0.1 Types of matrices

0.1.1 Empty matrix

A matrix where every element is 0. There is one for each dimension of matrix.

$$A = \begin{bmatrix} 0 & 0 & ... & 0 \\ 0 & 0 & ... & 0 \\ ... & ... & ... & ... \\ 0 & 0 & ... & 0 \end{bmatrix}$$

0.2 Triangular matrix

A matrix where $a_{ij} = 0$ where $i < j$ is upper triangular.

A matrix where $a_{ij} = 0$ where $i > j$ is lower triangular.

A matrix which is either upper or lower triangular is a triangular matrix.

0.3 Symmetric matrices

All symmetric matrices are square.

The identity matrix is an example.

A matrix where $a_{ij} = a_{ji}$ is symmetric.

0.4 Diagonal matrix

A matrix where $a_i j = 0$ where $i \neq j$ is diagonal.

All diagonal matrices are symmetric.

The identity matrix is an example.