Data Management Notes

Intro to Statistics

Qinghao Hu

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Chapter 1

Unit 1

1.1 Lecture 1

1.1.1 The Fundamental or Multiplicative Counting Principle

If a task is made up of *several stages*, then the number of choices is the **product** of the number of possibilities at each stage.

1.1.2 Additive Counting Principle

In a situation with actions that cannot occurred at the "same time" than the number of possibilities is the sum of the possibilities of all the actions

!!! Remember, $0! = 1$

1.2 Lecture 1.2

A permutation is an ARRANGEMENT of items in a definite order.

$$nPr = \frac{n!}{(n-r)!}$$

and

$$nPr = P(n, r)$$

1.3 Like Term Permutations

The number of permutations of a set of n objects containing a identical objects of one kind, b identical objects of a second kind, c identical objects of a third kindand so on is $\frac{n!}{a!*b!*c!}$

1.4 Pascal Triangle

Do what the hell you want to do about Pascal

1.5 Venn Diagrams

Concepts:

- In mathematics, a set is a well-defined collection of *distinct* objects/elements
- A Venn diagram is used to organize the (number of) elements in different *set* of data.
- Elements that are in set a and set b are described as the intersection of A and B. The notation of $A \cap B$ describes this situation
- Elements that are in set a or set b are discribed as the combine of A and B. The notation of of $A \cup B$ describes this situation
- The Complement, A, of a set A is the set of all elements in the universal set that are NOT elements of A.

1.6 Combination

$$nCr = C_n^r = \frac{n!}{r! * (n-r)!}$$

Remainder, $0! = 1$