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NETWORK BASICS

- access: log in to computer with your usual UPEI id and password,
- storage: in your personal directory on the computer (Documents or P: drive), but beware that files 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. Dropbox or Google Drive, log in via myUPEI platform)).

PRACTICAL INFORMATION

Outline of lab session:

- introduction to Minitab software,
- demonstration of descriptive statistics (graphics and numerical summaries) from the lecture, briefly reviewing measures of spread and outliers (pages 1L–15/17),
- individual work on the exercises.

Today's exercises:

- Meet Minitab (version 13): Chapter 8 (tutorial) + 1:1,10,16,42,72; x:1; 1:51,77 (1:22,65; x:2; AI:1,2),
- note suggested order; exercises in parenthesis are optional (maybe check if they seem to be useful for you),
- summary worksheets (for lab review): S.2:1; S.3:2.

Notes and questions for specific exercises:

- Meet Minitab: see slide 1P–5 for notes on tutorial,
- 1.10, 1.16, 1.42, . . .: numbers refer to Supplementary Exercises for IPS7e, accessible in schedule table,
- x.1, AI.1, . . .: extra exercises (at Exercises. . . webpage),
- x.1: use statistical applet (link to the applets at course homepage, below schedule table),
- 1.10, 1.16, 1.42, 1.51: data files `ex01_010`, `ex01_016`, etc. at Exercises. . . webpage, in Minitab (`mtw`) and `csv` formats.

WHERE IS ...

- Course homepage: stryhnstatistics.ca/vhm801,
- Software:
 - Minitab, version 22.3: via Start menu (Start button); activate license through UPEI Sign-On,
 - Stata : you need to use your own laptop,
 - R, version 4.4.3 and RStudio: via Start menu,
- Exercise problems:
 - * standard (e.g. 1.16): in file containing Supplementary Exercises for IPS7e, accessible directly in schedule table and at Exercises...webpage),
 - * extra (e.g. x:1 or AI:1): at Exercises...webpage,
- Exercise datasets:
at Exercises...webpage, both in Minitab (.mtw) and .csv formats, also in a combined .zip file,
- Exercise solutions: at Exercises...webpage,
- Summary worksheets from Stevens text: at Moodle site, both the text and solutions,
- more Minitab...:
 - * various user guides: in Minitab folder at Moodle site,
 - * download Minitab to own computer,¹
 - * problems? → ITSS, especially for Minitab on a Mac.

¹ Get installer from: <https://licensing.minitab.com> & Downloads, using UPEI Sign-On.

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 ($*.mwx, *.mtw$) and projects ($*.mpx, *.mpj$) and other standard file formats,
- key windows:
 - worksheet window(s) (Ctrl-D): the data,
 - output (Ctrl-M) window, and Navigator: results,
- other sometimes useful windows (enabled in **View** menu):
 - command line: for manual entry and run of commands,
 - history: displays past commands, allows copy to command line window,
- help: menu-specific/general through browser, also “Assistant” (feel free to explore),
- save work as project files ($*.mpx$), worksheets ($*.mwx$), or parts of output window (right-click to bring up menu).

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.

You can list data in the session window (Data-Display Data).

NOTES FOR MEET MINITAB TUTORIAL

Changes and recommendations when going through Steps 1–13 of the tutorial using Minitab versions 19–21:

- (2): the project manager no longer exists in Minitab 19; find the data file under “Extra” (at Exercises... 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 or on memory stick,
- (6): the default output includes the number of missing observations (N^*), but not the trimmed mean; again, the reference to the project manager is obsolete,
- (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 works differently in Minitab 19–21; alternative method:
 - * send to Word/PowerPoint from the menus that appear when you right-click within the Output window: for each element of the window separately,
- (11): skip the printing; also, the entire Output window can no longer be accessed.