



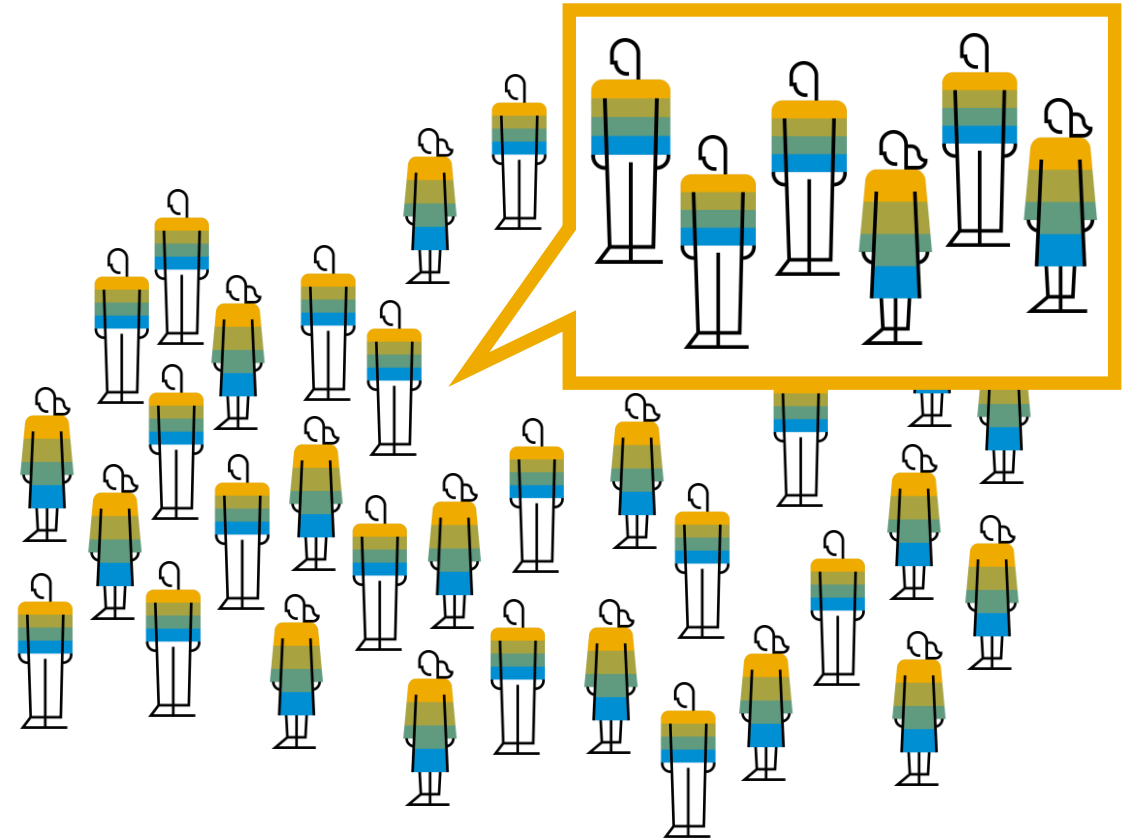
Week 2: Descriptive Statistics

Unit 3: Sampling and Populations

Sampling and Populations

Introduction

- **Population:** the entire group of items or individuals being studied
- **Sample:** a part of the population being studied



Sampling and Populations

The population

The population

Number = N

Mean = μ

Standard deviation = σ

General kinds of sampling

Haphazard sampling

Quota sampling

Probability sampling

Common sampling approaches

First N, Last N

Every Nth

Simple Random

Systematic Random

Stratified Sampling

	Emp ID	Emp Name	DOB	Age
1	1	Laura	11/11/86 00:00	25
2	2	Desy	12/05/81 00:00	30
3	3	Alex	30/05/78 00:00	33
4	4	John	06/06/79 00:00	32
5	5	Ted	04/07/87 00:00	24
6	6	Tom	30/06/70 00:00	41
7	7	Anna	24/06/65 00:00	46
8	8	Valerie	06/07/90 00:00	21
9	9	Mary	19/09/85 00:00	26
10	10	Martin	21/11/86 00:00	25

Systematic Random Example:

