a[N][N]){ // VALID
 6   //void init(int a[][]){ //INVALID
 7   void init(int a[][N]){ //VALID
 8         int i,j;
 9
10         for(i=0;i<N;i++)
11                 for(j=0;j<N;j++)
12                         a[i][j]=N*i+j+1;
13   }
14
15   void output(int a[N][N]){
16         int i,j;
17
18         for(i=0;i<N;i++){
19                 for(j=0;j<N;j++)
20                         printf("%3i ",a[i][j]);
21                 printf("\n");
22         }
23   }
24
25   void output2(int a[N][N]){
26         int i,j;
27         int *b;
28
29         b=(int *)a; //type cast
30         for(i=0;i<N*N;i++){
31                 printf("%3i\n",b[i]);
32                 //if (i%N==N-1) printf("\n");
33         }
34   }
35
36
37   int main(){
38         int m[N][N];//valid
39
40         int i;
41
42         init(m);
43         output(m);
44         output2(m); //treats the matrix as a 1D array
45
46   }
```