THE UNIVERSITY OF ALABAMA IN HUNTSVILLE

ENG 101
Programming/Debugging

Dr. Emil Jovanov
Electrical and Computer Engineering
University of Alabama in Huntsville
emil.jovanov@uah.edu
http://www.ece.uah.edu/~jovanov

DEBUG a MATLAB program

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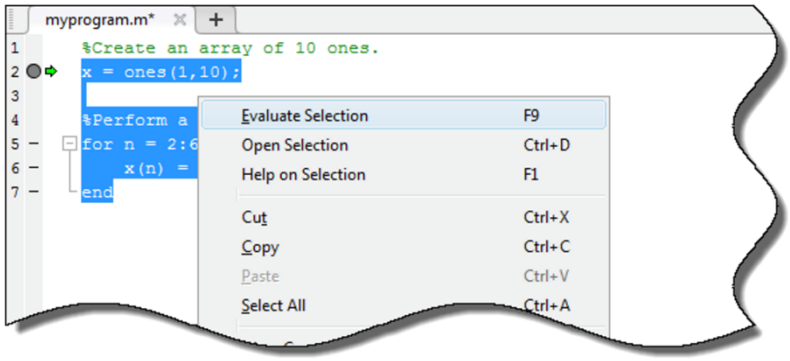
- Program rarely work as intended ☺
- Develop your debugging practices
- Test your functions in extreme conditions

- Command line or graphical debugging
- Set Breakpoints
- Run/Pause/Examine

Evaluate Selections



Debugging

Description	Toolbar Button	Function Alternative
Continue execution of file until the line where the cursor is positioned. Also available on the context menu.	**Run to Cursor**	None
Execute the current line of the file.	**Step**	`dbstep`
Execute the current line of the file and, if the line is a call to another function, step into that function.	**Step In**	`dbstep` in
Resume execution of file until completion or until another breakpoint is encountered.	**Continue**	`dbcont`
After stepping in, run the rest of the called function or local function, leave the called function, and pause.	**Step Out**	`dbstep` out
Pause debug mode.	**Pause**	None
Exit debug mode.	**Quit Debugging**	`dbquit`

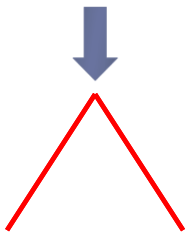
Local/Global variables

- Each function file has its own local variables, which are not shared with other functions or with the workspace of the Command Window
- It is possible to make a variable common (recognized) in several different function files, and perhaps in the workspace too. Global command:
  - global variable_name
- Several variables can be declared global by listing them, separated with spaces, in the global command.

  global GRAVITY_CONST FrictionCoefficient
- The variable has to be declared global in every function file that the user wants it to be recognized in. The variable is then common only to these files.
- Enter the global command at the top of the file.
- The variable can be assigned, or reassigned, a value in any of the locations in which it is declared common.
- The use of long descriptive names (or all capital letters) is recommended for global variables in order to distinguish them from regular variables.

Finding local minimums/maximums

- Maximum has derivative > 0 before the maximum and <0 after



Practice

- Download file rsig.mat from Canvas.
- Find all peaks with amplitude over 0.55.
- How many peaks did you find?

Sorting

- Ordering of datasets (vectors)
- The first step:
  - Getting local minimums/maximums in the right place
- Repeat
- … or getting neighbors in place

- Example: bubblesort