2D Array Questions

1) Write a method that takes in a 2D int array as its parameter, and returns the minimum element in the array. For example, if the array is \[
\begin{bmatrix}
1 & 2 & 3 \\
4 & 5 & 6 \\
7 & 8 & 9
\end{bmatrix}
\], then the method would return 9. If the array is \[
\begin{bmatrix}
1 & 10 & 3 \\
5 & 3 & 2
\end{bmatrix}
\], then the method would return 10. You may assume that the array is rectangular (i.e. all the rows have the same length, and all of the columns have the same length).

2) Write a method that takes in two int parameters called height and width, and returns a 2D int array with height rows and width columns. Furthermore, the entry in i-th row and j-th column should be \(i + j\). For example, if the height is 3 and the width is 4, then the method should return the array \[
\begin{bmatrix}
2 & 3 & 4 & 5 \\
3 & 4 & 5 & 6 \\
4 & 5 & 6 & 7
\end{bmatrix}
\]. If the height is 1 and the width is 1, then the method should return the array \[
\begin{bmatrix}
2
\end{bmatrix}
\]. You may assume that positive integers are passed in for height and width.

3) Write a method that takes in an int n as its parameter, and returns an \(n \times n\) int array. The entries in this array should alternate between 0 and 1 in both the rows and columns. For example, if \(n\) is 1, then the method should return the array \[
\begin{bmatrix}
0
\end{bmatrix}
\]. If \(n\) is 2, then the method should return the array \[
\begin{bmatrix}
0, 1 \\
1, 0
\end{bmatrix}
\]. If \(n\) is 3, then the method should return the array \[
\begin{bmatrix}
0, 1, 0 \\
1, 0, 1 \\
0, 1, 0
\end{bmatrix}
\], etc.