



Aplikasi Statistik Deskriptif

STATISTIK DESKRIPTIF
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Descriptive Statistics

Collect data

e.g. Survey, Observation, Experiments

Present data

e.g. Charts and graphs

Characterize data

e.g. Sample mean

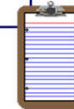
Data Sources

Primary Data Collection



Observation

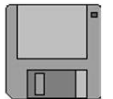
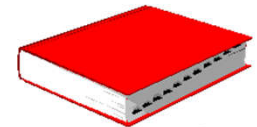
Survey



Experimentation

Secondary Data Compilation

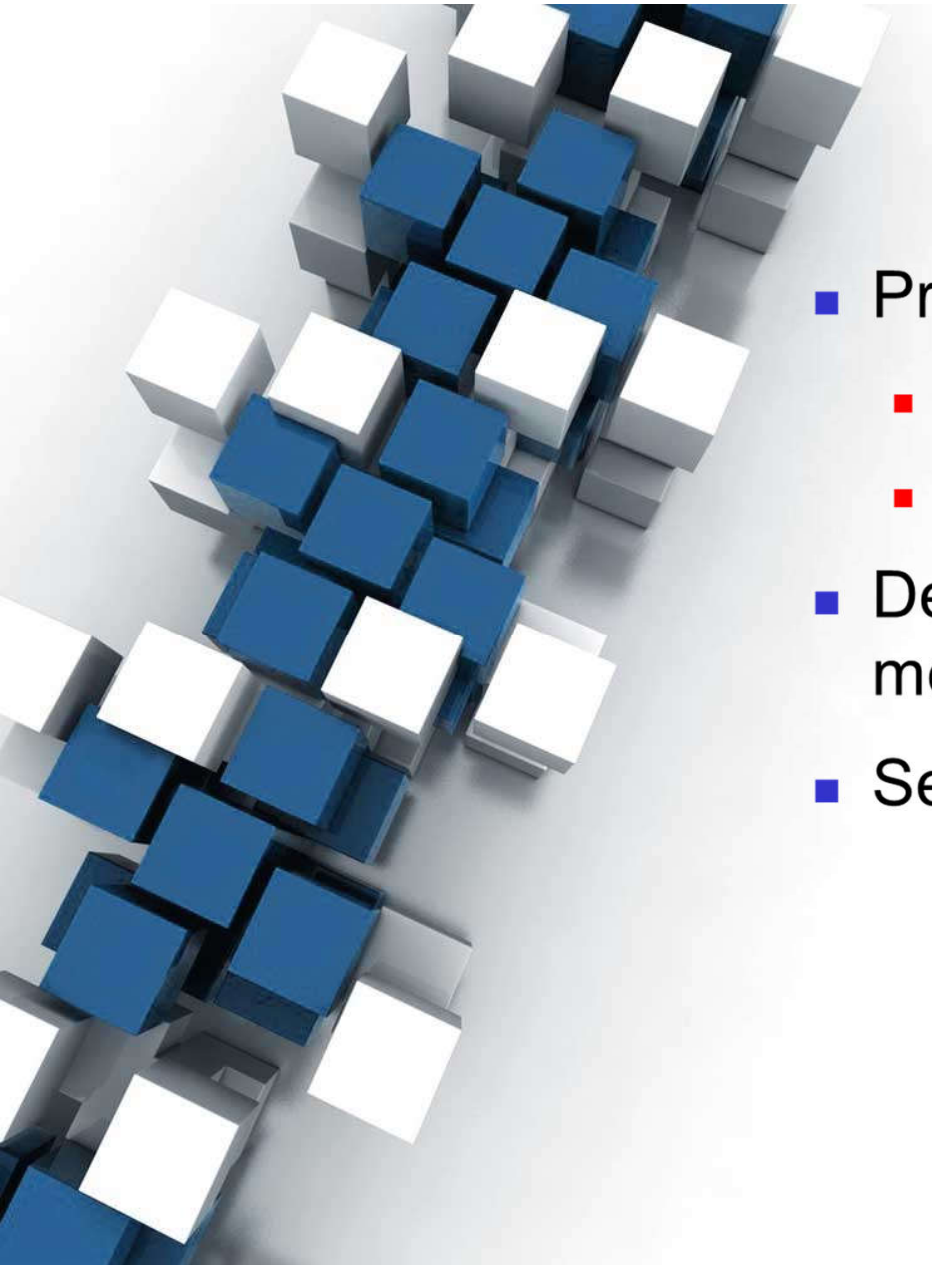
Print or Electronic





Survey Design Steps

- Define the issue
 - what are the purpose and objectives of the survey?
- Define the population of interest
- Formulate survey questions
 - make questions clear and unambiguous
 - use universally-accepted definitions
 - limit the number of questions



