Data-Driven Decision Making

Unit 5: Deriving Data Insights

Course Overview

▶ Unit 1: Introduction to Data-Driven Decision-Making

▶ Unit 2: Transforming to a Data-Driven Decision-Making Enterprise

▶ Unit 3: The Role of Leadership

▶ Unit 4: Types of Data

▶ **Unit 5: Deriving Data Insights**

▶ Unit 6: Creating Effective Visualizations

▶ Unit 7: Database Marketing and Customer Relationship Management

▶ Unit 8: Data-Driven Uses and Misuses

Unit 5 Learning Outcomes

► describe the mean, median, and mode of a set of data

► analyze data presented in frequency tables, frequency distributions, and graphics

► analyze relative frequencies and the relationship with frequency tables

► interpret cumulative frequency distribution and explain its use in decision-making

Why are Learning Outcomes Important?

► Every learning outcome ties back to course materials and content.

► Assessments are tied to each learning outcome.

► Test preparation

Unit 5 Topics

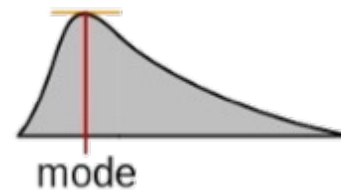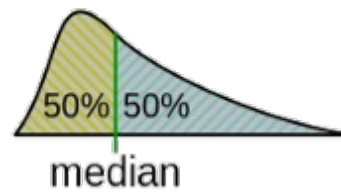▶ Conducting Data Analysis

▶ Charts, Graphics, and Tables

Unit 5 Vocabulary

- ► absolute frequency
- ► area chart
- ► bar chart
- ► column chart
- ► cumulative relative frequency
- ► frequency
- ► frequency distributions
- ► frequency tables
- ► histogram
- ► interval scale

- ► level of measurement
- ► line chart
- ► mean
- ► median
- ► mode
- ► nominal scale
- ► ordinal scale
- ► pie chart
- ► ratio scale
- ► relative frequency

1. Conducting Data Analysis

► Mean, Median, and Mode

► A classroom example data set

  ► 11 students in class with the following scores on the exam:

  ► 33, 70, 70, 75, 86, 87, 90, 92, 93, 93, and 95

50% 50%

mean   median   mode
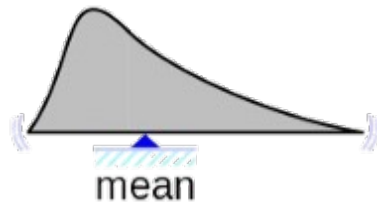
2. Conducting Data Analysis

► Levels of Measurement

    ► Nominal

    ► Ordinal

    ► Interval

    ► Ratio

3. Conducting Data Analysis

- ► Frequency
- ► Relative Frequency
- ► Cumulative Relative Frequency
- ► Frequency Distribution

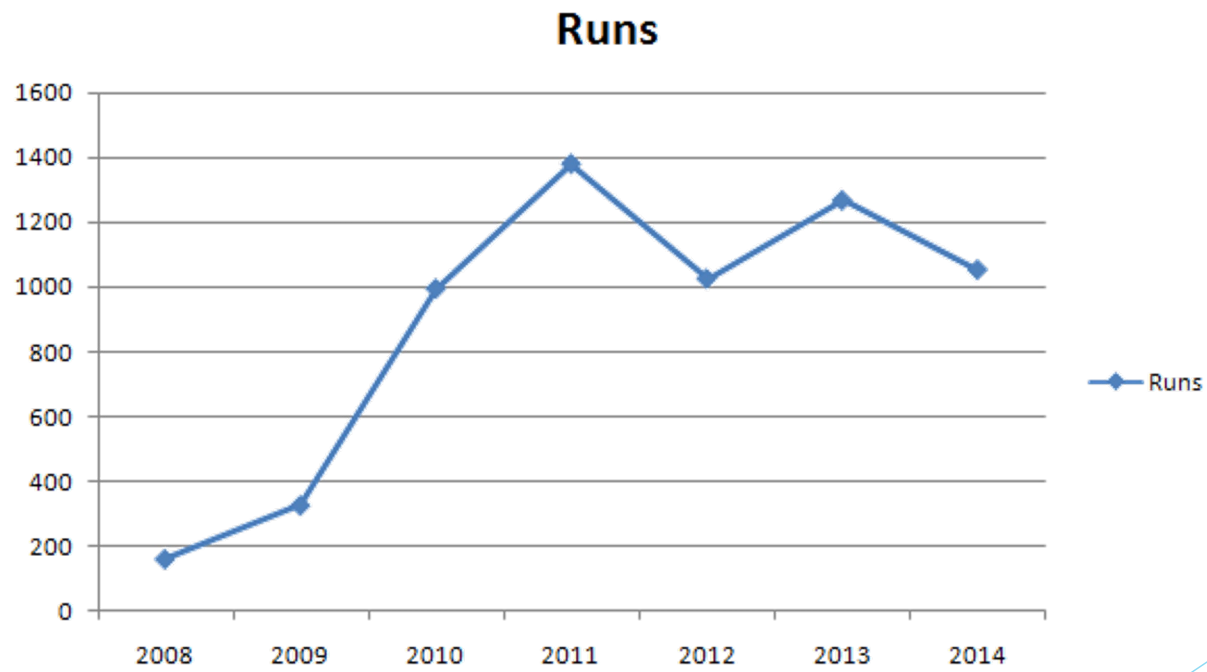| Height (cm) of children	Absolute frequency	Relative frequency
120 – less than 130	9	18%
130 – less than 140	10	20%
140 – less than 150	13	26%
150 – less than 160	11	22%
160 – less than 170	7	14%
Total	50	100%

