



CPSC203 – Introduction to Problem Solving and Using Application Software

Winter 2010

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Introduction

- Basic spreadsheet design rules.
- Components of a well-designed spreadsheet.

Basic Spreadsheet Design Rules

- Design the spreadsheet on paper first.
- Test and edit your calculations.
- Keep the components of a calculation visible.
- Be aware of the "space" or "geography" of the spreadsheet.

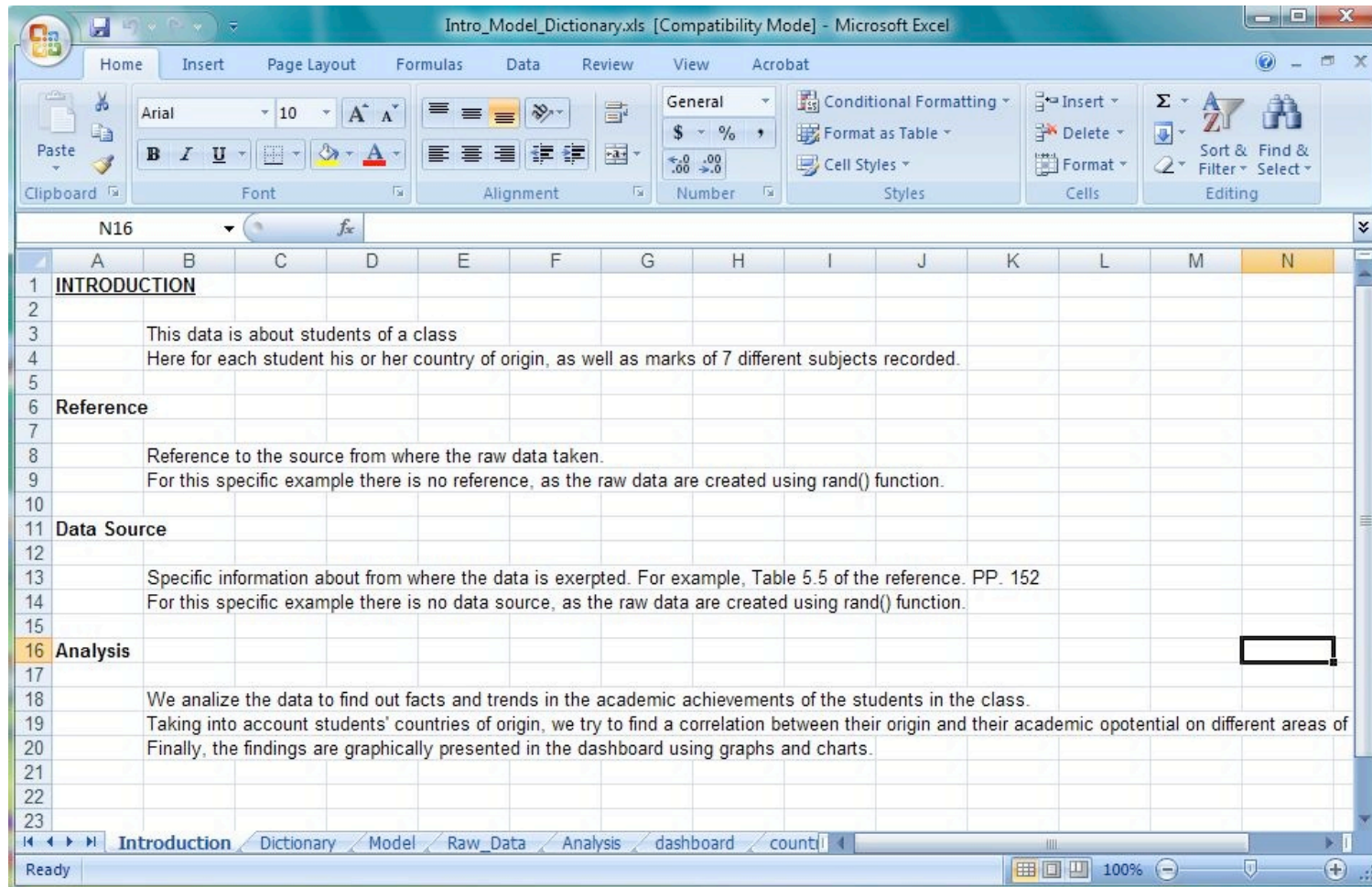
Components of a Well-designed Spreadsheet

- Introduction
- Model
- Data Dictionary
- Raw Data
- Calculated Data
- Presentation

Components of a Well-designed Spreadsheet: Introduction

- What is this spreadsheet or workbook about.
- Note the
 - Title
 - Purpose
 - Author
 - Creation
 - revision dates
 - etc.

