KDG Background Reading

- What are Polytopes?
  a geometric object with flat sides.

- Kernel Density Estimation (KDE)
  - a non-parametric way to estimate the PDF of a random variable.
  - Let $(x_1, x_2, \ldots, x_n)$ be i.i.d. sampled drawn from a known distribution f at a given point x. We are interested in estimating the shape of the function f.

$$\hat{f}_h(x) = \frac{1}{n}\sum_{i=1}^{n} K_h(x - x_i) = \frac{1}{nh}\sum_{i=1}^{n} K\left(\frac{x - x_i}{h}\right)$$

where $K_h \rightarrow$ Kernel (a non-negative f^n)
$h \rightarrow$ Bandwith (a smoothing parameter)