# MRI programming assignment report

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# 1 K-space

K-space is an array of numbers representing spatial frequencies in the MR image. Each number's value represents the relative contribution of its unique spatial frequency to the final image.
The k-space and MR image may be converted to one another using the **Fourier Transform**.
The cells of k-space are commonly displayed on rectangular grid with principal axes $k_x$ and $k_y$. The $k_x$ and $k_y$ axes of k-space correspond to the horizontal (x-) and vertical (y-) axes of the image.
**Note**: The individual points ($k_x$,$k_y$) in k-space do not correspond one-to-one with individual pixels (x,y) in the image. Each k-space point contains spatial frequency and phase information about **every** pixel in the final image.