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Please share feedback after each class. It will help us to enhance your learning experience.

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Predictive Analytics

COURSE OUTLINE
MODULE 01

1. Statistical Foundations
2. Probability
3. Inferential Statistics
4. Regression

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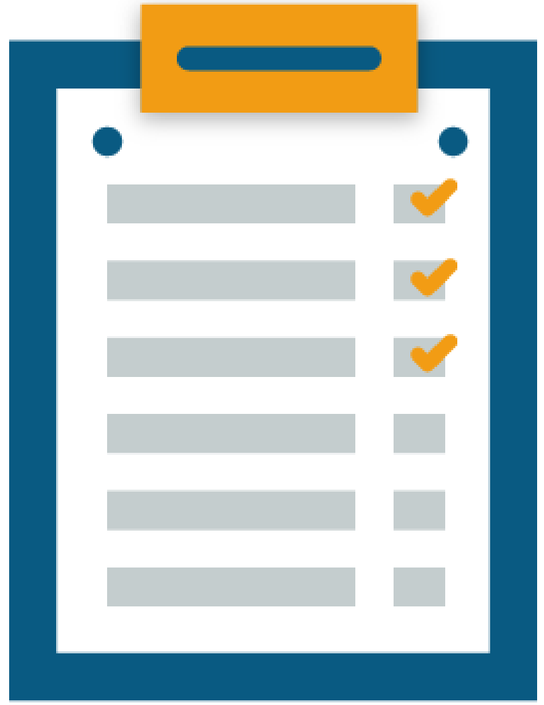
Module 1 – Statistical Foundations Part 2

Topics

Following are the topics covered in this module:

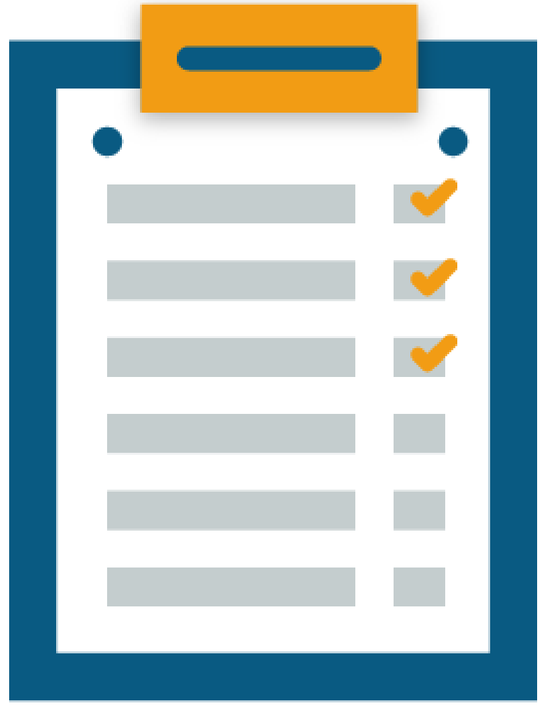
- Measures of spread
  - Why measure spread
  - Variance
  - Standard Deviation
  - Range
  - IQR
  - Outliers
- Sampling
  - What is Sampling
  - Types of Sampling
- In-class Practice Use Case:
  - Measure of variance on real world data
  - Detecting outliers
  - Obtaining sample from a larger data



Objectives

After completing this module, you should be able to:

- Examine the need for the measure of variance
- Understand the various measures for variance
- Apply the learnings to understand the data for a given scenario

