Macro Analysis II: Recitation 1

January 20, 2020

Roadmap for today

- Setting up MATLAB
- Intro to MATLAB programming
- General recommendations

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  1. Intuitive (no complicated 'types', declaring, pointers, etc)
  2. Very fast linear algebra
  3. Good optimization tools
  4. "Industry standard" for computational economics

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  2. Very fast linear algebra
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- Cons:
  1. Closed source
  2. Expensive
     - However: you can use Columba Econ license (walk-through next slide)
     - Also, open source alternatives: Scilab, Octave, Julia
  3. Not popular outside academia

MATLAB

Obtaining it

- Click here to active Columbia license: `https://www.mathworks.com/licensecenter/total_headcount/19313-53004-70961-65618-81123?s_tid=tah_po_start_columbia`

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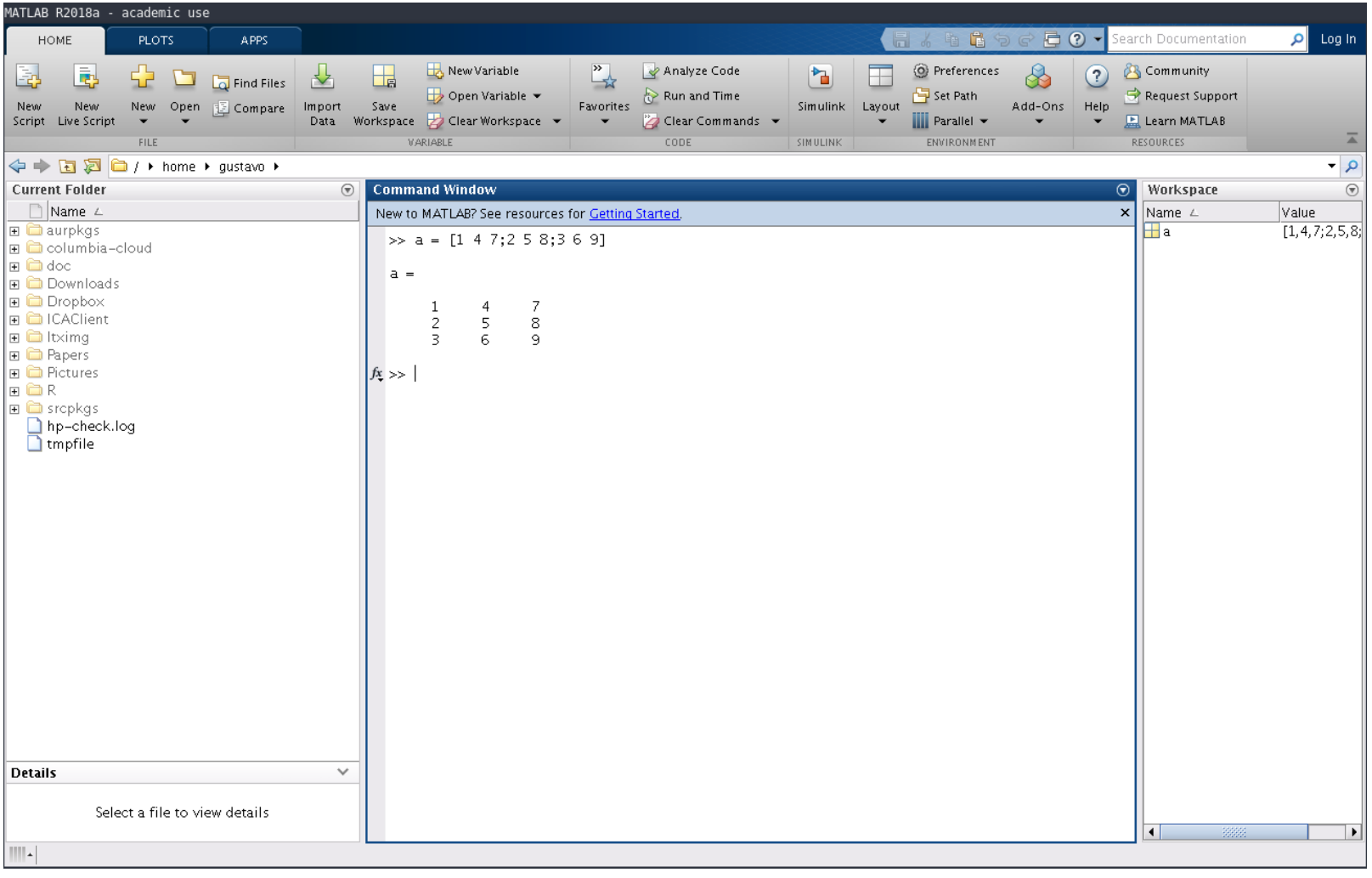
     - Meaning: store the matrix

$$\begin{bmatrix} 1 & 4 & 7 \\ 2 & 5 & 8 \\ 3 & 6 & 9 \end{bmatrix}$$

     in the memory as a variable `M`

Interface: main



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  2. You can (and *should*) write "scripts" (called *m files*)
     - Essentially, a list of commands to be run by the interpreter

