

Index of 1-P (slightly revised on front page)

Page	Title
1	Practical information
2	Where is ...
3	Basics of Minitab
4	Hints on settings and practices
5	Calculations and data manipulations
6	Notes for Meet Minitab tutorial

NETWORK BASICS

- access: log in to computer with your usual UPEI id and password,
- storage: in your personal directory on computer (My Documents, etc.) and on Personal (P:) drive (accessible from logins at other computers; note: most students do not have a P: drive!),
- printing: usually not needed here (maybe possible),
- file transfer: use P:, flash drive/memory stick, e-mail attachment or cloud drive (e.g. Google docs, Dropbox).

PRACTICAL INFORMATION

Outline of lab session:

- review boxplot and numerical summaries: percentiles, standard deviation (pages 1L–19,20,21),
- introduction to Minitab software,
- individual work on the exercises.

Today's exercises:

- Meet Minitab (version 13), Chapter 8 (tutorial) + 1: 1,10,16,42,72; x:1; 1:65,51 (1:22,77; x:2),
- note suggested order; exercises in parenthesis are optional (maybe check if they seem to be useful for you).

Notes and questions for specific exercises:

- Meet Minitab: see slide 1P–6 for notes on tutorial,
- 1.10, 1.16, 1.42, . . .: numbers refer to Supplementary Exercises for IPS7e, accessible at homepage (below schedule table),
- x.1, x.2: extra exercises (at Solutions. . . webpage),
- x.1: use statistical applet (link to applets at course homepage, below schedule table),
- 1.10, 1.16, 1.42, 1.51: data files `ex01_010`, `ex01_016`, etc. are available at Solutions. . . webpage, in Minitab (`.mtw`) and `.csv` formats.

WHERE IS . . .

- Course homepage: people.upei.ca/hstryhn/vhm801 (Google “vhm801”),
- Software:
 - Minitab, version 17: via Start–Programs menu,
 - Stata, version 13: can be started from `G:\Stata13`; better to use version 13/14/15 on own laptop,
 - R, version 3.4.0: via Start–Programs menu,
- Exercise problems:
 - * standard (e.g. 1.16): in file containing Supplementary Exercises for IPS7e, accessible at homepage (below schedule table and at Solutions. . . webpage),
 - * extra (e.g. x:1): at Solutions. . . webpage,
- Exercise datasets:
at Solutions. . . webpage, both in Minitab (.mtw) and .csv formats, also in a combined .zip file,
- Exercise solutions (except a few optional exercises):
at Solutions. . . webpage,
- extra Minitab stuff — user guides and 30-day trial versions:
 - * latest version (18): online at www.minitab.com,
 - * older versions (15–17): in Moodle folder.

BASICS OF MINITAB

- contains an interactive, menu-based user interface and a simple high-level programming language,
- data represented as worksheets
 - ordinary worksheets with rows \sim observations (“individuals”) and columns $c_1, c_2 \dots \sim$ variables,
 - “constants” k_1, k_2, \dots (plain numbers/variables),
 - matrices (we won’t use these).
- data input: use **File-Open Worksheet** menu to import Minitab worksheets (*.mtw), comma-separated files (*.csv) and other standard file formats,
- key windows:
 - worksheet window (Ctrl-D): data,
 - session window (Ctrl-M): results and commands,
- other sometimes useful windows:
 - project manager window (Ctrl-I): worksheet summary, constants and matrices, plus access to history (previous commands executed), graphs etc.,
 - command line editor (Ctrl-L): manual entry of commands (also in session window, if enabled),
- help: lots!! (menu-specific, tutorials, StatGuide...)
- save work as *project files* (*.mpj) or save separate windows (worksheet \rightarrow *.mtw, session window \rightarrow *.txt).

HINTS ON SETTINGS AND PRACTICES

Settings:

- session window settings (menu **Editor**):
Output editable and
Enable commands (to get commands printed and enable commands in the session window),
- maybe make project visible,
- maybe remove toolbars: **Worksheet**, **Graph editing**, **Graph annotation**,
- save your settings using **Tools-Options-Window Layout**.

Documenting your work:

- natural places to write comments about your analysis are in the session window (provided it is editable) or the ReportPad window (accessible from the Project window), see Minitab tutorial for details,
- avoid too much editing in the worksheet, because the changes you make are
 - i) undocumented,
 - ii) risky (you may make errors without noticing),instead use menus and commands to achieve your aims.
- you can list data in the session window using **Data-Display Data**.

CALCULATIONS AND DATA MANIPULATIONS

Calculator (Calc-Calculator):

- a powerful calculator with lots of built-in functions,
- works both on columns and constants,
- if you want to store a result in a constant with a name, use first k1 (or k2...) and rename it in the command (session) window as follows: `name k1 'myname'`.

Generating patterned columns

(Calc-Make Patterned Data):

- very often you'll need to generate columns with a pattern, e.g. row numbers,
- several easy-to-use variants, try them and see the result!

Manipulating columns (Data menu):

- to copy and delete columns,
- to sort columns (all or some — be careful not to mess up the worksheet!),
- to stack or unstack columns (very useful for reshaping the data):
 - * stack: put one column after another one,
 - * unstack: split a column into several columns.

NOTES FOR MEET MINITAB TUTORIAL

Changes and recommendations when going through Steps 1–13 of the tutorial using Minitab version 17:

- (2): Minitab data file under “Extra” (at Solutions... webpage),
- (3): you may go to Step 7 first, and tick “Assign as a formula” before OK’ing the calculation, (then you’ll get a demonstration of how the formula works when you type in further data in Step 3),
- (5): save in your personal directory (on m-drive, or memory stick),
- (7): use the “hat” symbol (e.g. $\hat{2}$) instead of “**” for powers,
- (8): use **Graph-Scatterplot-Simple** menu,
- (10): this is a demonstration of how to use the Session window to document the analysis — it is recommended to remove redundant parts of the session window after finishing the analysis; alternative methods:
 - * ReportPad window: allows to include both text (copied from session window or typed in) and graphs (right-click on active graph),
 - * copy/paste to Word: same advantages as Report-Pad window but creates an extra file,
- (11): skip the printing.