ENHANCING MATLAB PROGRAMS USING JAVA

COURSE OUTLINE

1. Introduction to using Java in Matlab
   a. Introductory overview of Java
   b. Using Java in Matlab
   c. Java/Matlab version compatibility
   d. Installing a different Java engine in Matlab
   e. Debugging Java code in Matlab
   f. Static vs. dynamic classpath
   g. JVM meta-files
   h. Using Java collection classes

2. Using Java with Matlab GUI
   a. Matlab and Java Swing
   b. Integrating Java controls
   c. Compatibility aspects and trade-offs
   d. Safe programming with Java in Matlab
   e. Java’s Event Dispatch Thread and Matlab
   f. Containers & position – Matlab vs. Java
   g. Monitoring memory & CPU utilization
   h. Setting GUI Look-and-Feel
   i. Customizing uitools:uitable, uitree, uitab
   j. Using built-in Matlab controls/widgets
   k. Using JIDE
   l. Integrating 3rd-party Java GUI components: charts/graphs/widgets/reports

3. Advanced Matlab-Java GUI
   a. Using HTML
   b. Updating existing Matlab uicontrols
   c. Figure menu customization
   d. Figure toolbar customization
   e. Figure-level customization
   f. Handling Java events as Matlab callbacks
   g. Listening to property-change events
   h. Deployment issues

Summary
A 1 or 2-day advanced Matlab course.
You will learn how to:
- use Java components and code from within Matlab
- use Java containers for storing data in appropriate data structures
- customize figure toolbar & main menu
- make a figure disabled, blurred, transparent, minimized or maximized
- use HTML for improved GUI control visualization
- integrate third-party Java components in Matlab GUI
- customize standard Matlab GUI with Java
- create a modern-looking professional GUI in Matlab

In the 2-day course, the topics will be expanded and a sample program will be analysed as a classroom exercise project.

Target audience
Matlab users with experience using Matlab graphics and GUI, who wish to improve their program’s quality, appearance and usability; Matlab users who wish to sell professional-looking Matlab-based software GUI.

Familiarity with Matlab GUI is assumed. Familiarity with Java is NOT required.

4. Where next? – topics and resources for further learning

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