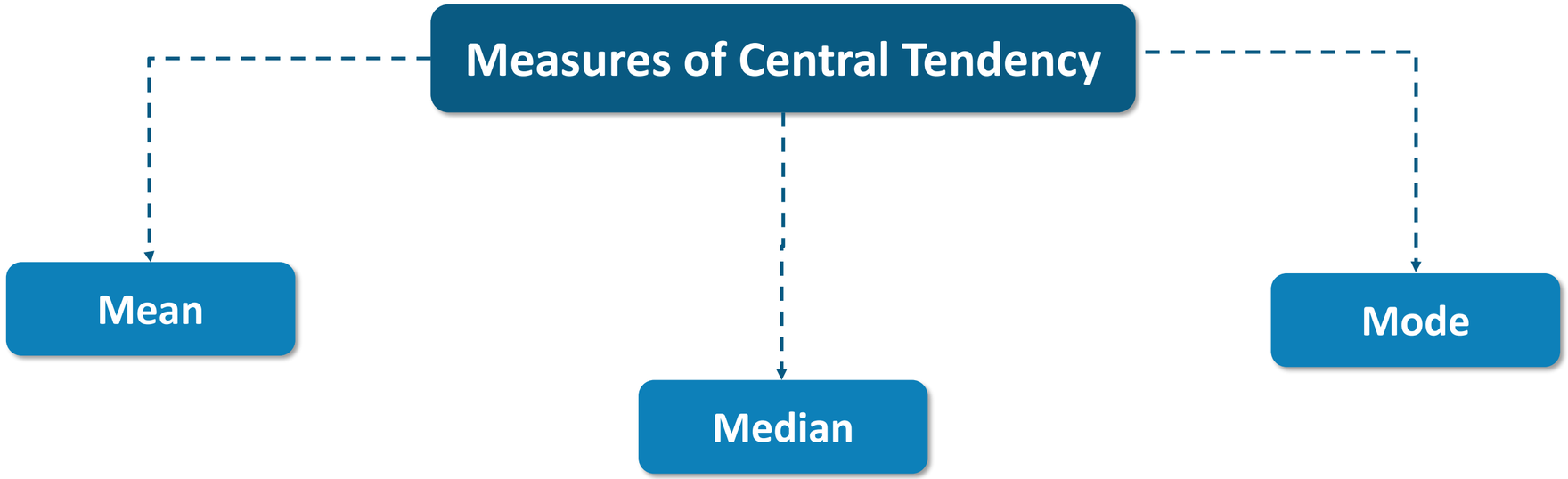


Recap of Part 1 from Day 1

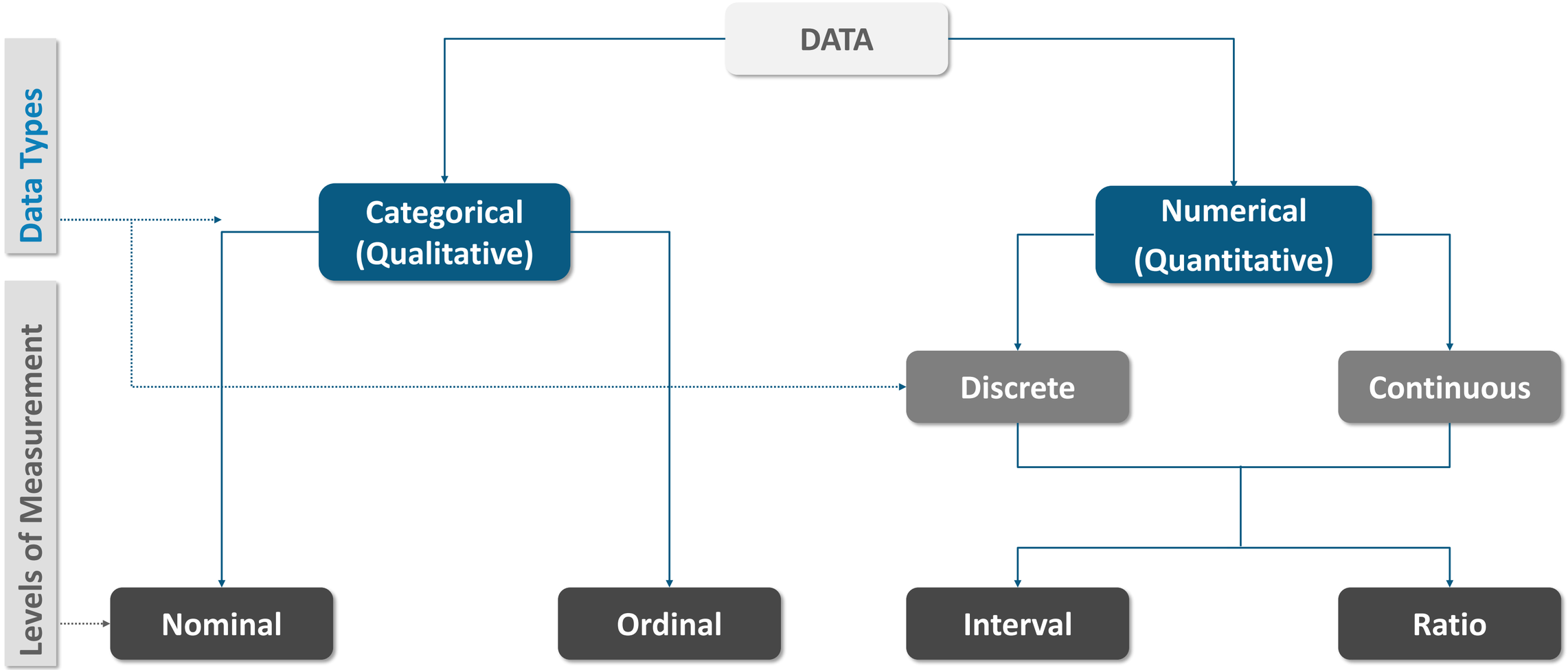
- Measures of Central Tendency
- Different Types of Data

