

# Chapter 1

## Basic knowledge of statistics



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# 1 Meaning of statistics

**Statistics refers to numbers which is obtained from collecting To find the exact meaning from the things you want to study. This is generally referred to as statistical data.**

**&**

**Statistics refers to the principles and regulations governing the collection of numerical data. which shows various facts that lead to rational decision making, called statistics.**



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# 1 Meaning of statistics

## 1. Statistical data

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refers to numbers that represent facts. that have been recorded, such as statistics of foreign tourists who have visited Chiao Mai Province in the past 10 years

## 2. Statistics

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refers to the science that involves various techniques for working with the data that needs to be studied. It consists of 4 steps: collecting data  
Presentation of information data  
analysis Interpretation of data

# 1 Meaning of statistics

**3. Statistics refers to a branch of science. Its roots and content are based on mathematics and logic. Based on probability theory and principles of reason**

**4. Statistical values mean numerical values that can be calculated or processed from sample data using statistical methods. Statistical values that are frequently used, such as maximum value, minimum value, and mode.**



## **2. Scope of statistics**

**Descriptive statistics is the principle regarding the statistical methods used to collect data. Organizing information Presentation of information which shows the nature of the data By cutting out unimportant details and presenting only the important characteristics of those data.**

**Inferential statistics It is an analysis of data from collected samples. and infer or link the results to the population By using statistical methods This inference may be made in the form of an estimate. to show the characteristics of the population or hypothesis testing**