- Pre-test the survey
 - pilot test with a small group of participants
 - assess clarity and length
- Determine the sample size and sampling method
- Select Sample and administer the survey



Types of Questions

■ Closed-end Questions

- Select from a short list of defined choices

Example: Major: ☐ business ☐ liberal arts
☐ science ☐ other

■ Open-end Questions

- Respondents are free to respond with any value, words, or statement

Example: What did you like best about this course?

■ Demographic Questions

- Questions about the respondents' personal characteristics

Example: Gender: ☐ Female ☐ Male



Populations and Samples

- A **Population** is the set of all items or individuals of interest
 - **Examples:**
 - All likely voters in the next election
 - All parts produced today
 - All sales receipts for November
- A **Sample** is a subset of the population
 - **Examples:**
 - 1000 voters selected at random for interview
 - A few parts selected for destructive testing
 - Every 100th receipt selected for audit



Population vs. Sample

Population

a b c d
e f g h i j k l m n
o p q r s t u v w
x y z

Sample

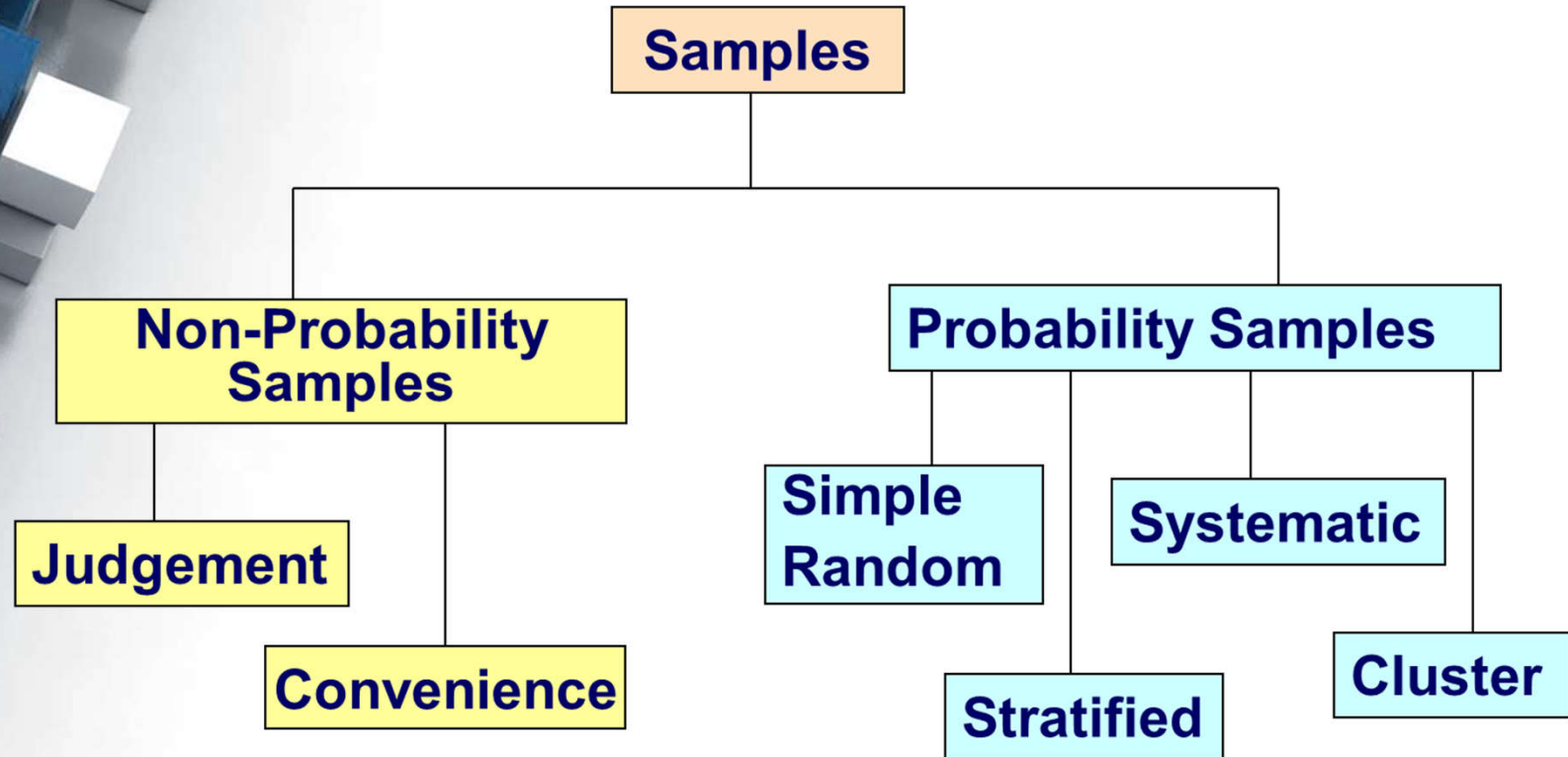
b c