Measures of Central Tendency: Summary

- Values for most numerical variables tend to group around a specific value (generally mean or average)
- **Measures of Central Tendency** describe to what extent this pattern holds for a specific variable



Data Types: Summary



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Video: Measures of Spread

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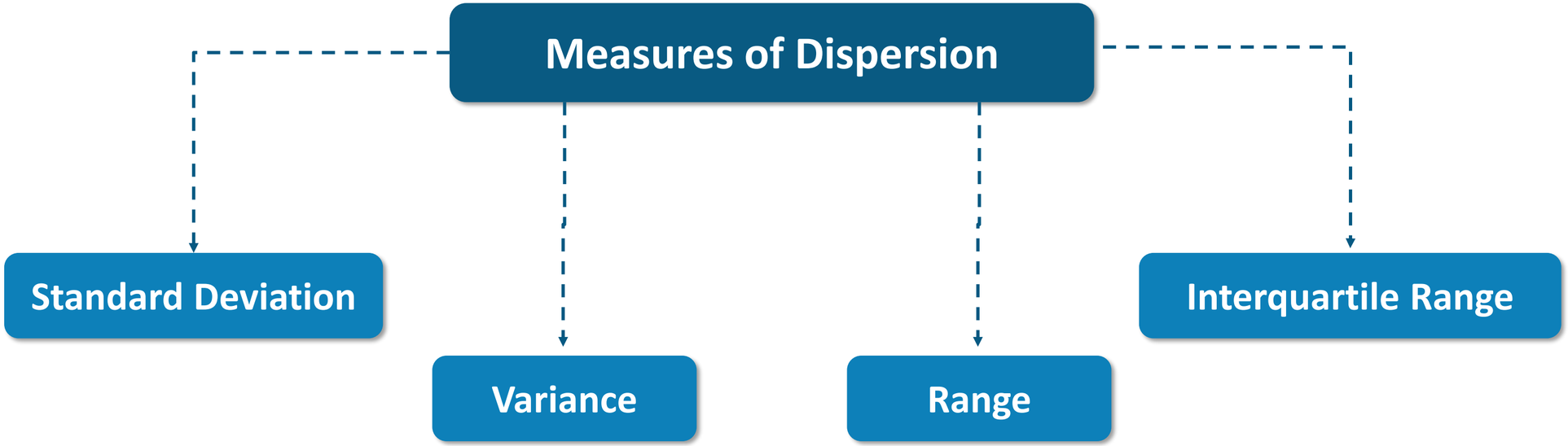
Measures of Spread – Summary



ALICE’s QUESTION

1. What are the different measures of spread?

1. Range
2. Variance
3. Standard Deviation
4. All of the above

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ALICE's QUESTION

1. What are the different measures of spread?

1. Range
2. Variance
3. Standard Deviation
4. All of the above

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ALICE's QUESTION

2. Which of the following measures help in identifying outliers?

1. Range
2. Variance
3. Standard Deviation
4. IQR

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ALICE's QUESTION

2. Which of the following measures help in identifying outliers?

1. Range
2. Variance
3. Standard Deviation
4. IQR

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ALICE's QUESTION

3. Presence of outliers affect which of the following?

1. Mean
2. Median
3. Mode
4. Variance

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ALICE's QUESTION

3. Presence of outliers affect which of the following?

1. Mean
2. Median
3. Mode
4. Variance

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Demo 1: Measures of Spread

Check out the demo “Statistical Foundations II” from the LMS

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In-Class Practice I

Task 1: Find the presence of outliers (if any) on the salary column from “Placement_Data_Full_Class.csv” using the box plots. Print the outlier values.

