Data can be described by summary statistics. like mean or variance.

The mean is the average datapoints
- ◇ does not have to be a typical datapoint
- ◇ does not have to be in the dataset.

Given some dataset D — the expected value or mean value is,

$$D = \{x_1, \ldots, x_n\} \text{ , the dataset}$$

$$E[D] = \frac{1}{N} \sum_{n=1}^{N} x_n \text{ , where } \underline{N} \text{ is the number of datapoints.}$$

Example: rolling dice.

If you were to roll three die and produced this outcome $D' = \{1, 2, 4, 6, 6\}$, the expected value would be,

$$E[D'] = \frac{1 + 2 + 4 + 6 + 6}{5}$$

$$= 19/5$$

$$= 3.8 \text{ , a non-typical and non-entry in the dataset.}$$