THE NATURE OF PROBABILITY & STATISTICS OUTLINE
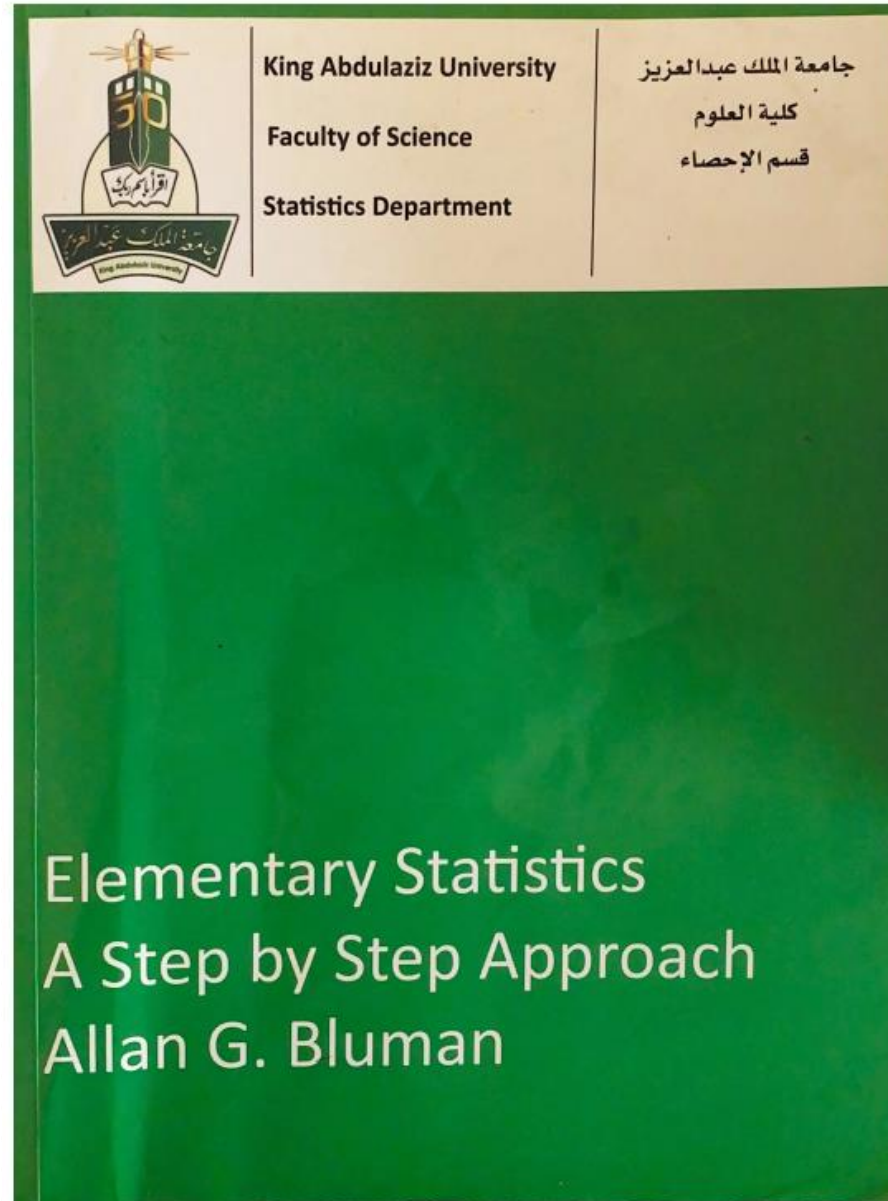
CHAPTER 1

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COURSE BOOK

King Abdulaziz University

Faculty of Science

Statistics Department

جامعة الملك عبدالعزيز

كلية العلوم

قسم الإحصاء

Elementary Statistics
A Step by Step Approach
Allan G. Bluman

Syllabus

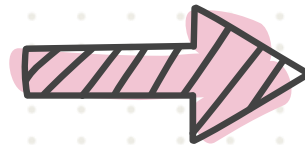| CH1	THE NATURE OF PROBABILITY & STATISTICS OUTLINE					
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Why Statistics ?

1-1

Descriptive & Inferential Statistics

CONCEPTS

Statistics

Is the science of conducting studies to collect, organize, summarize, analyze, and draw conclusion from data.

Variable

Is a character or attribute that can assume different values.