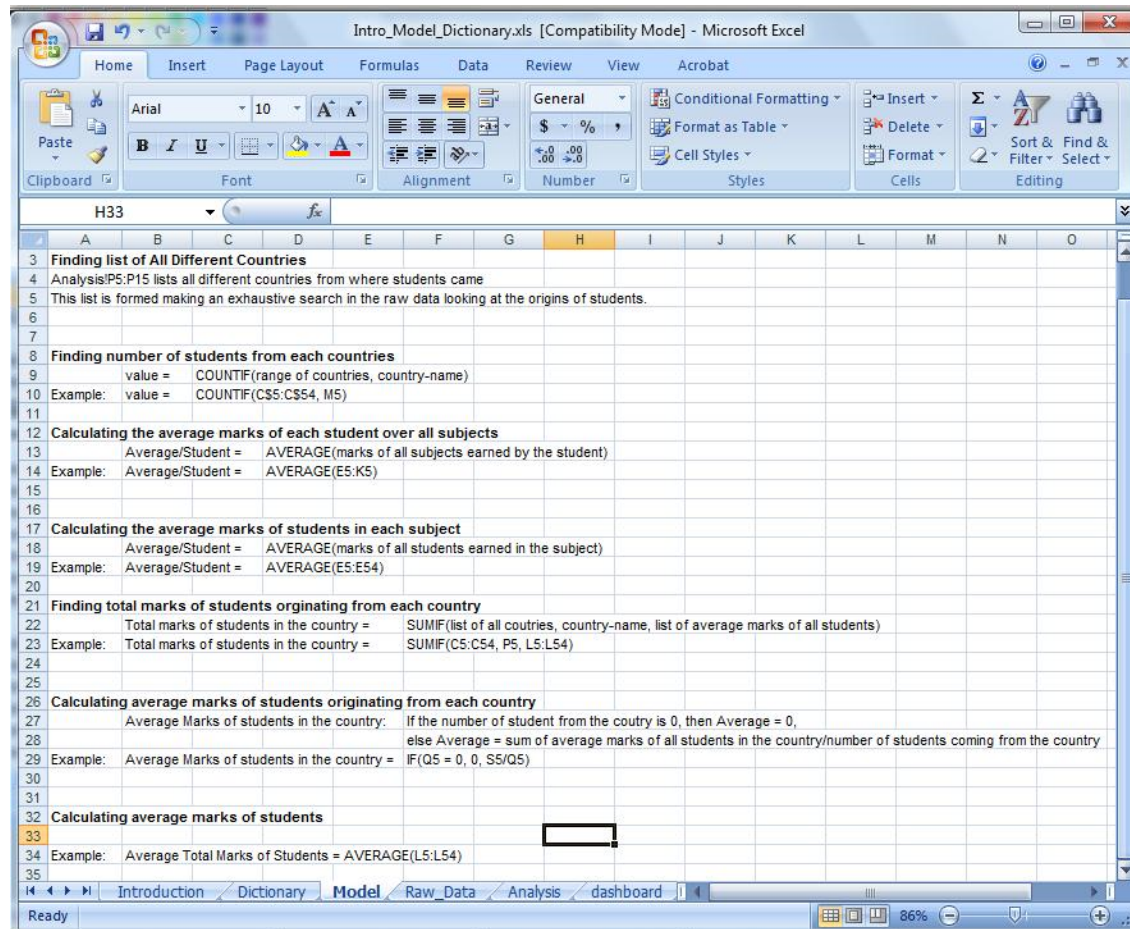
Components of a Well-designed Spreadsheet: Introduction



Components of a Well-designed Spreadsheet: Model

- Justify any models, summary statistics, or calculated variables you are using.

Components of a Well-designed Spreadsheet: Model



Components of a Well-designed Spreadsheet: Data Dictionary

- For every variable in the spreadsheet note its
 - **Location** (cell range)
 - **Name**
 - The **Data Class** it is (Raw Data, Statistical Summary, Calculated Variable, Score, etc.)
 - **Data Type** (e.g. Integer, Text, Currency, Date, etc.)
 - **Description** (a description of the data or what it's 'purpose' is).

Components of a Well-designed Spreadsheet: Data Dictionary

The screenshot shows a Microsoft Excel spreadsheet titled "Intro_Model_Dictionary.xls [Compatibility Mode] - Microsoft Excel". The spreadsheet is organized into a data dictionary with the following columns: Location, Name, Category, Data type, and Description. The data is as follows:

Location	Name	Category	Data type	Description
Raw_Data!B5:B54	Students	Raw data	Numbers	contains tudent's id number
Raw_Data!C5:C54	Origins	Raw data	Text	names of the countries of origin of the students
Raw_Data!E5:E54	English	Raw data	Numbers	students' mark in English
Raw_Data!F5:F54	Psychology	Raw data	Numbers	students' mark in Psychology
Raw_Data!G5:G54	Anthoropology	Raw data	Numbers	students' mark in Anthropology
Raw_Data!H5:H54	Geography	Raw data	Numbers	students' mark in Geography
Raw_Data!I5:I54	Math	Raw data	Numbers	students' mark in Math
Raw_Data!J5:J54	Physics	Raw data	Numbers	students' mark in Physics
Raw_Data!K5:K54	Chemistry	Raw data	Numbers	students' mark in Chemistry
Analysis!P5:P15	Countries	Calculated data	text	list of all different countries from where students came
Analysis!Q5:Q15	Number of students from each country	Calculated data	numbers	for each country how many students are in the class
Analysis!L5:L54	Average/Student	Calculated data	numbers	average marks of students over all subjects
Analysis!E55:K55	Average/Subject	Calculated data	numbers	each subject average marks of students across coutries
Analysis!S5:S15	Total marks of students in the coutry	Calculated data	numbers	sum of marks of all students in each country
Analysis!W5:W15	Average Marks of students in the country	Calculated data	numbers	average marks of students from each country

Components of a Well-designed Spreadsheet: Raw Data

- Present your raw data in tabular form -- with columns representing variables and rows representing cases.

Components of a Well-designed Spreadsheet: Raw Data

- Summary Statistics -- Usually Summary statistics result from calculations across rows for a single column.
- Derived variables are often based on calculations across columns for a row.

Components of a Well-designed Spreadsheet: Presentation

- May also be named “Dashboard”.
- Emphasize the final information you wish to show without excessive background details.
- Use charts wherever appropriate to summarize large volumes of data.

Components of a Well-designed Spreadsheet: Presentation

