MATLAB lesson 3: Matrices
Exercise sheet

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1 Based on the lesson

These exercises are designed to test your understanding of the lesson content and can be completed by referring to the material in the lesson.

1. Create a matrix **a**, which is a 2*3 matrix (two rows, three columns) of ones
2. Create a 4*3 matrix **b**, of uniformly distributed random numbers
3. Create a 10*10 matrix **c**, of zeros
4. Set row 3, column 4 of matrix **c** equal to 4
5. Set row 2 equal to 5
6. Set rows 5 to 7 between columns 6 and 8 equal to 6
7. Set all elements of matrix c equal to 3
8. Calculate the matrix-square of **c**, i.e. the matrix product of **c***c
9. Calculate the elementwise square of matrix c
10. Divide every element in array **c** by 3
11. Create a 4*4 magic array, **m**
12. Find the minimum value of **m**
13. Create the following matrix:

$$\begin{matrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{matrix}$$

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2 Using the MATLAB documentation

This section will require you to search within the MATLAB help

1. Find the indices of the minimum value of matrix **m** you previously created (consult the documentation for `min`). For example, if the minimum value is in row 2, column 3, their indices are (2,3).
2. Create an array of random numbers with 500 rows and 1 column
3. Test if `any` values are greater than
   (a) 0.5
   (b) 0.9
   (c) 0.99
4. `Find` the indices where values are greater than 0.99
5. Are `all` values are greater than
   (a) 0.5
   (b) 0.1
   (c) 0.01