g i
n
o r
u
y



Why Sample?

- Less time consuming than a census
- Less costly to administer than a census
- It is possible to obtain statistical results of a sufficiently high precision based on samples.

Sampling Techniques

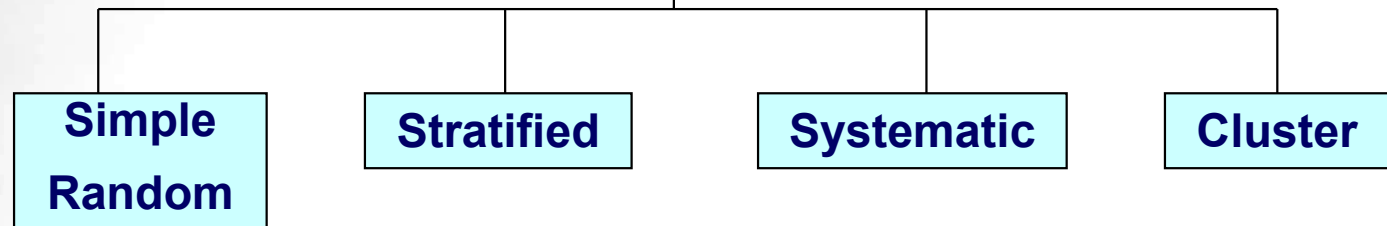




Statistical Sampling

- Items of the sample are chosen based on known or calculable probabilities

Probability Samples



A decorative graphic on the left side of the slide consists of a cluster of 3D cubes. Some cubes are blue and others are white, arranged in a somewhat random pattern that tapers off towards the top left. The cubes are set against a light gray background.

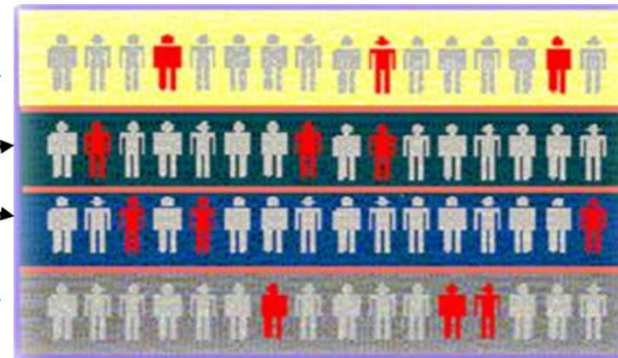
Simple Random Samples

- Every individual or item from the population has an **equal chance** of being selected
- Selection may be with replacement or without replacement
- Samples can be obtained from a table of random numbers or computer random number generators

Stratified Samples

- Population divided into subgroups (called *strata*) according to some common characteristic
- Simple random sample selected from each subgroup
- Samples from subgroups are combined into one

