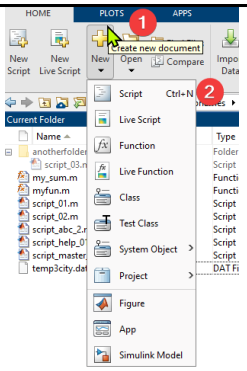
KU LEUVEN

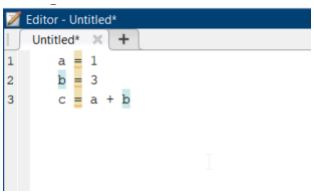
MATLAB

Live editor

Editor



- Plain editor to write your m-files
- Enter your Matlab commands in the editor
- Save the file with well-chosen name (extension .m)
- Execute the script by typing the name in the command window

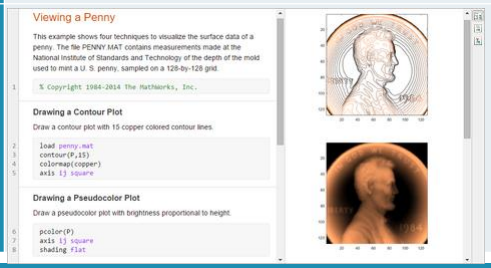
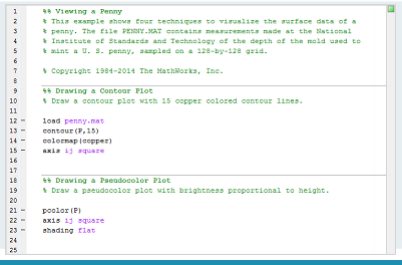


Live Editor according to The MathWorks

The **Live Editor** *(notebook)* provides a way to develop code for *exploratory programming*, to create an *interactive narrative*, and to present or teach. In particular, the Live Editor allows you to:

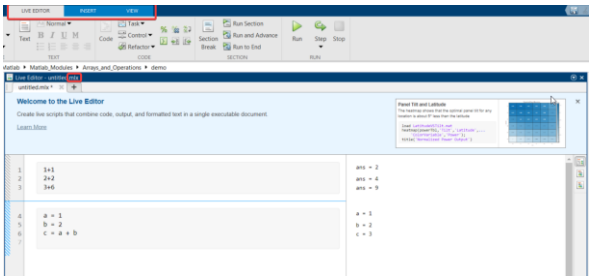
- Choose between inline output and output on the right
- Zoom, pan, and rotate plots and get the generated code
- Format text interactively rather than through markdown, as well as writing in markdown
- Create equations using LaTeX or through an interactive equation editor
- Use functions hints, tab completion, and code analysis tools
- https://nl.mathworks.com/matlabcentral/answers/409445-live-script-versus-jupyter-notebook

Differences with Plain Code

	Live Scripts and Functions	Plain Code Scripts and Functions
File Format	Live Code file format	Plain Text file format
File Extension	.mlx	.m
Output Display	With code in the Live Editor	In Command Window
Text Formatting	Add and view formatted text in the Live Editor	Use publishing markup to add formatted text, publish to view
Visual Representation		

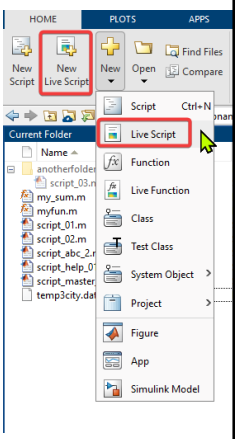
Live Editor

- See your results together with the code that produced them.
- Add equations, images, hyperlinks, and formatted text to enhance your narrative.
- Share with others as interactive documents.
- `.mlx` files
  - Proprietary format

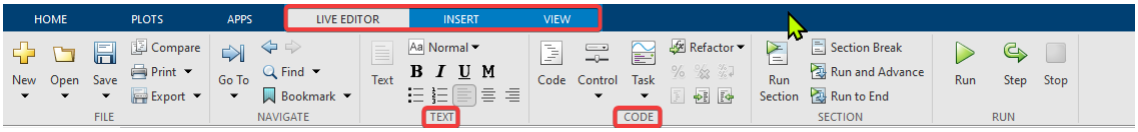


Open Live Script

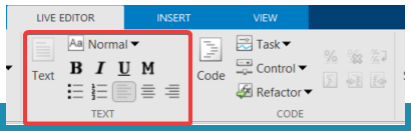
- Multiple ways to create a new live script:
  - On the Home tab, in the New drop-down menu, select **Live Script** .
  - Highlight commands from the Command History, right-click, and select Create Live Script.
  - Use the edit function. To ensure that a live script is created, specify a **.mlx** extension.
- Open Existing Script as Live Script

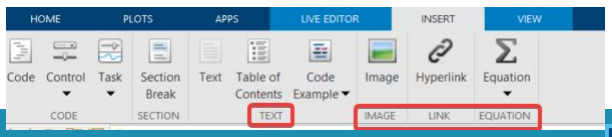


Live Editor



- Text/Code
  - Text can be either Code or regular Text (select from menu)
  - Text can be split in sections (Section Break)
- Text
  - Can be structured
  - Check also the Insert Tab





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Executing a Live Script

- Execute sections
  - by clicking in the vertical striped bar on the left
  - `ctrl+enter`
- Use Run menu
  - Step through the code line-by-line
  - Run the whole script
  - Use section breaks
- Step through the code with Step (F10)

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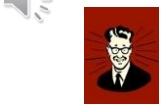
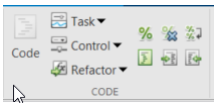
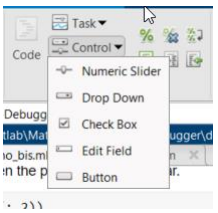
Live Editor: controls



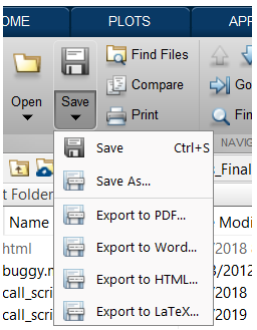
- Code can be made interactive with control buttons
  - Numeric Slider
    - Select a value and insert Numeric Slider
    - Double click to change the settings
  - Dropdown
    - Create a list of values
  - Check Box
    - Check a logical value
  - Edit Field
    - Free editing field
  - Button
    - Run code on button click
- *File: mlx_control.mlx*
- *File: lotkademo_bis.mlx*





Live editor

- Clear execution results
  - From View menu
  - Right click on Live Editor
- Publish a live script
  - Export in a specific document format
- *File: plot_random_data.mlx*
- *See also: https://nl.mathworks.com/matlabcentral/answers/329935-jupyter-notebook-vs-live-scripts*



Live Editor: tasks

- ***Live Editor Tasks*** are apps to embed in your live script that allow you to interactively complete steps in your workflow.
- https://blogs.mathworks.com/loren/2019/10/24/introducing-live-editor-tasks/
- https://www.mathworks.com/products/matlab/live-script-gallery.html
- *File: mlx_tasks_simple.mlx*
- *File: NatickTemperatures.mlx*

Demo / recap

- *File: my_first_live_script.mlx*
- *File: lotkademo.mlx*
  - Example of the Predator-Prey model
  - mlx contains text and code blocks
  - When executing the different sections (`ctrl+enter`), the results are also shown in the live editor environment