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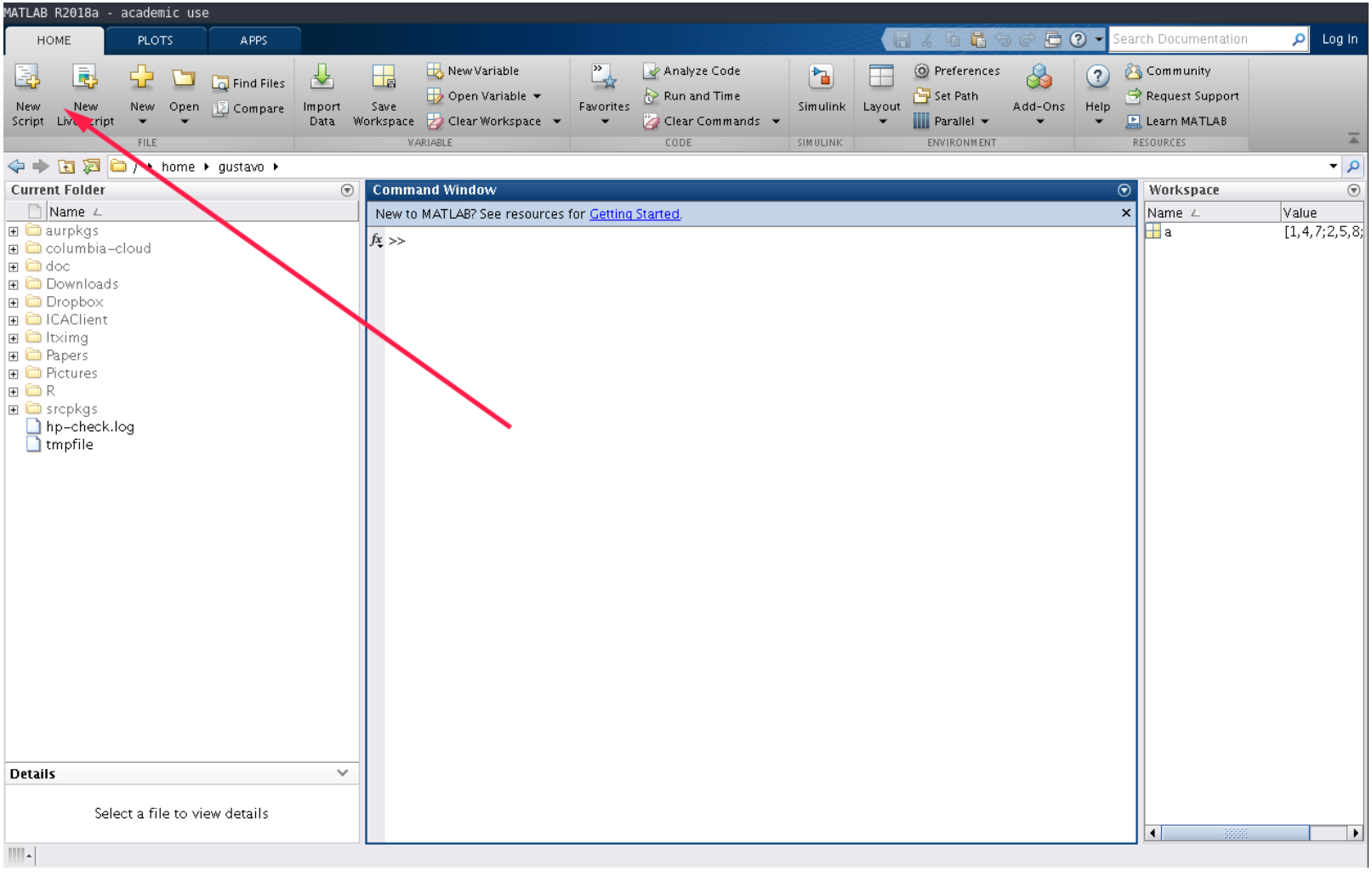