**Population
Divided
into 4
strata**



Sample



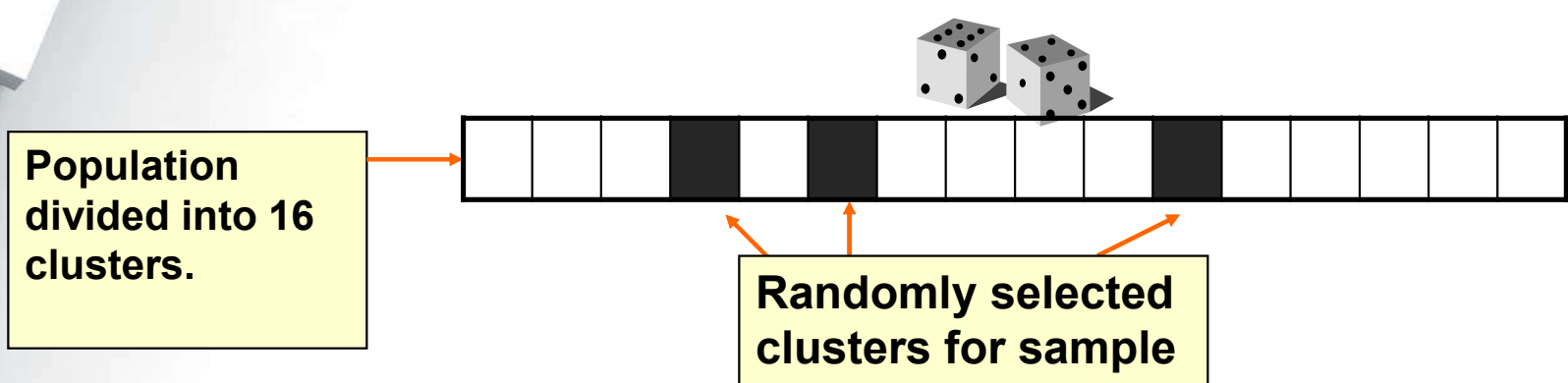
Systematic Samples

- Decide on sample size: n
- Divide frame of N individuals into groups of k individuals: $k = N/n$
- Randomly select one individual from the 1st group
- Select every k^{th} individual thereafter



Cluster Samples

- Population is divided into several “clusters,” each representative of the population
- A simple random sample of clusters is selected
 - All items in the selected clusters can be used, or items can be chosen from a cluster using another probability sampling technique



**Population
divided into 16
clusters.**

**Randomly selected
clusters for sample**



Key Definitions

- A **population** is the entire collection of things under consideration
 - A **parameter** is a summary measure computed to describe a characteristic of the population
- A **sample** is a portion of the population selected for analysis
 - A **statistic** is a summary measure computed to describe a characteristic of the sample