Data

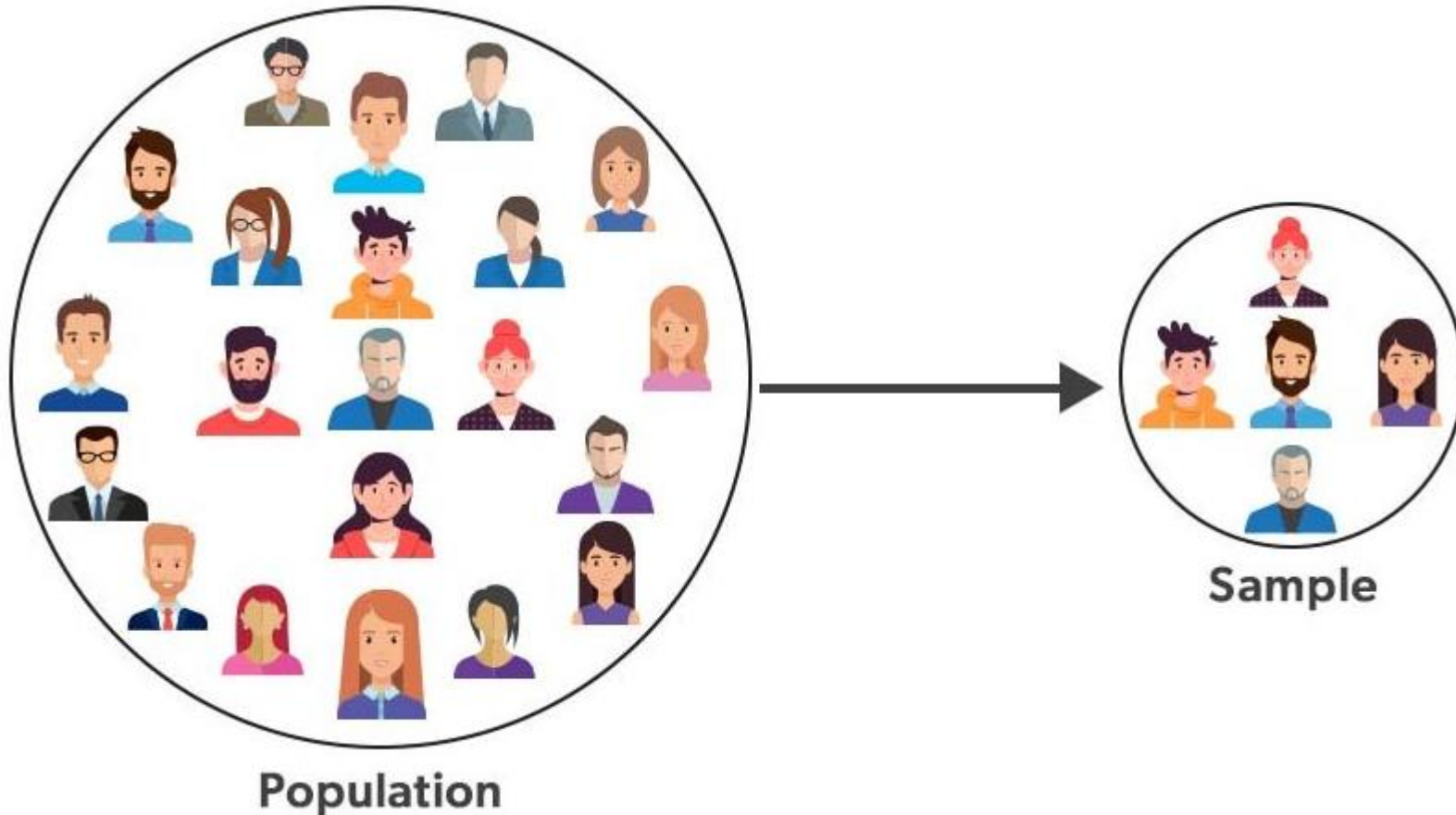The values (measurements or observations) that the variables can assume.

