Probability-Introduction

Probability: Probability of an event is the measurement of the chance that the event will occur as a result of an experiment.

Mathematically, the probability of an event A is denoted by P(A) and defined by

$$P(A) = \frac{\text{Number of outcomes to } A}{\text{Total number of outcomes of the experiment}} = \frac{n(A)}{n(S)}.$$

- Probability is the prediction of a certain outcome when some thing occurs.

  Ex: 1. Toss a Die
  2. Flip a coin
  3. Draw a card

  3 types of probabilities:

  1. Theoretical probability
  2. Empirical probability
  3. Subjective probability

1. **Theoretical probability:** Based on predictable parameters.

   P (Tossing a five)= $\frac{1}{6}$

   P (Drawing a spade)= $\frac{1}{4}$

2. **Empirical probability:** Based on historical and geological records

   P (storms earthquake in the next 10 years)

   P (Getting into a car accident)

3. **Subjective probability:** Based on experience or intuition.

   P (Getting hurt when falling off a bicycle)