- With 10 records, a bucket size of 5 will give 2 buckets which are randomly sampled from:

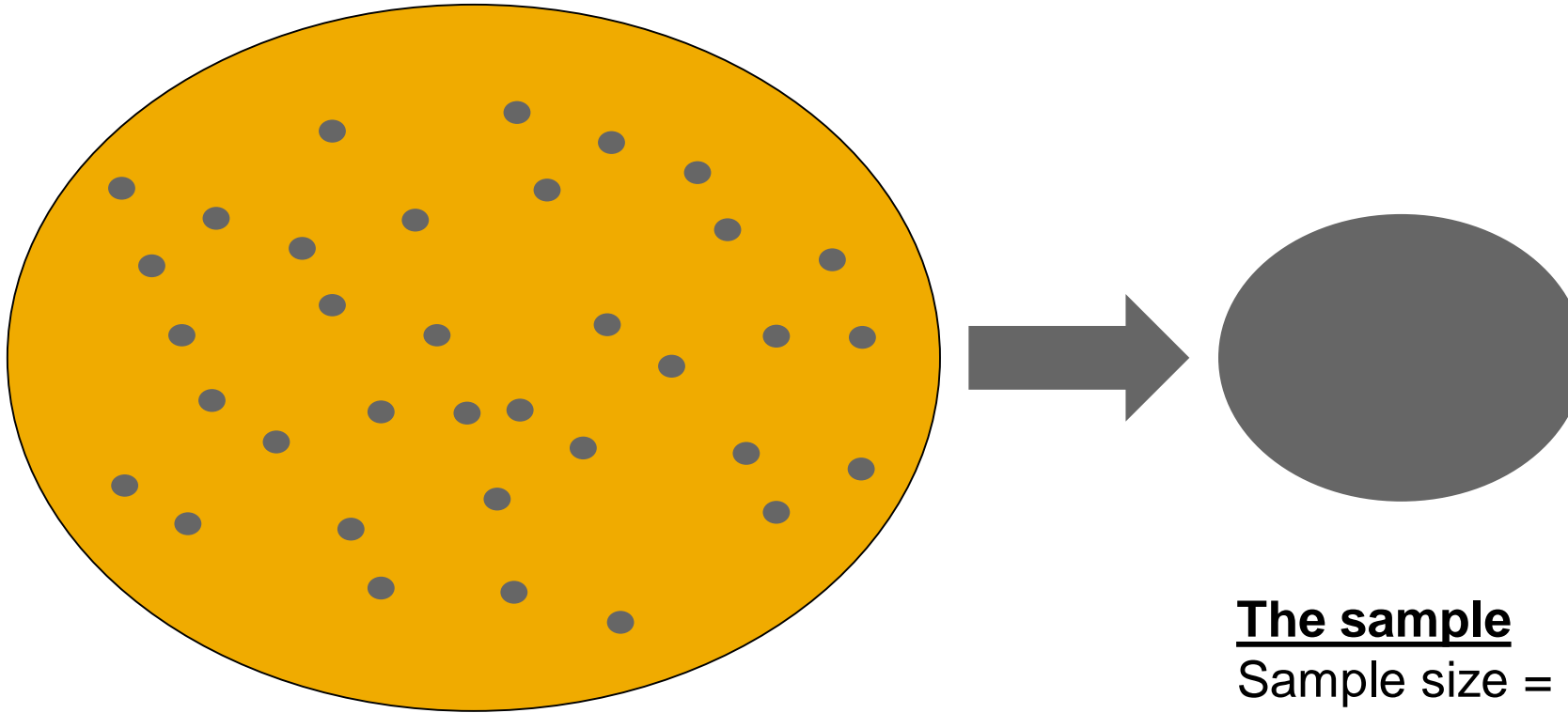
	Emp ID	Emp Name	DOB	Age
1	1	Laura	11/11/86 00:00	25
2	6	Tom	30/06/70 00:00	41

- With 10 records, a bucket size of 2 will give 5 buckets which are randomly sampled from:

ID	Name	DOB	Age
1	Laura	11/11/86 00:00	25
3	Alex	30/05/78 00:00	33
5	Ted	04/07/87 00:00	24
7	Anna	24/06/65 00:00	46
9	Mary	19/09/85 00:00	26