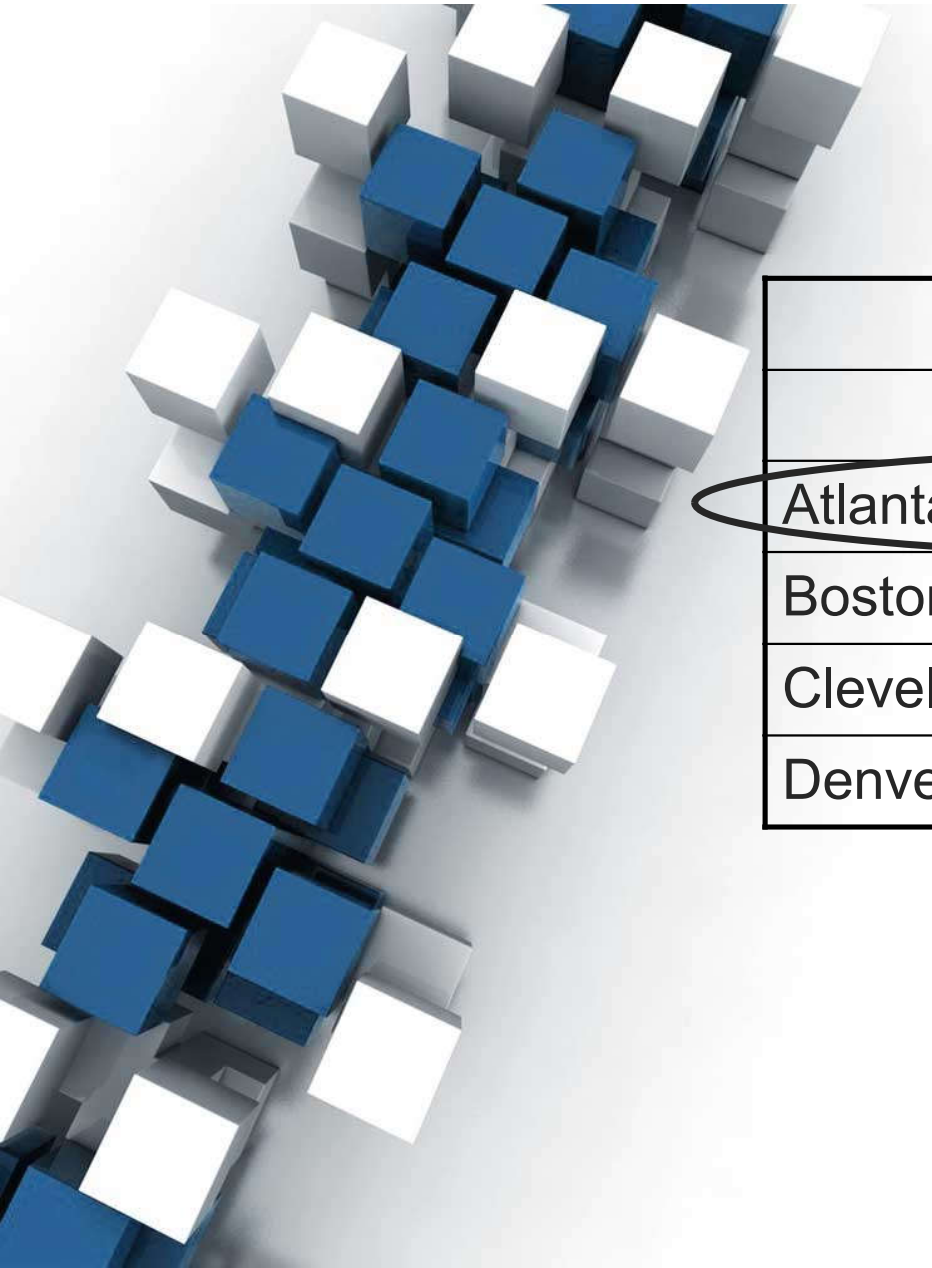
Data Types

- **Time Series Data**

- Ordered data values observed over time

- **Cross Section Data**

- Data values observed at a fixed point in time



	Sales (in \$1000's)			
	2003	2004	2005	2006
Atlanta	435	460	475	490
Boston	320	345	375	395
Cleveland	405	390	410	395
Denver	260	270	285	280

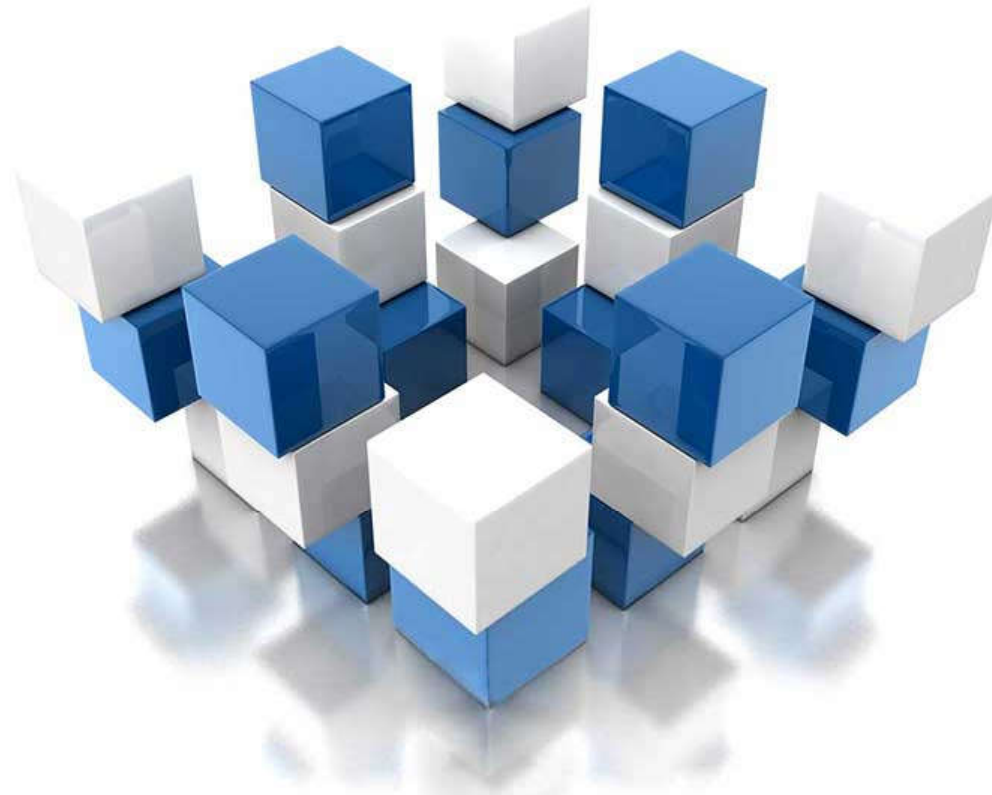
**Time
Series
Data**

**Cross Section
Data**



REFLEKSI

1. Informasi penting hari ini
2. Manfaat penting dari informasi penting hari ini
3. Tindak lanjut yang dapat saudara lakukan



THANK YOU

Any question ?