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

The mean is the average datapoint.

- 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.

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

$$E[D] = \frac{1}{N} \sum_{n=1}^{N} x_n$$. where N 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.

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

$$= 19/5$$

$= 3.8$. a non-typical and non-entry in the dataset.