

Chapter 1 Statistics and Data Science

1.2 Population and Sample

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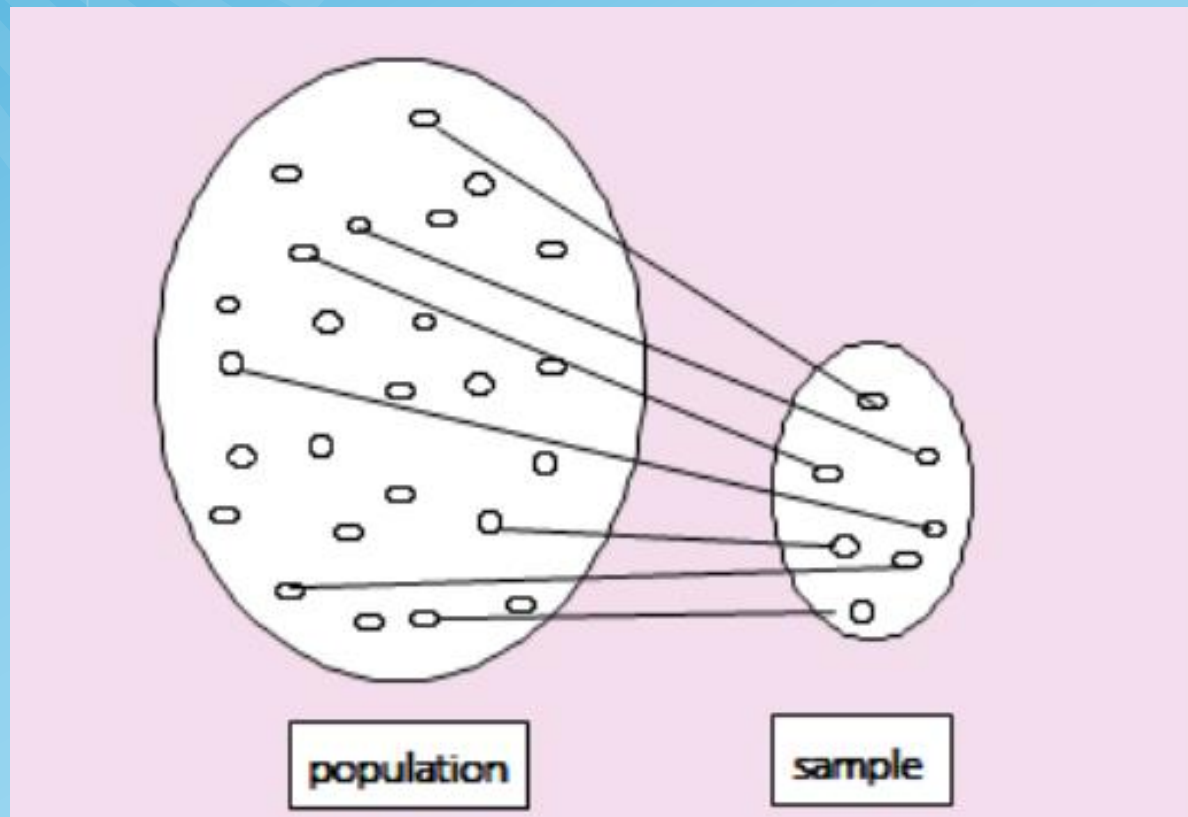
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1.2 Population and Sample

Population Sample

- **Population** is a whole set of data which we are interested in.
- **Sample** is some number of data extracted from the population.



1.2 Population and Sample

- **Descriptive statistics** (Ch2 – Ch5)
 - data visualization using graphs
 - data summary using frequency table and measures
 - probability, distributions
- **Inferential Statistics** (Ch6 – Ch12)
 - sampling distribution
 - estimation
 - testing hypothesis
 - simple linear regression

1.2 Population and Sample

Example 1.2.1 The voting result for the 2016 United States Presidential Election are summarized as the following table. What field of statistics is this?

Candidate	Votes	% Electal vote
Donald John Trump (Republican)	62,984,828	46.09% 304
Hillary Diane Clinton (Democratic)	65,853,514	48.18% 227
Gary Earl Johnson (Libertarian)	4,489,341	3.28% 0
Jill Ellen Stein (Green)	1,457,218	1.07% 0
David Evan McMullin (Independent)	731,991	0.54% 0
Darrell Lane Castle (Constitution)	203,090	0.15% 0
Gloria Estela La Riva (Socialism)	74,401	0.05% 0

1.2 Population and Sample

Example 1.2.2

The CNN poll was conducted from May 7, 2020 to May 10, 2020 for the 2020 United States Presidential Election by using a sample of 1001 registered voters. The result of poll was as follows. Margin of error = ± 4 percentage points. What field of statistics is this?

Candidate	%
Donald John Trump (Republican)	46%
Joe Biden (Democratic)	51%

1.2 Population and Sample

Chapter 1. Statistics and Data Science



Chapter 2. Data Visualization of Categorical Data



Chapter 3. Data Visualization of Quantitative Data



Chapter 4. Data Summary with Table and Measure



Chapter 5. Probability Distribution Model of Data



Chapter 6. Sampling Distribution and Estimation



Chapter 7. Testing Hypothesis for Single Population



Chapter 8. Testing Hypothesis for Two Populations



Chapter 9. Testing Hypothesis for Several Populations (ANOVA)



Chapter 10. Nonparametric Testing Hypothesis



Chapter 11. Testing Hypothesis for Categorical Data



Chapter 12. Correlation and Regression Analysis



Thank you