An example of the word "Data"

File | Home | Insert | Page Layout | Formulas | Data | Review | View | Automate | Help

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E34 = 90559000000

	A	B	C	D	E	F	G	H	I	J
1		Ticker Symbol	Years	Period Ending	Total Revenue	Cost of Goods Sold	Sales, General and Admin.	Research and Development	Other Operating Items	GICS Sector
2	0	AAL	Year 1	12/31/2012	$24,855,000,000	$10,499,000,000	$12,977,000,000	$-	$845,000,000	Industrials
3	1	AAL	Year 2	12/31/2013	$26,743,000,000	$11,019,000,000	$12,913,000,000	$-	$853,000,000	Industrials
4	2	AAL	Year 3	12/31/2014	$42,650,000,000	$15,620,000,000	$20,686,000,000	$-	$1,295,000,000	Industrials
5	3	AAL	Year 4	12/31/2015	$40,990,000,000	$11,096,000,000	$21,275,000,000	$-	$1,364,000,000	Industrials
6	4	AAP	Year 1	12/29/2012	$6,205,003,000	$3,106,967,000	$2,440,721,000	$-	$-	Consumer Discretionary
7	5	AAP	Year 2	12/28/2013	$6,493,814,000	$3,241,668,000	$2,591,828,000	$-	$-	Consumer Discretionary
8	6	AAP	Year 3	1/3/2015	$9,843,861,000	$5,390,248,000	$3,601,903,000	$-	$-	Consumer Discretionary
9	7	AAP	Year 4	1/2/2016	$9,737,018,000	$5,314,246,000	$3,596,992,000	$-	$-	Consumer Discretionary
10	8	AAPL	Year 1	9/28/2013	$170,910,000,000	$106,606,000,000	$10,830,000,000	$4,475,000,000	$-	Information Technology
11	9	AAPL	Year 2	9/27/2014	$182,795,000,000	$112,258,000,000	$11,993,000,000	$6,041,000,000	$-	Information Technology
12	10	AAPL	Year 3	9/26/2015	$233,715,000,000	$140,089,000,000	$14,329,000,000	$8,067,000,000	$-	Information Technology
13	11	AAPL	Year 4	9/24/2016	$215,639,000,000	$131,376,000,000	$14,194,000,000	$10,045,000,000	$-	Information Technology
14	12	ABBV	Year 1	12/31/2012	$18,380,000,000	$4,508,000,000	$4,989,000,000	$2,778,000,000	$-	Health Care
15	13	ABBV	Year 2	12/31/2013	$18,790,000,000	$4,581,000,000	$5,352,000,000	$2,855,000,000	$-	Health Care
16	14	ABBV	Year 3	12/31/2014	$19,960,000,000	$4,426,000,000	$8,474,000,000	$3,297,000,000	$-	Health Care
17	15	ABBV	Year 4	12/31/2015	$22,859,000,000	$4,500,000,000	$6,387,000,000	$4,285,000,000	$-	Health Care
18	16	ABC	Year 1	9/30/2013	$87,959,167,000	$85,451,348,000	$1,447,234,000	$-	$162,186,000	Health Care
19	17	ABC	Year 2	9/30/2014	$119,569,127,000	$116,586,761,000	$2,011,595,000	$-	$188,680,000	Health Care
20	18	ABC	Year 3	9/30/2015	$135,961,803,000	$132,432,490,000	$2,858,458,000	$-	$248,635,000	Health Care

Data | Task 1 | Task 2 | Task 3

Ready | ✎ Accessibility: Investigate | Average: $19,796,799,270 | Count: 1607 | Sum: $31,813,456,427,000 | 100%

Population VS Sample

Population

Sample

All the subjects (human or otherwise) that are being studied.

A group of subjects selected from a population.

Types of Statistics

Statistics is divided into two main areas

Descriptive Statistics

Inferential Statistics

- Consist of the data collection, organization, summarization, and presentation of data.

Key words:

-Mean-Mode-Average-Median

-In 1999, (Past)

- الحديث عن الماضي مثل عام 1996 -2000
- تقديم خبر – أو تقرير.

- Consists of generalizing from samples to populations, performing estimations and hypothesis test, determining the relationships among variables, and making predictions .

Key words:

-Will be- would be-can be- could be

- By 2025, (Future)

- الحديث عن المستقبل مثل عام 2025 (التوقع).
- استخدام عينة للتعميم على المجتمع.

Example 1-1

Determine whether descriptive or inferential statistics were used.

a. The ==average== jackpot for the top five lottery winners was 367.6 million.	**Descriptive statistics**
b. a study done by the American Academy of Neurology ==suggests== that older people who had a high caloric diet more than doubled their risk of memory loss.	**Inferential statistics**
c. based on a survey of ==9317== consumers done by the national retail federation the ==average== amount that consumers spend on Valentine's Day ==in 2011== was $116.	**Descriptive statistics**
d. scientists at the University of Oxford in England ==found that== a good laugh ==significantly== raises a person's pain level tolerance.	**Inferential statistics**