Charts, Graphs, and Tables

► Line Charts

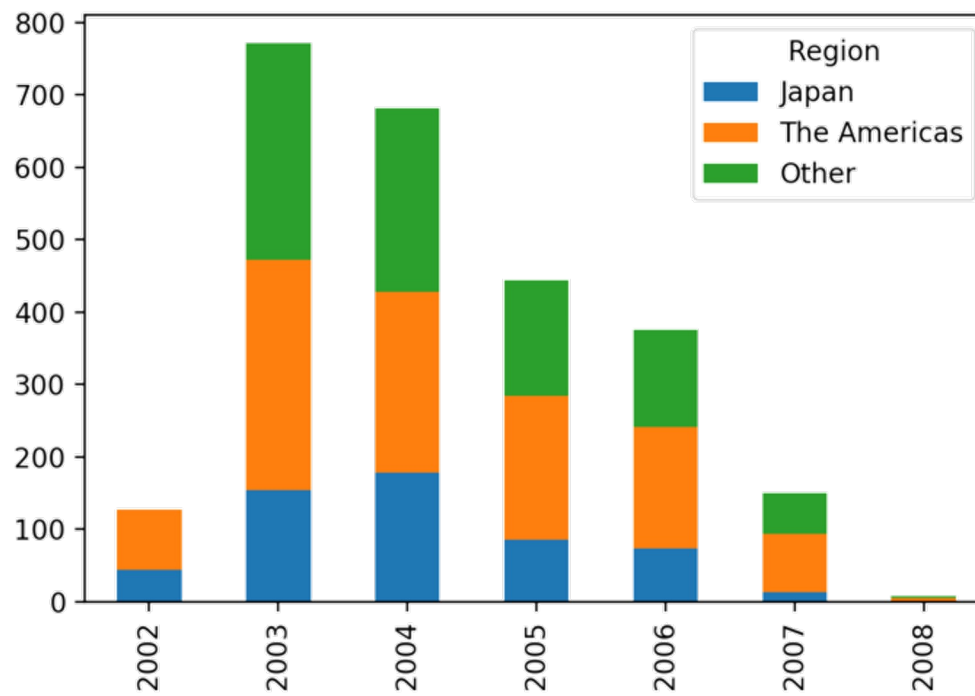► Area Charts
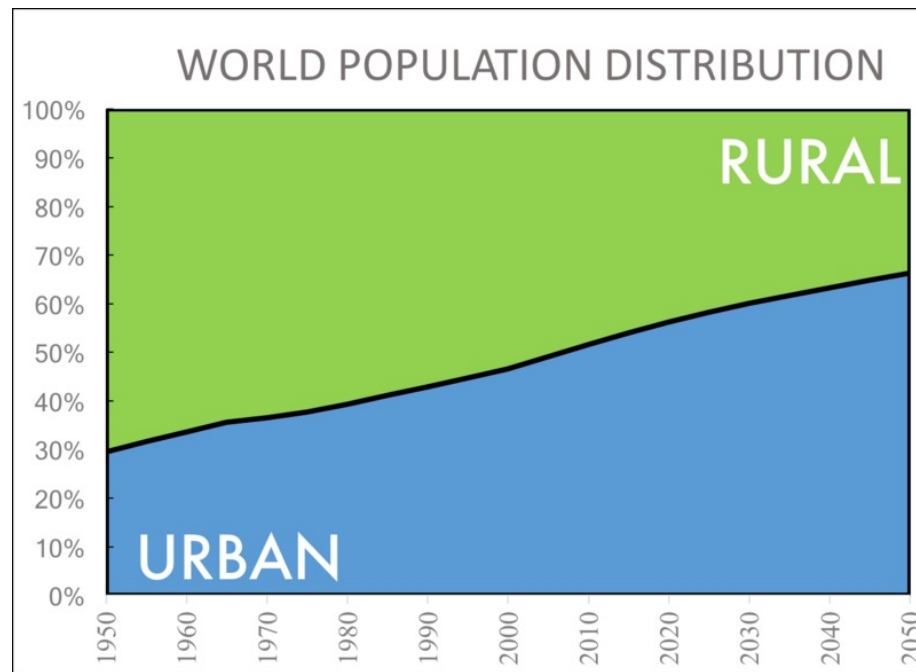
► Column Charts