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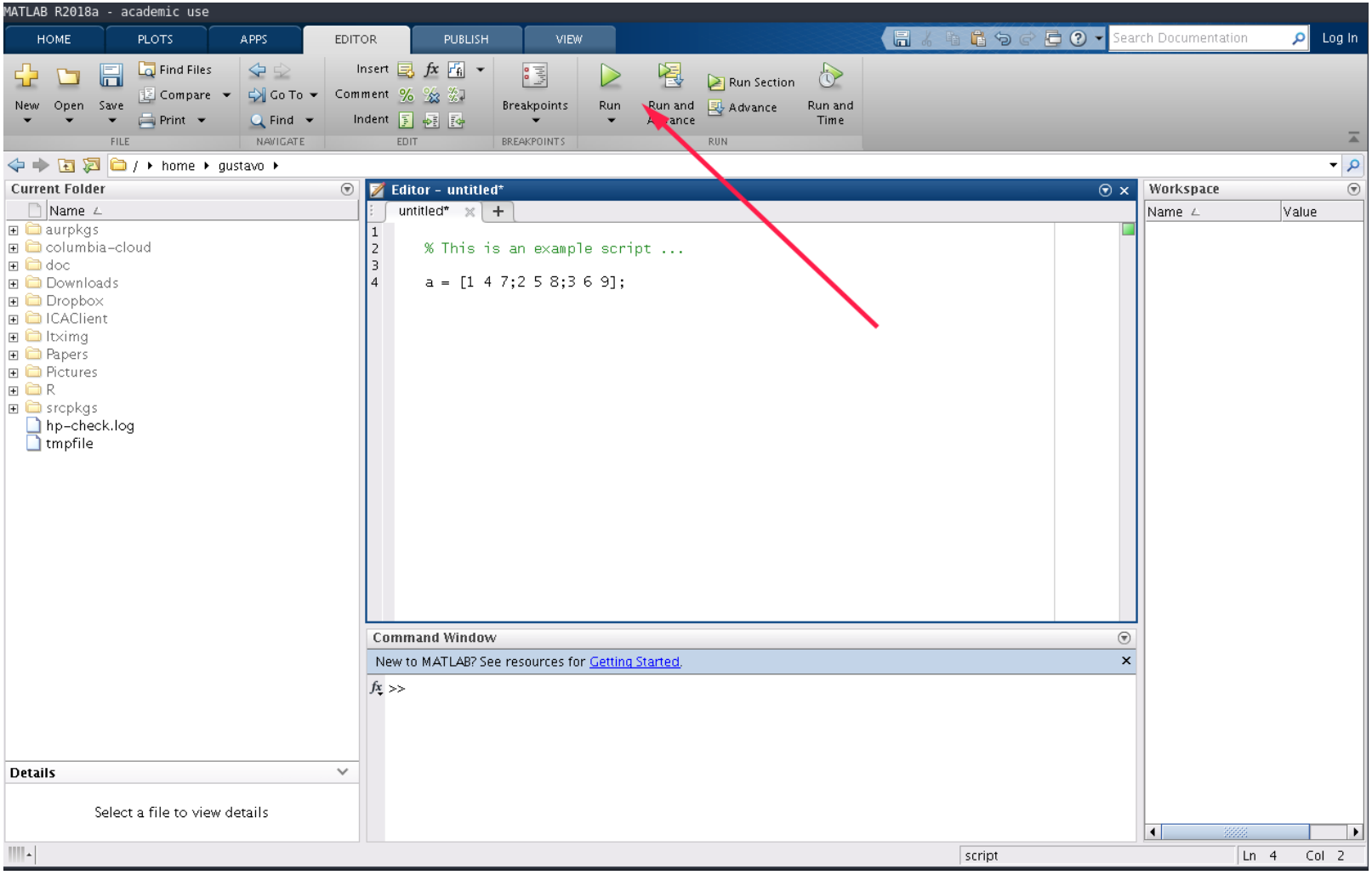

Intro to MATLAB programming: example

Suppose you're programming something and you run into the following problem.

Problem

You have some matrix A and need two numbers:

1. The mean of all elements in the matrix
2. The mean of all elements except for the diagonal ones

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- See now `$repo_path/Codes/Recitation1/goodcode.m`

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  - Avoid using global variables: pass parameters as arguments to functions

Other software advice

- Have a decent text editor/IDE that integrates well with your favorite programming languages
  - Idea: efficient text editing leaves you more time to think
  - Problem: possibly steep learning curve
  - Suggestions: Atom, Sublime Text, VScode, Vim, Emacs, etc..

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- If you do lots of coding (or Stata) adopt version control ASAP (esp. if co-authoring)
  - Recommended: git