Chapter 2

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1 Sample Space

1.1 Experiment

Describe any process that generates a set of data

1.2 Definition 2.1

The set of all possible outcomes of a statistical experment is called the **sample space** and is representes by symbol S
Each outcomes in a sample space is called an element or a member of the sample space, or simply a sample point.
The sample space S, of possible outcomes when a coin is flipped, may be written

$$S = \{H, T\},$$

where H and T correspond to heads and tails, respectively

2 Events

2.1 Definition 2.2

An **event** is a subset of a sample space

2.2 Definition 2.3

The complement of an event A with respect to$S$ is the subset of all elements of S that are not in A. We denot the complement of A by symbol A'.

2.3 Definition 2.4

The intersection of two events A and B, denote by the symbol $A \cap B$

2.4 Definition 2.5

Two events A and B are **mutually excusive**, or **disjoint**,if $A \cap B = \emptyset$,that is, if A and B have no elements in common

2.5 Definition 2.6

The **union** of the two events A and B, denoted by the symbol $A \cup B$, is the event containing all the elements that belong to A and B or both

3 Counting Sample Points