Sampling and Populations

The random sample



The sample

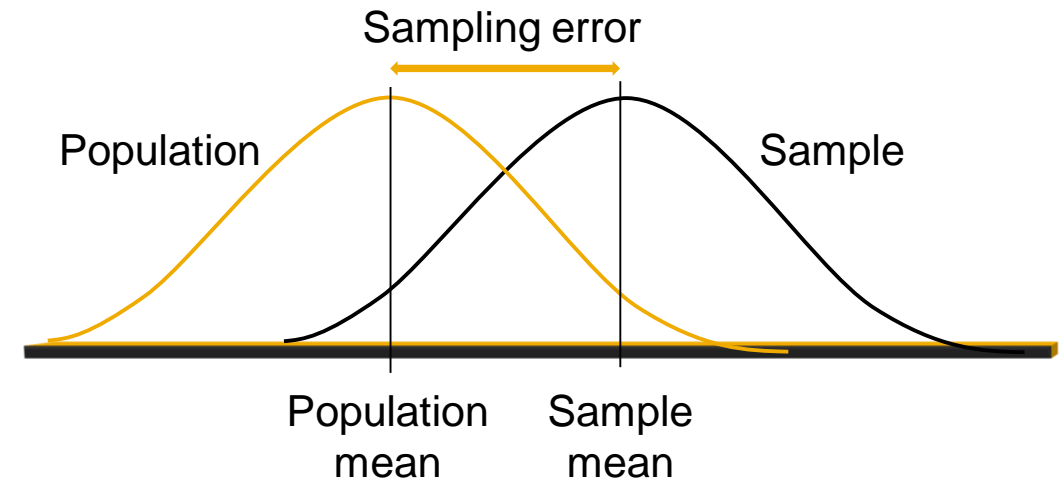
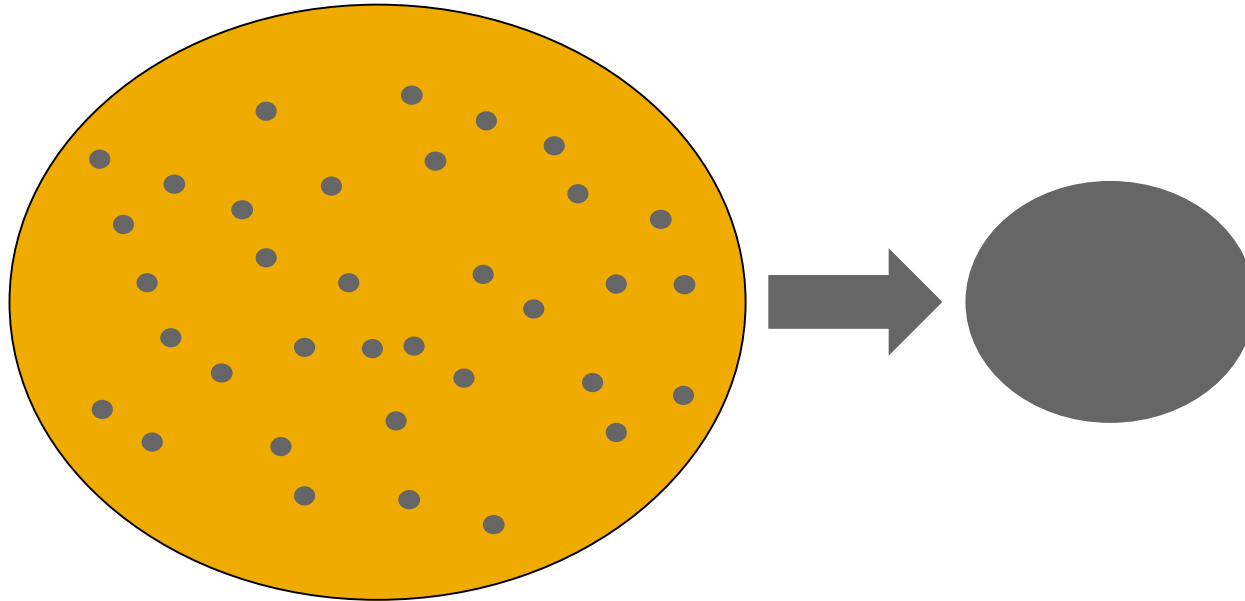
Sample size = n