Task 2: Check if there are outliers in the Profit column.

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Sampling

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Video: Sampling

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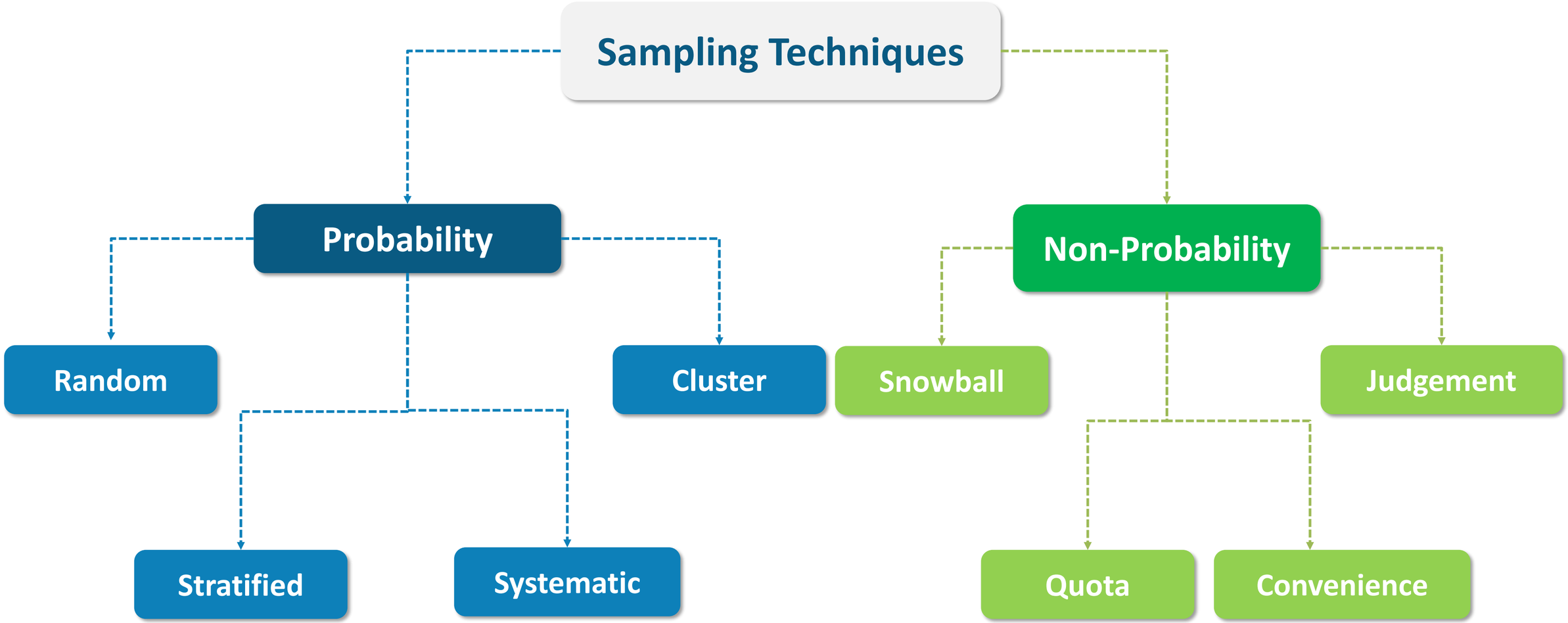
Different Types of Sampling Techniques – Summary



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ALICE's QUESTION

4. Which of the following belong to Random sampling?

1. Simple
2. Stratified
3. Systematic
4. All of the above

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ALICE's QUESTION

4. Which of the following belong to Random sampling?

1. Simple
2. Stratified
3. Systematic
4. All of the above

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ALICE's QUESTION

5. Why is a sample preferred over directly analysing the population?

1. Less time consuming
2. Cost effective
3. Works well with limited resources
4. All of the above

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ALICE’s QUESTION

5. Why is a sample preferred over directly analysing the population?

1. Less time consuming
2. Cost effective
3. Works well with limited resources
4. All of the above

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In-Class Practice II

Task: Obtain a stratified random sampling on the US Superstore data using the Segment column, i.e each segment can be considered as a strata

Hint: Create multiple DataFrames by filtering based on each segment. Obtain a simple random sample from each of the DataFrames and create a new DataFrame by appending the results obtained.

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Thank You

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