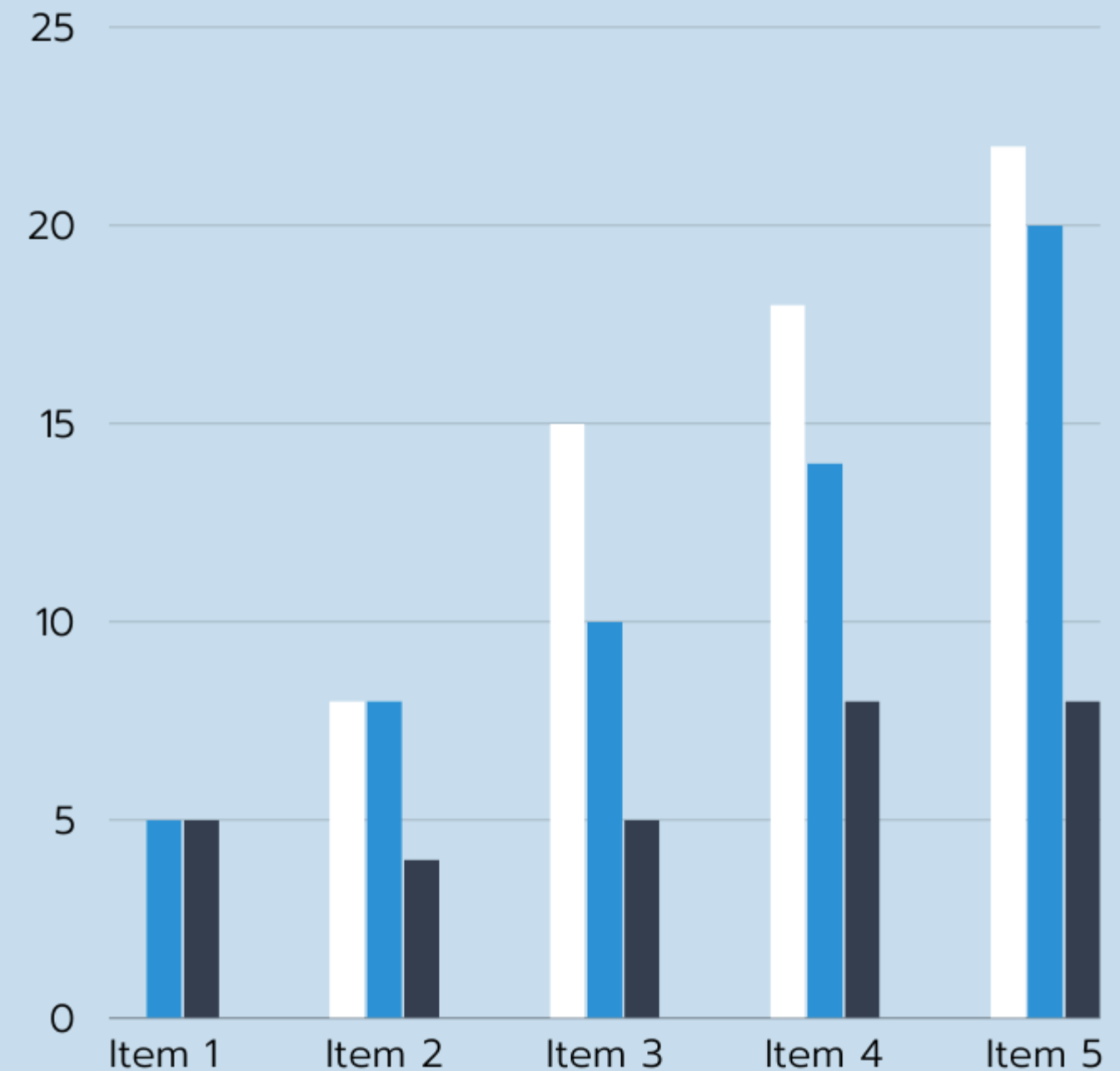
# 3. Benefits of statistics

1. Benefits at the individual level

2. Household benefits

3. Benefits at the private business agency level

4. Benefits at the national level





# 4. Benefits at the national level

## 1. Characteristics of data



## 1. Quantitative data

is data that represents size or quantity. which can be directly measured as numerical values such as age, height, weight, price, area, volume, width, length, income, test scores, speed, distance, etc.

## 2. Qualitative data

is information that cannot be directly measured in numerical values. But it will be information that describes the qualities or characteristics of the thing you are interested in, such as gender, status, popularity of political parties, opinions, race, religion, education level, skin color, etc.

# 4. Benefits at the national level

## 2. Measurement of data



### 1. Standard nomenclature

It is a basic measurement. By dividing information into groups that are simply classified. There is no ranking yet. Therefore, names are assigned to various objects or events, which are different in quality. But there is still no meaning regarding the quantitative order.

### 2. Sorting gauge

It is a measure used with data that can be arranged in descending order according to quantity and quality. But still can't tell. How far apart are each step, and are all steps the same?

# 4. Benefits at the national level

## 2. Measurement of data



## 3. Intersection meter

is a measurement measure that has basic properties like an ordinal meter. But this type of measurement can tell the difference in data over a period of time, such as measuring the temperature as 100 degrees, which is 100 equal intervals, but the number 0 in this meter is not the true 0.

## 4. Ratio scale

It is the most complete measure. It has the same basic properties as the reciprocal scale, but the number 0 in this scale is true zero. For example, a weight of 0 kilograms indicates that it has no weight at all.

# 3. Statistical information

**Statistical data or observational values refer to facts about the subject of interest to study. This may be in the form of numbers such as weight, distance, etc., or it may be non-numeric facts such as occupation, gender, etc. The information or facts must be in large numbers. To show the nature of the group or participation. used in comparison or can be interpreted For this reason, single facts are not statistics.**

# 5. Statistical methods

## 1. Collect data

### 1. Primary data

It is information that the person wanting to study has collected themselves, information that determines current events, but it is information that is obtained directly from information recovery sources.

### 2. Secondary data

To obtain this type of information, those who wish to study do not collect it themselves, but may collect it from any unit within the agency that has already been recorded. However, sometimes this information may be out of date or incomplete.

# The most commonly used methods for collecting data are as follows:

01



history registration

02



surveys

03



Census

04



Observation

05



experiments

## 2 Data presentation

Data presentation is the action on data after the data has been gathered into categories that are easy to understand and convenient to use. The data presentation has various formats as appropriate to the nature of the data and There are various techniques used to make the information more interesting.

## 3 Data analysis

Data analysis is the presentation of data obtained by calculating various statistical values according to the nature of the data that needs to be studied in order to use it as an important basis for answering questions or doubts about the matters that need to be known for the statistical data analysis process. There are many There are many methods, each of which is suitable for maintaining data differently.

## 4 Data interpretation

Data interpretation or data interpretation is the final step of statistical methodology, which involves taking the results of data analysis, which are values in various fields, to explain the meaning so that those who study or are interested can understand the results. Analysis

# summarize

- Statistics has two meanings. The first is that statistics refers to numbers obtained from gathering data to find the exact meaning from the desired thing. The second meaning refers to science that is science and liberal arts.**
- The scope of statistics is divided into descriptive statistics and inferential statistics.**
- The benefits of statistics are at the individual level, household level, private business agency level, and national level.**
- Data refers to facts about the subject that is of interest to study, divided according to the nature of the data into 2 types: quantitative data and qualitative data. Considered according to the measurement measures of data, divided into 4 levels, namely standard nouns Ordinal meter, reciprocal meter, and ratio meter.**
- Statistical Methodology Year 4 The steps are data collection, data presentation, data analysis and data interpretation.**