Sample mean = \bar{x}

Sample standard deviation = s

Sampling and Populations

Population vs sample



The population

Number = N

Mean = μ

Standard deviation = σ

The sample

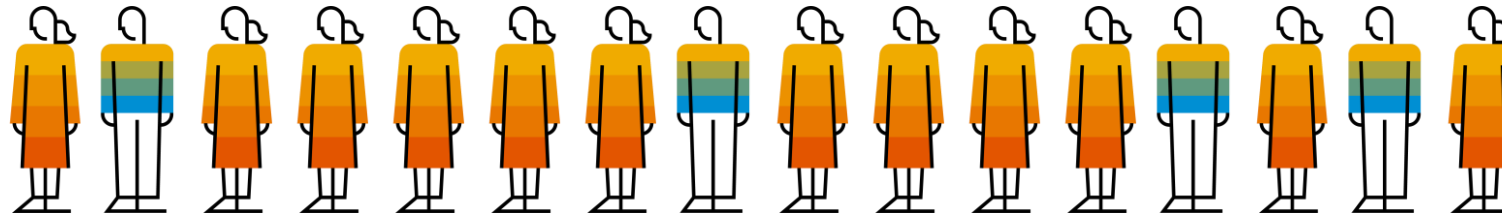
Sample size = n

Sample mean = \bar{x}

Sample standard deviation = s

Sampling and Populations

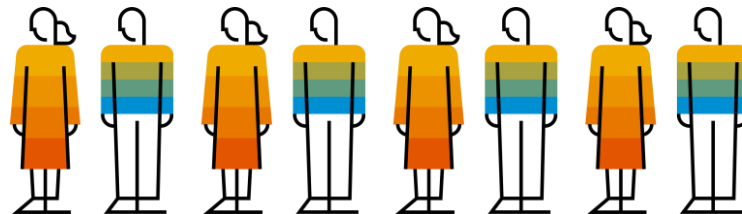
Sampling bias



12 females
75% female

4 males
25% male

A biased sample:



4 females
50% female

4 males
50% male

Does *not* accurately
represent the
population

Sampling and Populations

Summary

- This was a short introduction to sampling and populations, and the challenges that are associated with creating representative samples. It also introduced you to some of the terminology that is used in this area.
- You will learn more about this important topic later in this course.



Thank you.

Contact information:

open@sap.com

Follow all of SAP



www.sap.com/contactsap

© 2019 SAP SE or an SAP affiliate company. All rights reserved.

No part of this publication may be reproduced or transmitted in any form or for any purpose without the express permission of SAP SE or an SAP affiliate company.

The information contained herein may be changed without prior notice. Some software products marketed by SAP SE and its distributors contain proprietary software components of other software vendors. National product specifications may vary.

These materials are provided by SAP SE or an SAP affiliate company for informational purposes only, without representation or warranty of any kind, and SAP or its affiliated companies shall not be liable for errors or omissions with respect to the materials. The only warranties for SAP or SAP affiliate company products and services are those that are set forth in the express warranty statements accompanying such products and services, if any. Nothing herein should be construed as constituting an additional warranty.

In particular, SAP SE or its affiliated companies have no obligation to pursue any course of business outlined in this document or any related presentation, or to develop or release any functionality mentioned therein. This document, or any related presentation, and SAP SE's or its affiliated companies' strategy and possible future developments, products, and/or platforms, directions, and functionality are all subject to change and may be changed by SAP SE or its affiliated companies at any time for any reason without notice. The information in this document is not a commitment, promise, or legal obligation to deliver any material, code, or functionality. All forward-looking statements are subject to various risks and uncertainties that could cause actual results to differ materially from expectations. Readers are cautioned not to place undue reliance on these forward-looking statements, and they should not be relied upon in making purchasing decisions.

SAP and other SAP products and services mentioned herein as well as their respective logos are trademarks or registered trademarks of SAP SE (or an SAP affiliate company) in Germany and other countries. All other product and service names mentioned are the trademarks of their respective companies.

See www.sap.com/copyright for additional trademark information and notices.