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NETWORK BASICS

- access: log in to computer with your usual UPEI id and password,
- storage: in your personal directory on computer (My Documents, etc.), but may not remain on computer after logout!!,
- printing: usually not needed here (maybe possible),
- file transfer: use flash drive/memory stick, e-mail attachment or cloud drive (e.g. Google docs (docs.google.com), log in via UPEI platform); Dropbox).

PRACTICAL INFORMATION

Outline of lab session:

- review boxplot and numerical summaries: mean/median, percentiles, standard deviation (pages 1L–17,18,19,20,21),
- 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”), and go to 2018 Winter Semester,
- Software:
 - Minitab, version 18: via Programs menu,
 - Stata, version 13: can be started from `G:\Stata13`; better to use version 13/14/15 on own laptop,
 - R, version 3.5.0: via 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** menu to import Minitab worksheets (*.mtw) and projects (*.mpj) 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).

HINTS ON SETTINGS AND PRACTICES

Settings:

- session window settings (menu `Editor`):
`Show command line`, to get commands displayed beside 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 (`Add Note` in menu) or the ReportPad window (accessible from the `Project window`) or an external file, 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. $\wedge 2$) 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 — this works differently in Minitab 18; alternative methods:
 - * ReportPad window: allows to include both text (copied from session window or typed in) and graphs (right-click on active graph),
 - * send to Word/PowerPoint from Menu in Session window: same advantages as ReportPad window but creates an extra file,
- (11): skip the printing.