► Bar Charts

► Pie Charts

Line Charts

Runs

Area Charts

WORLD POPULATION DISTRIBUTION

RURAL

URBAN

Column Charts

Bar Charts

Selected old age dependency ratios

Country	Number of elders (65+) per 100 workers (age 15-64)
NIGERIA	5
PHILIPPINES	6
ETHIOPIA	6
PAKISTAN	7
INDONESIA	7
INDIA	7
NEPAL	8
BRAZIL	10
RUSSIA	18
USA	19
JAPAN	36

Number of elders (65+) per 100 workers (age 15-64) / source: esa.un.org
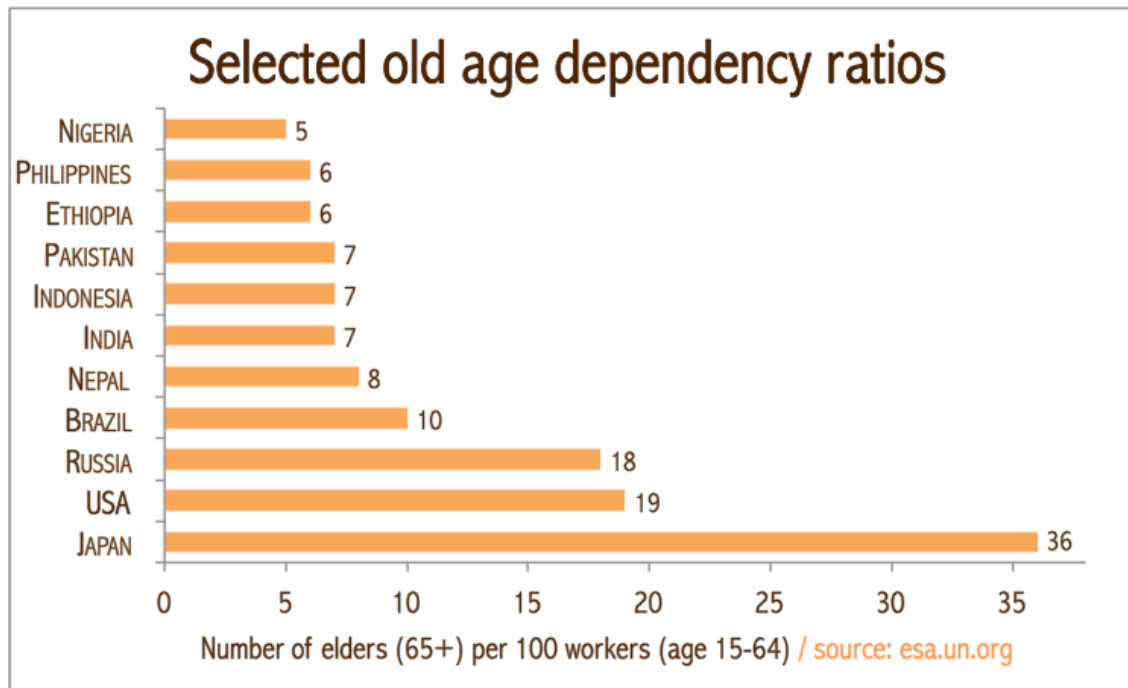
Pie Charts

Browser Usage on Wikimedia June 2011

- Chrome 16.5%
- Safari 9.9%
- Opera 4.4%
- Android 1.4%
- Other 4.2%
- I.E. 38.2%
- Firefox 25.4%

Conclusion

Unit 5 Learning Outcomes:

► describe the mean, median, and mode of a set of data

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► analyze relative frequencies and the relationship with frequency tables

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What's next?

Unit 6: Creating Effective Visualizations