MATLAB App Development

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You will learn…

- A proven pattern for breaking down an app into components
- How components communicate using properties, methods and events
- Numerous implementation tips
I will demonstrate…

- Adding functionality to an app with little disruption to the existing code
- Creating a new, similar app without cutting-and-pasting large amounts of code
Model-view-controller pattern
HeartRateHistogramView

Model

StripChartView

MapView

Player

Event notification

Property access, method call
Coupling: the degree to which modules depend on each other

Disadvantages of strongly coupled systems:

- A change in one module usually forces a ripple effect of changes in other modules.
- Assembly of modules might require more effort and/or time due to the increased inter-module dependency.

http://en.wikipedia.org/wiki/Coupling_(computer_programming)
Cohesion: the degree to which elements belong together

Advantages of highly cohesive systems:

- Increased understanding of modules (they are simpler, having fewer operations).
- Increased ease in maintaining a system, because logical changes in the domain affect fewer modules, and because changes in one module require fewer changes in other modules.
- Increased ease in reusing a module, because application developers will find the component they need more easily among the cohesive set of operations provided by the module.

http://en.wikipedia.org/wiki/Cohesion_(computer_science)
Demonstration:

Model and views
App component types

- Model
  - Owns the application data and state
  - Exposes properties and methods
  - Raises events

- View
  - Calls model methods
  - Gets and sets model properties
  - Listens for model events

- App
  - Creates the model and views
Demonstration:

Creating a view
Demonstration:

Adding a view to an app
Demonstration:

Creating an app
Recap

- Built an app from components using the model-view-controller pattern
- Added functionality with little disruption to the existing code
- Created a new app rapidly by reusing existing components
Thank you.

Questions?